Financial incentive schemes in a TQM environment:

A case study in a world class organisation.

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Abstract

Whether or not financial incentive schemes help organisations to reach their objectives is an old debate. During the last few decades, the modern management schools -Total Quality Management (TQM) and new manufacturing techniques- added extra pressure on financial incentive schemes by claiming that such schemes don't fit in a modern management environment and that they can have a destructive influence on organisations.

Although the advocates of TQM and modern manufacturing management techniques have different views concerning financial incentive schemes, generally speaking, they don't believe that these schemes help modern organisations to reach their objectives. Some of these advocates see that financial incentive schemes motivate employees to focus on quantity and ignore quality. Others see that although those schemes can help to achieve progress, that progress is at the expense of the intrinsic rewards that organisations should promote. Other TQM advocates believe that these schemes do not help because effective and efficient systems rather than individuals are the main factor that determines the progress of organisations. This category believes that it makes more sense to improve the systems and procedures rather than to use financial incentive schemes to motivate employees to reach the organisations' targets.

The purpose of this research project was to answer the question as to whether a compromise between TQM and financial incentive schemes could be achieved to make the best use of both approaches. To answer this question an organisation with a strong TQM environment was identified and a financial incentive scheme was designed and implemented in that organisation with the help of a design team from the same organisation. The scheme covered five main areas of interest to the organisation namely: product and process quality, manufacturing management, environmental compliance, safety compliance and cost effectiveness. From several key performance indicators (KPIs) used by the organisation in these five areas only those under the direct control of employees were used in this research project. Samples of employees from the departments covered by the incentive scheme were consulted all through the different stages of the development of the incentive scheme.

A comprehensive communication plan was undertaken to ensure that the structure and principles of the incentive scheme were clearly communicated to all employees.

The results of installing the financial incentive scheme were then analysed to study the effect of implementing that scheme on the organisational performance and on the TQM environment and particularly on some specific TQM attributes. The analysis of those results showed that the incentive scheme achieved a considerable improvement in almost all of the areas covered by the scheme. The analysis showed no evidence of any adverse effect on the TQM environment as a result of installing the incentive scheme. In fact it was concluded that the TQM environment assisted the implementation of the financial incentive scheme.

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ABSTRACT

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1 Introduction

1.1 Problem statement

Financial incentive schemes and whether or not they help organisations to reach their objectives is an old debate. During the last few decades, the modern management schools -Total Quality Management (TQM) and new manufacturing techniques- added extra pressure on financial incentive schemes.

Although the advocates of TQM and modern manufacturing techniques have different views concerning financial incentive schemes, generally speaking, they don't believe that these schemes help modern organisations to reach their objectives.
Some of these advocates see that financial incentive schemes motivate employees to ignore quality while focusing on quantity (mainly in respect of schemes based on productivity). Others see that although those schemes can help achieve progress, this progress is at the expense of the intrinsic rewards that organisations should promote. Other TQM advocates believe these schemes don't help because the system rather than people is the main factor that determines the organisations' progress. This category believes that it makes more sense to improve the systems and procedures rather than to use financial incentive schemes to motivate employees to reach the organisations' targets.

On the other hand, there are still many advocates for incentive schemes who believe in the influence of such motivators on organisations' performance.
William, Lissy E. [1], in her paper "Currents in compensation and benefits" explores a study done by consulting firm Sibson & Company's. According to this study, "Individual and broad-based incentive pay and the attendant performance systems are proven--and significant--change agents for American businesses. These powerful business practices are fundamental to our success. Let's not throw out the proverbial human resource system baby with the bath water because it does not yet support the new ways of quality management".

In between these two extreme points of view exists a substantial group of managers who operate in a TQM environment and adopt modern management techniques but, in the same time, still believe in incentive schemes as an efficient tool that could help improve the performance of their organisations. These managers are confused between these two extreme points of view and find it difficult to decide whether or not installing a financial incentive scheme can fit in their TQM environment.

1.2 Purpose of the research

The purpose of this research was to study the possibility of having a financial incentive scheme that can improve the performance of factory staff in a TQM environment without compromising the main TQM attributes. A financial incentive scheme was designed and implemented and some key performance indicators were used to judge the effect of that scheme on the performance of the factory employees in the following areas:

- Materials utilisation
- Product and process quality
- Safety records
- Environmental records
- Manufacturing management (in term of delivering the volumes needed by customers -retailers- on time).

The scheme covered shop floor employees in the following departments: Operational, Engineering, Stores and Canteen. The total number of employees covered under the scheme was 280. Details of the structure and environment of the organisation, which was the subject of this research, are discussed in chapter five.

In the following chapters a review of the literature was undertaken to cover the subjects of motivation, incentive schemes, TQM and the relation between TQM and incentive schemes. The methodology used in this research project is then discussed followed by the results of the research project, the discussion of the results, the conclusion and finally the recommendations for future research work.

2 Motivation theories

As mentioned in the previous chapter, the TQM advocates are against the incentive schemes and argue that they can not fit within the TQM environment and modern manufacturing techniques. On the other hand, the advocates of the incentive schemes defend strongly those schemes saying that they worked and showed great success in many organisations. Regardless of which point of view they support, all agree firstly on the necessity of having a well-motivated workforce and secondly on some general concepts of performance management. In this chapter a brief review of the main motivational theories is presented with an emphasis on motivation in the workplace and some general concepts of performance management are discussed.

2.1 Motivation

In the Oxford English Dictionary, motivation has the following generic definition: "The conscious or unconscious stimulus for action towards a desired goal provided by psychological or social factors; that which gives purpose or direction to Behaviour."
From a business perspective, Schermerhorn in his book "Management for Productivity" gives this definition for motivation: "Forces within the individual that account for the level, direction, and persistence of effort expended at work." [2]

Armstrong defines motivation as following: " Motivation is about what causes people to act or behave in certain ways. The study of motivation is concerned with what determines behaviour and directs it towards goals". [3] Armstrong also uses M.R. Jones's words about motivation: " How behaviour gets started, is energised, is sustained, is directed, is stopped, and what sort of subjective reaction is present in the organisation while all this is going on." [3]

2.2 Motivation theories

Motivation theories are usually divided into two main groups. The first is content theories of motivation and the second is process theories of motivation. In addition to these two main groups, there exists the reinforcement theory that doesn't match with either group. In the following section the features of each of the two groups of theories are discussed and examples of those theories are presented. In the end of this

chapter the reinforcement theory is discussed and the reason behind having it in a separate category of its own is presented.

2.2.1 Content theories of motivation

Content theories consider motivation as a force driven by internal needs within the human being that drives him or her to act in certain ways to satisfy those needs. Those needs could be physiological or psychological. In the following sections a brief review of the four well-known content theories are presented namely: Maslow's, Alderfer's, Herzberg's & McClelland's.

2.2.1.1 Maslow's hierarchy of needs

Maslow's theory classifies human needs into five levels divided into two main categories: Deficiency needs and growth needs. The first category "deficiency" includes physiological, safety and social needs and affiliation. The second category "growth" includes esteem and self-actualisation. According to Maslow, human being needs pass from one level to the other in the same order listed earlier. Bernard and Pick [4] explain that Maslow's theory states that once a certain level of needs is satisfied, it has no motivational effect any more and then the next highest level of needs becomes dominant. Steers, Porter and Bigley [5] explain that Maslow sees that satisfying the needs of the first category is the minimum to ensure having a "healthy personality" while the needs in the second category are related to the "one's potential".

Although Maslow's theory is one of the most accepted and well known amongst needs theories, Steers, Porter and Bigley [5] argued that there are three main aspects of this theory that were not supported by reliable evidence. The first is that no clear evidence was found that indicates that human needs are classified into five "distinct" categories and that those categories are in a hierarchical order. The second is that there is no clear evidence that when the individual has a certain unsatisfied need, this need will be the only one the individual will focus on. The third aspect to be questioned by several researches is that satisfying a certain need will necessarily activate the need in the next higher level. Although Steers, Porter and Bigley [5] questioned those aspects in Maslow's theory, they still see this theory as being "useful in generating ideas

about the fundamental nature of human motives". Seath [6] gives an example of the implications of this theory in the work place saying that a manager should expect that team working techniques, which should satisfy the social need, are unlikely to motivate an employee who has an unsatisfied safety need, for example by being underpaid.

Maslow's theory is one of the oldest to explain human needs and link them with motivation and although the theory wasn't developed particularly for use by organisations it is still the most widely known and accepted, particularly by managers in the work place.

2.2.1.2 Alderfer's theory (ERG)

Alderfer's theory classifies human needs into three categories: Existence, relatedness and growth. Schermerhorn [2] considers Alderfer's theory as an extension and refinement of Maslow's theory. Steers, Porter and Bigley [5] highlight the similarity between Maslow's physiological and safety needs and Alderfer's needs for existence. Steers, Porter and Bigley also discuss the similarity between Maslow's needs for belongingness and Alderfer's relatedness needs. Finally the authors make the link between Maslow's esteem and self-actualisation needs and Alderfer's growth needs.

Schermerhorn [2] sees the following main differences between Maslow's and Alderfer's theory: The first difference is that Alderfer doesn't assume that a higher level need has to wait till all lowers ones are satisfied so that it becomes active. The second difference is that Alderfer sees the possibility of having more than one category of needs active at any certain moment. The last difference is that Alderfer sees that having one of the needs satisfied doesn't mean necessarily that it loses its motivational effect.

According to Alderfer, the human being can have needs from different categories active at the same time. Alderfer also believes that if a need from one category is consistently difficult to be satisfied, another already satisfied need could be reactivated and could become dominant in the human behaviour.

Steers, Porter and Bigley [5] highlight the following major difference between the two theories: While Maslow's theory explains human behaviour through the "satisfaction-progression" process, Alderfer claims that a "frustration- regression" process exists as well. The authors explain this process by saying that in the case of an individual who

is continuously frustrated while trying to satisfy a certain need, another already satisfied one could be reactivated and become "the primary driver of behaviour". [5] Steers, Porter and Bigley suggest that people working in the area of motivation in the workplace find Alderfer's theory more relevant when compared with Maslow's theory for two main reasons. The first reason is that Alderfer developed his theory to specifically explain human needs within actual organisations whereas Maslow based his theory on laboratory experiments. The second reason is that the "ERG model appears to be less rigid than the needs hierarchy theory, allowing for more flexibility in describing human behaviour." [5]

2.2.1.3 Herzberg's theory

Herzberg tried to prove that the satisfaction feelings that employees experience are due to some intrinsic factors like feelings of responsibility or self esteem and he called these factors "motivators". To the contrary, employees were found to be unsatisfied when they were affected by extrinsic factors such as policies, salaries, etc. Herzberg called such factors "hygiene factors" which means that they should be looked at as a given or prerequisite for any job and thus they have no influence on employees' motivation. Seath discussed the similarity between Herzberg's motivators and hygiene factors and Maslow's lower level motivators (physiological, safety and social needs) and higher level motivators (self-esteem and self-actualisation) respectively. [6] Brackett discusses how Herzberg sees that eliminating the hygiene factors will result in having a neutral (non-motivated) work force. According to Herzberg, to ensure that the workforce is motivated, it is essential to have the "motivators" factors active. Brackett discusses why Herzberg's classification looks "puzzling" as it includes wages, hours, working conditions in the hygiene factors while factors like prospect for advancement, responsibility and recognition are considered to be the "motivators". [7] Steers, Porter & Bigley consider Herzberg's theory to be one of the most debatable in work motivation theories. [5]

2.2.1.4 McClelland's Theory

Armstrong [3] explains how McClelland's theory focuses on three main needs: The need for achievement, the need for power, and the need for affiliation. McClelland believes that individuals who have one of these needs dominating their character have

some clear characteristics. McClelland believes also that people tend to choose their career based on the intensity of each of the needs mentioned earlier. [3]
Hudy [8] sees McClelland's theory as a simple "three level typology model to classify motivational orientations" and urges managers to use this theory to identify the type of activities their subordinates enjoy doing to help them plan for their careers. Hudy gives an example of how managers, using McClelland's approach, find any of their subordinates with very high need for power, could place them in a position of some authority as team leaders or project a managers. As part of this role, the persons could be in charge of developing new business contacts or networking and making key decisions. In this way the person's daily activities would closely match "motivational orientation" and ensure high levels of motivation. [8]

Steers, Porter & Bigley [5] see that one of the most important characteristics of this theory is that it sees the needs mentioned earlier as "acquired" from the society and thus can be developed. This is the main difference between this theory and the other content theories that consider needs as an internal driver within the human being.

2.2.2 Process Theories of Motivation

While content theories put the human's innate needs in the centre while studying motivation, there is another set of theories that takes a different approach. Process theories of motivation see the human being's behaviour mainly as a result of a conscious decision process. This decision is made based on personal preferences, what rewards could be gained as a result from any behaviour and how the human being perceives those rewards. The best known of these process theories is the expectancy and the equity theory, which are discussed in the next section.

2.2.2.1 Expectancy theory

The expectancy theory was developed by Vroom (1964). Schermerhorn [2] states that this theory assumes that the human being has total control and consciousness over his decisions in the workplace. Schermerhorn then explains that, according to this theory, the individual's decision to work hard or not is the outcome of a three-step process. The first step is whether or not the effort spent will result in achieving the needed level of performance. The second step is whether or not achieving this performance will lead to a certain outcome (reward). The last step is whether or not this reward

has a value that justifies the effort spent. These three steps are called respectively expectancy, instrumentality & valence. Expectancy theory gives a rating to each of those steps and the level of the individual's motivation is the result of the multiplication of the rating of these three steps. [2]

Lucero and Norman [9] in discussing the expectancy theory argue that this theory was used to predict human behaviour in several studies in a wide range of fields. The authors present some of these studies that used the expectancy theory to study diverse fields such as the choice of post high school activities, choice of college major, the decision of different categories of employees (Naval officers, doctors) to retire or remain on active duty etc.

Robbins, Waters-Marsh, Cacioppe and Millett [10] argue that the expectancy theory, although it has its critics, is one of the most widely accepted theories that explain human behaviour. The authors discuss the expectancy theory from a work place perspective as following:

- *Attractiveness*- "The importance that the employee places on the potential outcome that can be achieved on the job"
- *Performance-reward linkage*- "The degree to which the employee believes that performing at a particular level will lead to the attainment of a desired outcome"
- *Effort-performance linkage*- "The perceived probability by the employee that exerting a given amount of effort will lead to performance"

The authors add that the expectancy theory could help the organisations to understand the levels of motivation of their employees by considering the following three points:

- How the employees perceive the outcome of their jobs. The outcome could be pay, position, job satisfaction, fringe benefits, etc. and the authors see that the expectancy theory "emphasises pay-offs or rewards"
- How attractive the employees perceive these outcomes (positive, negative, or neutral). The authors suggest that organisations should "be concerned with the attractiveness of rewards"

- How do employees consider their chances of reaching their targets and, therefore, reaching the outcomes and the authors see that the organisations should tell the employees clearly what tasks are expected from them and how these tasks will be measured.

In this research project the principles of the expectancy theory were used as guide lines while setting the tasks for employees. In light of this theory it was crucial to this research project that the incentive scheme used in this research included tasks that employees perceived achievable. Also in light of the expectancy theory, the rewards or the outcomes of the incentive scheme had to be attractive enough to ensure that employees will alter their practices to reach the targets set for them. In chapter six the process of setting the tasks and the payment levels in the research project are detailed and the use of the expectancy theory are discussed.

2.2.2.2 Equity Theory

Armstrong [3] sees that equity theory is known best through the work of J. Stacy Adams. This theory assumes that employees know the value of their work and how much it equates to in the environment they are living in. Having this knowledge, employees compare the effort they spend in their job with the outcome they get in return. In the case where the balance is lost between the effort spent and the reward reached, employees try to restore it to reinsure the equity condition. In his paper "Effects of Inequity in a Pay-for-Performance", [11] Harder explains the restoration process saying " To restore equity, outcomes or inputs can be altered, objectively or psychologically; comparative referents can be changed; or the individual can withdraw from the situation."

Barr and Conlon [12] argue that this comparison between inputs and outputs is very clear in case of work groups or teams. In this case, the other group members are likely to serve as referents. Barr and Conlon explain this situation saying: "group members may feel underpaid when they perform at higher levels than other group members but must share equally in group outcomes." The authors add that the low performer group members may feel overpaid.

Harder [11] sees that the weak point always encountered while assessing this theory is the lack of information about when psychological adjustments rather than actual adjustments will occur.

2.2.3 Reinforcement Theory

Schermerhorn [2] sees the difference between content and process theories of motivation and reinforcement theories as following: While content and process theories explain human's behaviour by studying their needs and how they try to satisfy them, reinforcement theory, by contrast, sees humans' behaviour as determined by environmental responses to past behaviour. [2]

The 'law of effect' is the basis on which reinforcement theory explains human behaviour. Schermerhorn [2] states this law as following: "Behaviour that results in a pleasant outcome is likely to be repeated; behaviour that results in an unpleasant outcome is not likely to be repeated". Harris and Kleiner [13] discussed this law and mentioned four well-known techniques, used as applications for this law, to reinforce behaviour. The four techniques are positive reinforcement, negative reinforcement, extinction and punishment. Harris & Kleiner [13] explain those techniques as follows: Positive reinforcement includes promotion, bonus, etc. Negative reinforcement means reducing the negative consequence of unfavourable behaviours. Extinction involves withholding some positive reinforcement. Punishment is by making an unpleasant consequence contingent on the occurrence of the unfavourable behaviour.

Schermerhorn [2] mentions that the application of the law of effect in organisations is well known under the term "organisational behaviour modification".

Stajkovic and Luthans [14] present a five-step application model of the organisational behaviour modification (O.B. Mod model). The first step in this model is to identify the "critical observable performance related behaviours". The authors see those critical behaviours as the ones that account for about eighty percent of the performance outcome.

The second step is to measure the baseline frequencies of those critical behaviours. Alexander Stajkovic and Fred Luthans stress the importance of having reliable record of the frequencies of occurrence of those behaviours and they recommend displaying such data in graphs that show frequency over time.

The third step of the O.B. Mod model is to "analyse the behavioural antecedents and contingent consequences in the performance-related context" [14]. The authors explain this step saying that it mainly answers two questions. The first one is what are the antecedents of those critical behaviours identified in the previous steps. Examples of those antecedents are variables such as processes, equipment, technology, etc. The second question is on "what are the contingent consequences for desired behavioural responses." The authors see the answer for this question as the key for the whole O.B. Mod approach since "the antecedents assume only stimulus control properties in the presence of reinforcing contingent consequences". In other words, if no contingent consequences existed for a certain behaviour, the whole approach mentioned earlier of "law and effect" cannot be applied.

The fourth step in the O.B. Mod is to apply an intervention on the critical behaviours identified and monitored as mentioned in the previous steps. The aim of that intervention is to increase the frequency of the "functional performance behaviours" and reduce the frequency of the "dysfunctional behaviours".

The last step of the O.B. Mod. model is to evaluate and measure any performance improvement as a result of this behavioural approach. In other words, this step aims to determine whether or not the intervention applied leads to change in behaviour that could result in performance improvement or sustained learning.

Stajkovic and Luthans [14] discuss that in many cases management can't differentiate between a reinforcer and a reward. The authors see reward as "something that is perceived as valuable by the reward giver" but shouldn't necessarily mean that it will reinforce a certain attitude. On the other hand, "a reinforcer always increases the strength and frequency of the desired functional, performance-related behaviours". Stajkovic and Luthans summarise their point of view saying that "not every reward is reinforcer, but every reinforcer is reward" [14]

Stajkovic and Luthans gave examples of some of the reinforcement techniques such as financial rewards, feedback, and social recognition. The authors see that all of these techniques could work if used properly in light of the reinforcement theory.

Stajkovic and Luthans argue that the O.B. Mod model showed to be effective in improving the performance of organisations especially in the industrial ones.

2.2.4 Motivation in the work place

Although the different motivation theories discussed earlier may be shared when applied to different subjects such as family relations, children, students, employees, etc., separate specialised branches of motivation studies developed to study and focus on each of these subjects separately. Recently, motivation at the workplace became a wide area of research in itself. Robins, Waters-Marsh, Cacioppe and Millett [10] explain that while motivation in general is about humans spending high level of effort "towards any goal", motivation in the workplace is " the willingness to exert high levels of effort toward organisational goals in order to satisfy some individual need". The authors [10] discuss how human resources and organisational behaviour researchers use the different motivation theories in order to reach an understanding of employees' needs and how they act to satisfy those needs at the workplace. The purpose of reaching this understanding is for the employers to create the optimum environment for their employees to achieve maximum motivation and therefore help achieving the organisations' objectives.

In their book "*Motivation and Work Behaviour*", Steers & Porter [15] gave a good presentation of the development of explaining and dealing with motivation from managerial perspective at the workplace. Steers and Porter summarised that development in three main models. The first model that was called the "Traditional Model", was developed by Frederick W. Taylor (1911). Taylor saw that in order to ensure efficient operation, management has to focus on two main things. The first is to find the right people for the job and train them. The second was to install a financial incentive system to motivate people so they maximise their output. Steers and Porter [15] see two main problems faced by that model. The first problem occurs because of management's modifications to the financial incentive systems while trying to maximise their profit. The second problem is due to technological development that has made jobs routine and boring.

Steers and Porter [15] then explained the second motivational model that was developed in the 1920s and was called the "Human Relation Model". In that model,

managers had to look at an employee as a "whole person" on the job. Because of jobs becoming more and more routine and boring as a result of the industrial revolution, employees lost motivation and interest in their jobs. It was management's responsibility to find ways to ensure employees' satisfaction in the work place. To achieve this aim, Steers and Porter say, management had to find ways to make employees feel important in their job. An important factor, as well, was to ensure good vertical communication between employees and management so that employees would know more about their firms and the way they operate. Although the scope of the "Human Relation Model" was larger than the "Traditional Model", Steers and Porter think it wasn't sophisticated enough to deal with the complex nature of human being and the modern operational environment. [15]

The third and last model that Steers & Porter presented is the "Human Resources Model" which has been getting more and more attention recently. In that model, employees can be motivated by a variety of factors like money, working environment, meaningfulness of their job, need for affiliation, etc. Each employee can be motivated with a balance of some or all of those parameters. Steers & Porter add that an important characteristic of that model is that employees should not only be communicated to about their organisation's progress, as in the second model, but as well they should participate with managers in decision making activities that lead to that progress. [15]

McNerney [16] urges the necessity of "restudying" the subject of motivation at the workplace saying that the old methods of motivating employees "through commend and control" don't work any more. In the same paper, Donald J. McNerney presents the result of a recent survey conducted by a consulting firm (Kepner Tregoe Inc.). The surveys showed that only one third of the employees studied felt that their bosses knew what motivated them.

Quinn [17] has the same point of view, adding that in the current working environment where there is little job security, constant changes and a continuous downsizing threat, to keep the workforce motivated, is a big challenge that needs innovative new techniques and solutions.

In the previous sections the main motivational theories and the motivation at the workplace were presented. Robins, Waters-Marsh, Cacioppe and Millett [10] explain

that different motivational theories are used in the workplace and they are a cornerstone in the process of managing employees' performance. The authors argue that having the motivational background enables managers to set their employees "goals that are tangible, verifiable and measurable" and, therefore, use these goals to motivate and manage people "rather than controlling them". [10] In the following section the "Performance Management" approach is discussed with emphasis on the techniques that focus on employees' motivation.

2.3 Performance management

Fletcher [18] describes performance management as: "An approach to creating a shared vision of the purpose and aims of the organisation, helping each individual employee understand and recognise their part in contributing to them, and in so doing manage and enhance the performance of both individuals and the organisation."
McKenzie and Shilling [19] use a similar definition to the concept of performance management and add that determining the most appropriate performance measures to use is still one of the biggest challenges that face human resources professionals. Edmonstone [20] stresses the importance of having a wide range of measurements that cover the performance of the organisation from different angles. Edmonstone argues the importance of including employees in the selection process of the performance measures that the organisation will use stressing the important role of line management in this process: "Performance appraisal systems should be line management designed and driven". [20]

McKenzie and Shilling [19] discuss the importance of selecting the appropriate measures and add that selecting the right measures should result in having a "motivational" performance management scheme. The authors [19] recommend that the organisations should ensure they have the following general characteristics in the measures they intend to use in their performance management processes:

- Focus on measures that participants can control because participants will be de-motivated and will lose interest in measures that they can't influence.

- The balance between accuracy and simplicity of measures is a key issue to ensure the motivational effect of these measures. Complicated measures don't motivate people even if they are accurate.
- Measures should be realistic. As with measures out of participants' control, the participants will lose interest if they perceive the measures to be not realistic. The authors stress this point specially when some of the measures "become more volatile"
- Mind the corporate culture. The authors stress this point giving the following example: " in a team-based environment, the program should incorporate team-based goals rather than individual" [19]

In the chapter of methodology is discussed how the characteristics mentioned above were used as a guideline while developing the measures that were included in the incentive in this research project.

2.4 Motivation theory in this research

It is important to observe that there are several contradictions between the theories mentioned earlier. It is also important to mention that there are several other contributions from different researchers that criticise the existing theories and develop new theories or ways to study and explain motivation. To understand and deal with employees' motivation, all psychological and social factors existing inside and outside the workplace should be included, which is not an easy task. McNerney [16] argues that there is no single theory that can explain employees' motivation "since people are not purely economic, social, political or psychological beings". McNerney adds, "Most people have a complex set of needs and desires - part material, part social, part emotional - that must be met if they are to be motivated. The answer is never as simple as, 'Give them more money' or 'Give them more interesting work'".

Steers, Porter & Bigley [5] discuss the complexity that researchers and professionals face when dealing with motivation in the workplace saying, "Motivation, as a concept, represents a highly complex phenomenon that affects, and is affected by, a multitude of factors in the work milieu." The authors see that the best approach to use

while dealing with motivation in the workplace is that of the third model of work-related motivational theories that was discussed earlier in this chapter. That model (human resources model) argues that employees could be motivated by a variety of factors like money, working environment, meaningfulness of their job, need for affiliation, etc. Each employee could be motivated with a balance of some or all of those parameters.

Schermerhorn [2] has a view that matches the "human resources model" and he emphasises on having a flexible approach while studying motivation specifically in the work environment. Such flexible approach is needed to understand and deal with individuals with different needs and even the different needs of the same individuals at different times, circumstances or career phases. [2]

For the purpose of this research and considering the complexity of the nature of human beings and the environment that surrounds them particularly in the workplace, no single theory was used all through the stages of the research project. However, some of the theories were applied in some phases of the research. As example, the expectancy theory, mentioned earlier in this chapter, was used while setting the tasks for the incentive scheme and while agreeing the bonus levels. The use of this theory is detailed later in chapter six.

In this chapter the main motivational theories, the general concepts of performance management and the topic of motivation in the workplace were presented. As mentioned in chapter one, the advocates and opponents of either the incentive schemes or the TQM approach agree on the necessity of having a well motivated workforce and also agree on the general concepts of performance management. On the other hand the advocates of the TQM approach deny the influence of the financial incentive schemes or argue that those schemes can't fit in a TQM environment or even risk destroying such environment. The conflict between TQM advocates and the advocates of the financial incentive schemes are presented in chapter four. In the following chapter the main types of incentive schemes are presented and the features of each of them are discussed.

3 Incentive schemes

The aim of this research project is to find whether or not a financial incentive scheme can deliver benefits to an organisation with a strong TQM environment without hurting the main attributes of the TQM approach. Armstrong describes incentives in general as rewards that "encourage and energise people to do more and to do better in the future by offering the opportunity to earn financial and non-financial rewards". [3] Financial incentive schemes are structured ways by which some organisations use financial rewards to motivate their employees. The financial rewards can be in form of cash but can also be in the form of a non-cash reward such as incentive trips, training courses or special awards. Organisations can reward employees for remarkable performance, for achieving specific tasks, experience, skills, knowledge, or even loyalty to the organisation. In this chapter the rewards in general are discussed and the main types of incentive schemes are then presented.

3.1 Rewards

Rewards are a common component in all performance management systems and they are mainly divided into two main categories, intrinsic and extrinsic. In the following sections, both categories and examples of each are discussed. However, the emphasis will be on the extrinsic rewards since they are the more relevant to this research.

3.1.1 Intrinsic rewards

Intrinsic rewards are those kind of rewards that are generated inside the person as he or she is doing something positive or achieving a certain goal. Berglas [21] explains intrinsic rewards as the "positive outcomes that derive from an activity itself rather than from what you ultimately obtain from engaging in the activity".

Schermerhorn [2] gives some examples of such rewards: "feelings of competency, personal development and self-control people experience at work." Armstrong [3] adds to those feelings the freedom to act and the feeling that the person is doing an important, interesting and challenging job and to have an opportunity for advancement. Buckman [22] stresses the importance of intrinsic rewards. Although extrinsic rewards look efficient and may deliver immediate results, says Buckman,

they may lose their effect quickly. To the contrary, intrinsic rewards last longer. Those are the intrinsic rewards that "make us come to work, do our job and leave feeling good, only to look forward to doing it again the next day". [22]
Nord [23] says that in the modern workplace, distinguished employees are those who are considered to focus on intrinsic rewards by being self-starters, ongoing learners and by not focusing on payoffs and perks.

3.1.2 Extrinsic rewards

Contrary to the intrinsic rewards, extrinsic rewards are those rewards administered by someone different from the individual who receives them.
There is a very wide range of extrinsic rewards. They could be incentives, promotions, fringe benefits, gifts or just a tap on the shoulder. Extrinsic rewards can be grouped into three main categories: Financial, non-financial and fringe benefits. In the following sections, these three main categories are discussed with examples of each.

3.2 Financial incentive schemes

There is a very wide variety of financial incentive schemes. There are some well known schemes but there are as well an almost unlimited number of tailored ones that companies develop to fit better into their own environment. In some cases, companies may have more than one incentive scheme running at the same time. In this section the most common ones are presented.

3.2.1 Gain sharing

Gain sharing was adopted for the first time early this century. In simple words, gain sharing is a financial incentive scheme that allow employees to share with their organisation any extra benefits they managed to achieve on top of what the organisation is expecting from them. Although there is a wide range of gain sharing schemes, the three following ones are the best known: Scanlon, Rucker and Imposhare. In spite of the differences between different gain sharing plans, they all share the following characteristics:

There is a formula which is used as a basis to calculate the bonus. This formula usually compares the actual employees' performance during a certain period with a standard level of performance agreed on with the company. In the case when the current performance is better than the standard one, the employees share with the company the extra savings or benefits.

The second common characteristic in gain sharing plans is that there is always a formal way of promoting and managing the contribution of employees. Since employees are going to share the extra gains with the company, it is evident that they have a say in the ways to reach those extra savings. In all of the different gain sharing schemes, there is always an official way (or ways) to organise employees' contribution (committees, task forces, etc.). Having employees' contribution as a main pillar in these schemes makes the gain sharing a plan that can't be imposed by management. To have this plan running successfully, employees should be included from the very beginning even during the design stage of the plan.

Recardo and Pricom [24] state in their paper the following main advantage of gain sharing schemes: It improves communication within organisation. Since employees are sharing the benefits with the company, it improves the sense of loyalty and partnership. Gain sharing is often seen as a philosophy and a way to educate the workforce rather than just an incentive scheme. Gain sharing promotes teamwork since it's a site wide scheme that rewards employees based on the overall organisation's performance.

Welbourne and Gomez [25] present the findings of a survey done by Markham, Scott & Little (1992) on gain sharing schemes saying that "gain sharing has transcended its original roots in the manufacturing sector, and it is currently used in all industries". The authors present as well the finding of another survey done by Lawler and Cohen (1992) stating that 39% of the Fortune 1,000 firms have some form of gain sharing scheme.

Brown, Hitchcock and Willard [26] summarise the weakness in gain sharing schemes in two main points. The first point is that despite the benefits of promoting co-operation between people within the organisation, this scheme allows for poor performers to be compensated equally as well as good performers which de motivates good performers. Such a negative effect could be best understood through the equity theory of motivation discussed earlier. Secondly due to the fact that gain sharing

rewards are based on the overall organisation's performance, the gains achieved may sometimes be affected negatively because of some external causes that affect the organisation's performance without any control from the employees. Such conditions definitely affect negatively employees' motivation. Expectancy theory discussed earlier is a very efficient tool for looking at this weakness in gain sharing schemes.

3.2.2 Profit sharing

Profit sharing is a similar financial incentive scheme to gain sharing. While gain sharing is rewarding employees for the performance of their production unit, profit sharing is rewarding employees for the performance of the whole organisation. In the case of profit sharing all factors affect employees' bonuses. This scheme gives the organisation a competitive advantage as it doesn't put it under extra financial pressure by paying out bonuses while its overall profit isn't spectacular, which may occur with many other financial incentive schemes.

The main negative point in the profit sharing incentive scheme is that a lot of times some uncontrollable external factors may affect the organisation's net profit. Such factors could be a change in tax regulations or interest rates. Discussing incentive schemes for non-management staff (particularly shop floor employees as is the case in this research project), the external factors could include decisions made by management or the introduction of new technologies that could affect the net profit of the organisation. McAdams explains this negative effect saying: "People rarely understand how to affect the year end results in their daily duties, and too many factors that are out of their control influence profit. When the plan pays out, that's fine. But when it doesn't, all that people see is that their hard work has gone unnoticed."[27]. It is possible to explain such a negative effect on motivation using the expectancy theory. In the case when employees can't make the link between their performance and their reward, motivation will no doubt suffer.

3.2.3 Pay for performance

Pay for performance has been one of the most widely used types of financial incentive schemes during the last two decades. Armstrong [3] gave the following definition for this type of scheme: "Paying for performance means relating remuneration to some measure of individual, group or organisational performance". Although there is a

very wide variety of these kinds of schemes, they usually consist of the following common characteristics:

- Standards of performance that are negotiated between managers and employees or determined by managers
- A time frame
- Assessment of the employee's or team's performance

The pay for performance schemes are famous for delivering the following:

- Feedback and direction to employees
- Identifying training needs during the assessments sessions
- Fostering communication between managers & employees
- Providing evidence for promotion & compensation decisions

In the coming section, some general negatives of the pay for performance schemes are discussed. It is important to note some of the negative points mentioned below don't apply (or are diluted significantly) if those schemes are implemented on wider scale (department or factory level rather than on an individual level).

- Joiner stresses that the competition between individuals or teams that these schemes create can hurt the team work spirit and affect negatively the overall organisation's performance. [28] About the same point, Steers, Porter and Bigley [5] explain that the advocates of such schemes assume that the organisation's performance equals the addition of all employees' performance individually. In reality, because of the complexity of the workplace and the interdependency between individuals and teams this assumption isn't valid. In today's working environment employees and teams and even departments can't work in isolation of each other. In many cases it would be difficult to draw lines between employees or teams and therefore, blaming or giving the credit to one particular team or person for a particular result would be very difficult.

- Michael Armstrong [3] and B. Joiner [28] talk about the forced distribution that takes place when companies are allocating their managers a fixed total bonus to distribute. What happens often is that to compensate a very good performer, a

very bad one should exist otherwise the allocated bonus sum wouldn't be enough. To avoid such problems, often managers tend to give their subordinates an average bonus with very slight fluctuations which finally causes the scheme to fail to achieve the main reason for its existence which is to reward the hard working employees based on their performance.

- Welbourne and Mejia [25] discuss the following two negative factors. The first is the variations in perceptions of performance and they explain how, while trying to control those variations, goal setting could become more and more sophisticated. As a result the administration of the system can become difficult and still the objectivity isn't guaranteed. The second factor is the performance measurement problems or management rating errors.

- In some cases, these schemes are used to determine the annual salary increase (not just a bonus that employees could earn on top of their base pay). Over a long period, this may result in some significant differences in pay rates between employees doing the same job which could affect negatively the company's pay structure as well as the work environment. To get around this problem, some companies set a ceiling for each job's level. Once this level is reached, employees can't have any further pay increase regardless of their performance. As a result, good performers' pay will freeze while others are progressing to eventually reach the same pay level. It is obvious that the risk of facing some of the problems mentioned earlier (unhealthy competition, the forced distribution and the interdependency) is significantly reduced if the scope of these schemes is getting wider to be on department or unit basis.

3.2.4 Skills based schemes

Skills based schemes are a type of financial incentive scheme by which the organisations reward employees for acquiring new skills through pay increases. Usually these organisations provide their employees with training, finance, time or extra resources needed for them to acquire the new skills.

Capowski [29] sees that skills based schemes are "one excellent way to challenge and motivate employees to increase their knowledge". Capowski thinks that these schemes establish a win-win situation by which the employees are rewarded with higher pay

while their knowledge increases and therefore their self-esteem rises. On the other hand, the company is rewarded with more flexibility and "greater value added to their human assets" which permits keeping a leaner workforce. [29]

On the other hand, Armstrong [3] describes the skill-based schemes as "expensive to introduce and maintain". Armstrong explains his point of view saying that such schemes require a considerable investment in skills analysis, training and testing. Armstrong argues that although such schemes are supposed to pay only for the necessary skills, in reality employees will not use these skills all at the same time and even some of the skills will be hardly or never used. Finally Armstrong adds that the payroll costs will inevitably increase in addition to a considerably high budget for training with difficulties to "quantify the benefits". [3]

3.2.5 Stay for pay

Currently, many companies face the risk of not being able to meet their plans and objectives while straggling to retain and manage their workforce. Considering the amount of time, effort and money spent to recruit and train efficient employees, a high turnover percentage becomes a critical problem that faces human resources experts. "Stay for pay" is a new way of rewarding employees for staying in the company. The idea of these schemes is fairly simple. The company pays substantial cash incentives (or sometimes other incentives like shares) to its employees if they stay with the company for the certain number of years that the company sees as crucial to some strategic objectives. The company, knowing in advance the future strategic objectives and their time frame, can determine the minimum number of years it needs to retain its employees to ensure not losing its human assets at a time when they are needed the most.

Vernon & Commander [30] see that such schemes are becoming a necessity for a lot of organisations and argue that the cost of those schemes is going to be far less compared with the cost of the high turnover.

3.2.6 Stock option plans

Stock option plans are a type of financial incentive schemes by which employees are entitled to own some of the organisation's stocks if they meet or exceed the expectations set for them.

Burzawa [31] discuss how stock option plans increasingly have become "broad-based" and they are being offered to employees at all levels. Burzawa mentions the following points as the reasons behind some organisations adopting such schemes:
The first reason is to promote a sense of ownership and loyalty to the organisation. The second reason is to link the employees' activities at work with the overall organisations objectives by giving "everyone a stake in the company's goals". The third main reason is to "align employees and shareholders interests".

3.3 Non cash incentives

Non cash incentives are used in a wide range of organisations and cultures. These incentives can be training courses, trips, stocks or shares or even some items with a symbolic value rather than a financial value like pens, restaurant vouchers, etc. McAdams [27] argues that "people always remember the specifics of merchandise and travel rewards". McAdams explains this point of view saying that the reason behind the success of any incentive scheme is "to make people feel valued"
In many cases, companies have one or even more of those incentives together with one of the well-known financial incentive schemes discussed earlier. In this section, examples of different non-financial incentives are discussed.

3.3.1 Training

Some companies consider providing extra training courses to their good performers as an efficient tool that ensures a high level of motivation as well as a potential for extra benefits for the organisation from the new skills their employees acquire during those training courses.
Quinn [17] sees that in today's business with not much job security and constant changes, training to create "knowledge workers" is a strong employee motivator. Quinn presents a case study of Intel where employees are no longer promised "a job for life". However, they are promised the opportunity to "learn and grow". Quinn adds that employees appreciate having the chance to learn and improve their knowledge as it helps in their "employability". [17]
Heyes and Stuart [32] discuss how training could be an efficient tool for motivation and present the result of a survey that confirms this point of view saying that, in this

study, training was seen to have a "favourable impact" on employees' motivation at work.

3.3.2 Incentive Trips

In some companies, especially in multinational firms, trips are used as an incentive for best performers. Incentive trips could be for purely business reasons (exploring modern working techniques), they could be purely leisure trips to reward remarkable achievements or they could be for a combination of the two.

Usually companies design those trips to include teams rather than individuals to ensure two objectives: The first is the exchange of knowledge and experience between the team members. The second objective is to help create and reinforce personal relationships that should improve communication between team members which therefore helps to have a more efficient business relationship. An additional behind including teams rather than individuals in these trips is to remove internal unhealthy competition between the teams' members.
Rasmusson [33] discuss the importance of good planning for incentive trips and argues that those trips are "a great reward for a job well done".

3.4 Fringe benefits

Many organisations have fringe benefits plans that they offer to groups or all of their employees as part of their employment packages. These benefits are mostly independent from the employee's performance and the employee usually enjoys the benefits that the organisation offers to the rest of employees (or to the category in which the employee falls).
Examples of these benefits are medical insurance, retirement plans, affiliated credit cards and company cars. Organisations providing such plans see several benefits they get in return for this additional cost. The first benefit is that the organisation will enjoy a competitive advantage, which allows it to attract and maintain the desired quality of personnel. A second benefit, that these organisations assume, is that providing such plans satisfies some of the basic needs of their employees and therefore ensures a high level of motivation and focus on the job.

Dolan [34] explains the importance of fringe benefits plans to organisations saying that to get the best employees, organisations have to provide benefits comparable with those offered by their competitors. Dolan adds that with the tough competition existing currently in the market, providing such benefits " is now more important than ever." [34]

Lynch [35] explains that a good package is essential to attract, motivate and keep the right people. This package consists of a salary, bonus, perks (such as offices) and fringe benefits. Lynch argues that although all components of the package are important, "the fringe benefits package is the only compensation component that combines immediate benefit with long-term value. Consequently, it attracts and motivates, while also providing an incentive to remain". Lynch explains his point of view saying that salary and bonus "while absolutely critical", have a short-term impact and enable employees to leave.
Penzer [36] disagrees with the belief that such plans have a positive effect on attracting new employees. However, Penzer sees that these plans are effective as an "incentive" to keep the workforce and thereby reducing the turn over.

Lichtenstein [37] argues that "fringe benefits have become an increasingly important component of total compensation". Lichtenstein presents figures, prepared by the Bureau of Labour Statistics in the USA, that show that benefit costs increased by 6.2%, compared with a 3.8% increase in wages and salaries cost between 1987 and 1992. Lichtenstein, amongst others, sees that the health insurance and pension plans are the most important fringe benefits. In the following section, these two benefits are presented.

Robins, Waters-Marsh, Cacioppe and Millett [10] argue that the idea of fringe benefits "is gaining ground in Australia and New Zealand". However, the authors say that the current situation of fringe benefits in Australia and New Zealand is still far from that of the United States with around 38 percent of large corporations having some kind of fringe benefits scheme and that these schemes are worth, on average, 40 percent of the annual employee's salary. [10]

On the other hand government regulations in many countries don't encourage the fringe benefits which could be used as tax avoidance. Richards [38] says that the tax office in New Zealand tried to minimise the incidents where no fringe benefits tax was payable on some components of employees' packages. Richards presents in details one of the cases where the tax office chased some taxpayers who entered into certain foreign superannuation fund arrangements to escape paying taxes on a portion of their income.

In the following section the two commonly used fringe benefits, namely pension plans and health insurance, are presented.

3.4.1 Pension plans

Pension plans are a type of fringe benefits that some companies offer to their employees as part of their packages. Generally speaking there are two famous pension plans: Defined Benefit and Defined Contribution plans. By offering a Defined Benefits plan, the organisation is paying the employee a lump sum of money at a certain retirement age. This sum is calculated by a formula that usually includes the number of years of service and the employee's salary. Sunoo [39] mentions that during the last fifteen years, these type of schemes were the most commonly used in the USA.

Defined Contribution plans are currently the most popular. Using these plans, organisations offer workers a variety of investment options, such as thrift plans, profit-sharing plans or stock options. Sunoo discusses the move from the Defined Benefit to the Defined Contribution plans saying that it was part "of a larger movement to empower workers" and, therefore, gave them the chance to control their own retirement savings and investments. [39]

Steven [40] argues that pension plans are one of the most important workplace benefits and he adds that without those plans, employees would only have "a shaky two legged retirement plan". Steven discusses the importance of such plans in "today's competitive market" and he adds that different pension plans can be a powerful recruitment and retention tool. Concerning the different types of pension

plans, Steven concludes that the bottom line is to make the retirement plan support the overall business strategies. [40]

3.4.2 Health Insurance

Health insurance is the second well-known fringe benefit that some organisations offer their employees. These schemes provide a subsidised or even in some cases a full free health insurance. Some organisations even include the employees' immediate relatives under the insurance policy. Scott [41] suggests that employers are providing healthcare coverage not only to ensure that their employees remain healthy, but as part of their effort to attract quality employees needed to support the business. Danae [42] discusses the finding of a study done by William Mercer that highlighted the importance of employees' medical insurance to organisations saying that this specific benefit is a "cutting edge" tool that could create a competitive advantage in recruitment and retention.

On the other hand, health insurance is a complex issue and shouldn't be looked at as just a type of fringe benefits that some of the companies offer to motivate their workforce. In many cases there are several considerations (such as the increasingly high cost, social and legislative considerations) that affect the organisation's decision to offer such a benefit to their employees. Davis [43] gives an example of the complexity of this issue saying that in countries such as Australia and New Zealand, "they both count on substantial private health insurance to reduce pressure on public hospitals and public budgets".

3.5 Summary

In this chapter the two types of rewards (intrinsic and extrinsic) were discussed and the main three categories of extrinsic rewards (financial incentive schemes, non-cash rewards and fringe benefits) and examples of each of these categories were presented. In this research project, the different financial incentive schemes were considered and those ones that could satisfy the needs of the research were studied in more details. More details of those schemes and the criteria used to select them are discussed in the chapter of methodology. Some of the financial schemes presented earlier were seen as

potential options for this research project and thus are discussed in more details in the chapter of methodology.

4 Total Quality Management

The aim of this research is to answer whether or not financial incentive schemes can fit in a TQM environment and help the organisations to reach their objectives without compromising the TQM environment. In this chapter the TQM approach will be discussed and the arguments that TQM advocates use against financial incentive schemes are presented.

Although TQM has existed for around five decades and many companies world-wide have a certain degree of TQM activity, it is clear that no generic definition of the term TQM exists. Boaden [44] discusses the difficulty of finding a generic definition for TQM and mentions the "diversity of academic opinion and background" as the main reason for such difficulty. Boaden explains how people from different backgrounds (HR, marketing, process management, etc.) have brought their own perspective to the term TQM and eventually, as a result, different definitions were developed. Boaden debates as well whether TQM is a "separate academic discipline" or an "integrated subject involving a number of different disciplines". Even the term TQM is debated. Boaden presents the following words from Deming about the term TQM: "It is a buzzword. I have never used the term, as it carries no meaning." (Deming, 1994). [44]

To get around the problem of finding such a generic definition for TQM, Moon and Swaffin [45] gave the following simple definition: "It is a way of managing to improve the effectiveness, flexibility and competitiveness of a business as a whole. It applies just as much to service industries as it does to manufacturing. It involves whole companies getting organised in every department, every activity and every single person at every level." The authors mention the following people who contributed the most in developing the TQM: Deming, Juran Crosby, Feigenbaum, Conway, Taguchi, Ishikawa and Shigeo Shingo.

After they discuss the problem of finding a generic definition for TQM Wilkinson, Godfrey and Marchington [46] present several examples of researchers and experts who faced the same problems. The authors finally conclude that instead of trying to find such definition, the meaning and understanding of TQM "can best be captured by

its principles, practices and techniques". In other words, Wilkinson, Godfrey and Marchington see that a better understanding of TQM is reached by defining its principles and techniques.

4.1 TQM main attributes

Pulat [47] faced the same difficulty in finding a definition for TQM and reached the same conclusion about defining TQM through its principles or what he calls the main "implementable attributes of TQM". Pulat stresses the necessity of finding an operational definition for these principles and attributes, which applies in an industrial environment.

Facing the difficulty of finding a generic definition for TQM, it was found that it would be more relevant for the purpose of this research to use the definitions of the main TQM attributes in an operational environment.

In the coming section, definitions of the following main TQM attributes, often called pillars, are presented: Customer focus, leadership, continuous improvement, employees empowerment and team work.

4.1.1 Customer focus

In the majority of the literature on TQM, the "customer focus" is considered as a basic attribute of TQM. Ferris, Quint, and Rajiv [48] explain it as following: "The ultimate goal of TQM is to improve corporate earnings by increasing the degree of customer satisfaction with the firm's products and services."

It is important to note that TQM enlarged the definition of the word customer to include the internal customers, namely any person in a certain process who depends on another person preceding him or her. Ishikawa introduced the "internal customer" expression for the first time in 1950s. [45] As for the external customers, Asbjorn [49] gives them the simple following definition: "Those bringing money into the system" and she adds that "they are, and will continue to be, most important."

With the tough competition that organisations are facing, customer focus is no longer about meeting customer needs. It is about exceeding those needs. In the recent TQM

literature, the expression "delighting the customer" is the one used the most when talking about customer focus. Joiner [28], Pulat [47]

4.1.2 Leadership

The manager in the old management school is someone who sets rules and policies, gives directions and spends most of the time, on his or her own, working on financial issues. Rago [50] explains how a leader in a TQM environment has the primary role of developing the mission and vision statements of the organisation: "it is incumbent upon senior managers to develop these statements as strategies for providing a uniform basis for thinking about the agency." In a TQM environment, people on top of the structure are coaches (or leaders) rather than managers. Rago puts the responsibility on those leaders to make sure they have the right human "infrastructure" that supports the vision and mission and make sure that they are transferred to all levels of the organisation. Rago sees the way for leaders to ensure the right support to the vision and mission of the organisation as continuously coaching their subordinates.

Brown, Hitchcock and Willard [26] argue that a main characteristic of leaders compared with classic managers is that leaders are those who set themselves as examples by backing up their words with actions (spending enough time with customers and suppliers and on the production floor).

Choi and Behling [51] suggest that Deming saw the importance of leadership for the success of TQM in his seminal book, 'Out of the Crisis': "Actually, most of this book is involved with leadership. Nearly every page heretofore and hereafter states a principle of good leadership."

In the majority of the recent literature on TQM, leadership is always signalled as the first factor to determine whether TQM will succeed or not in any organisation. Krumwiede, Sheu and Lavelle [52] emphasise the importance of leadership saying: "This philosophy emphasises quality achievement of a product or service in a never-ending process and is primarily a management responsibility, not that of the worker."

4.1.3 Continuous improvement

Continuous improvement is an ongoing activity to improve all processes within the organisation. In simple words, Paulat determines the main characteristic of

organisations that believe in continuous improvement as "their thirst to a better tomorrow than today". Pulat says that the concept of continuous improvement isn't new. It started in the late 1800s and early 1900s by industrial engineers to improve manufacturing processes. [47]

What TQM added to continuous improvement, says Asbjorn [49], was that it should cover all activities and processes within the organisation until it becomes "A natural part of daily (routine) work". To ensure that continuous improvement becomes routine in the organisation, Dale, Boaden, Wilcox and McQuater [53] discuss the importance of giving responsibility to an "improvement co-ordinator or facilitator" until it becomes part of the organisation's philosophy.

Thompson, Hochwarter & Nicholas [54] see that TQM is an approach that "conveys a total, company-wide effort that includes all employees, suppliers, and customers, and that seeks continuously to improve the quality of products and processes to meet the needs and expectations of customers." The authors then present the concept of "stretch targets" as a technique that many companies use to ensure continuous improvement as part of the TQM approach, defining "stretch targets" as those targets that enhance motivation, performance, and creative decision making. The authors then explain the importance of having stretching targets from business's perspective saying that " it is not only to allow employees to stretch their abilities to new levels, but also to change the organisation's competitive position by dynamically altering its business processes". [54]

4.1.4 Employees empowerment and team work

TQM is an organisation wide process. It is not appropriate to depend only on the leaders to take care of that process. Moon and Swaffin [45] define the term empowerment as: "The voluntary transfer of ownership of a task or situation to an individual or a group having the ability and willingness appropriate to that situation, in an enabling environment." Graydon [55] explains how to have a successful transfer of ownership through motivating people in the work place, enabling them to make a full contribution by creating the environment that motivates them and finally encouraging them by recognising their efforts and by offering them the opportunities to satisfy their self esteem.

Dale, Boaden, Wilcox and McQuater [53] discuss how employees' empowerment is affected by the nature of "management-worker relationship" and the level of trust in that relationship. The authors put the greatest responsibility on the management side, saying that managers are the ones who have to promote this trust.

In a TQM environment, teamwork is a necessity. Paulat [47] sees that in the current complex production environment where "multiple skills are needed to resolve issues, employees' empowerment implies effective team work."
Masters [56] explains how teamwork when practised with the right supporting techniques (brainstorming, fishbone diagrams, and workflow diagrams), can resolve " the most longstanding turf battles" in organisations.

4.2 TQM & financial incentive schemes

After discussing several incentive schemes and TQM separately, it is important to look at the relationship between them.
Whether or not financial incentive schemes help the organisations to reach their objectives, is an old debate that doesn't seem to be close to finishing.
During the last two decades, the modern management schools (TQM & new manufacturing techniques) have added an extra pressure on the financial incentive schemes. Generally speaking, advocates of TQM and modern manufacturing techniques don't believe in incentive schemes for different reasons. Deming is one of the most famous opponents of incentive schemes. In her paper "Incentive schemes in a quality culture", Drummond [57] explores Dr Deming's point of view: " Deming, one of TQM most influential proponents, urges organisations to abandon piece work and other productivity based incentive schemes on grounds that they are detrimental to good workmanship. Piece work, says Deming, is an incentive to produce scrap."
But Deming isn't just against the productivity based incentive schemes. Snape and Adrian [58] suggest that Deming sees MBO schemes (Management By Objectives) as one of the "deadly diseases" of the Western management even though they aren't based on productivity measures. According to Deming, those schemes motivate employees to look for short term achievements to meet their appraisal's objectives and ignore the long-term improvement that the organisations need the most. Another negative point that Deming sees in those schemes is that they "discourage employees from constructive criticism of their managers" since they have control over their

appraisal. Crosby is another TQM advocate who doesn't believe in incentive schemes. In the same paper the authors discuss Crosby's opinion about incentive schemes and how dangerous it is to link people's commitment to quality with some sort of financial reward. According to Crosby, such a link is "demeaning" to that commitment. The solution Crosby presents is "recognition" which could be by presenting some small prizes or quality awards.

Steers, Porter and Bigley [59] present Deci's opinion which says that although extrinsic rewards (like money) work, they do so at the expense of intrinsic rewards. Deci came up with the conclusion: "Contingent pay systems do not appear to be compatible with participative management systems".

Joiner [28] (one of the advocates of modern manufacturing techniques) explains another rationale for not accepting incentive schemes, saying that the systems rather than individuals mainly determine performance. In his book "Fourth Generation Management", Joiner talks about research done by some managers who believe in modern management techniques. The outcome of that research was that organisations' performance is largely determined by the system within which employees work i.e.: Policies, processes, procedures, training, equipment, instructions and materials. On the other hand they found that individual skills, ability and motivation are important but play a much smaller role than the others already mentioned. To summarise the concept, the conclusion of those researches was: blame the process not the person. In other words, investing time, effort and money to motivate people is a battle in the wrong field since systems not people are responsible for generating good or bad performance. To confirm this point of view, Joiner [28] gave the following story of a manager at one of the big three U.S. auto makers. One day in a meeting the manager said "You know, I think that if we doubled the pay of every one here, it wouldn't have any impact on our overall performance."

Hale [60] presents the result of a research done by Watson Wyatt on 614 organisations employing a total of 3.5 million workers. The study concluded that dissatisfaction with pay is the lowest of the top 3 reasons employees give for leaving their job after finding a better opportunity elsewhere for advancement and enrichment.

The study concluded that:" Clearly, the solution does not lie in what employers pay their workers. It lies in how they regard them. It lies in what are called Strategic Rewards."

After presenting some of the main critics to the incentive schemes, it is important as well to explore the opposite point of view of those who see incentive schemes as an essential tool for any organisation to shape its performance.

"Money motivates". This is what Armstrong [3] wrote in his book *Managing Reward Systems* while trying to answer whether or not financial incentive schemes could help organisations to reach their objectives. Armstrong explains the basis of such a view by saying, "All organisations are engaged in a search for increased added value from their workforce and many see paying for performance as the best means of achieving that goal" [3]. He also adds that this deterministic view has its roots in the scientific management methods first developed at the beginning of the 20th century.
Armstrong also gave some examples of studies made in the United States between 1971 and 1990 which proved productivity increases of between 15 and 35% occurred after adapting some sort of financial incentive schemes.
From his personal experience in a company that he studied in UK, Armstrong [3] talks of an increase of around 50% in productivity that took place after installing a group bonus scheme.

Lissy E. William in her paper *"Currents in compensation and benefits"* [1], explores a study done by consulting firm Sibson & Company that says, "Individual and broad-based incentive pay and the attendant performance systems are proven--and significant--change agents for American businesses. These powerful business practices are fundamental to our success. Let's not throw out the proverbial human resource system baby with the bath water because it does not yet support the new ways of quality management". The same study adds, "It is a naive and potentially dangerous position for any business to accept. It flies in the face of basic economics and ignores many of the realities of the contractual relationship between employer and employee. Pay is one of many viable tools for shaping business performance. Its effectiveness is intuitively correct and well documented." [1]

Currid [61] discusses that money is not the strongest motivator for all employees. Currid presents the finding of a survey sponsored by IEEE member citing "a preference toward job security over salary by a wide margin". Currid mentions another survey by Robert Half International, Inc. that cites "limited recognition and praise", not money, as the top reason why people leave their jobs. Currid discusses in the same paper that the level of motivation that money provides could be different from one category of employees to the other. Currid gives the example of knowledge employees where money is definitely not the strongest motivator. Currid [61] presents the view of Rosabeth Moss Kanter, a Harvard University business school professor who wrote about motivational tools for knowledge workers. Kanter sees that knowledge workers could be motivated by five main tools namely, "sharing the corporate mission, letting staff control their own professional agendas, sharing the rewards of creating value, continued learning and bolstering the reputation of deserving individuals -- that can become effective incentives to encourage high performance." [61]

For many managers and professionals working in a TQM environment the decision is not easy as to whether or not incentive schemes could help them to achieve the objectives of their organisations. First of all, those managers and professional need an answer on the degree of motivation that money in general could provide to their workforce. Secondly, and assuming that the money will provide the needed level of motivation to their workforce, being in a TQM environment, those managers need to be assured that financial incentive schemes can fit in such environment without compromising the TQM approach and practices. Those managers and professionals are confused by the two extreme points of view of the advocates of TQM and the advocates of financial incentive schemes, with each of those two groups supporting their views by several studies and surveys. Some of those managers and professionals have a deep belief in TQM and modern management techniques and on the other hand, they do know from their experience that financial incentive schemes are an effective tool that may help them to motivate people and achieve the objectives of their organisations. For those managers and professionals, the relation between TQM and incentive schemes isn't clear enough. In their paper "*Pay incentives and the quality culture*"[58], Snape and Redman talked about the unclear relation between TQM and incentive schemes saying, "There has been growing interest in total quality

management (TQM) and also in various forms of incentive pay. Both have been seen as helping organisations to meet the challenges of increasing competition and more demanding customers. However, the prescriptive literature on the one development has often ignored the other, so that the relationship between TQM and incentive pay is less well understood than we might wish". [58]

In the last few years, some efforts were spent to clarify this relationship between TQM and incentive schemes and why they don't appear to match. Papa [62] discussed two main weaknesses in the classical incentive schemes that caused them to be considered as "old-school". The first is that those schemes were promoting mainly productivity and cost cutting which was usually done at the expense of quality and eventually customer satisfaction. The second weak point was that the majority of those schemes were based on individuals' performance, which weakened the co-operation and teamwork environment. On the other hand, Papa argues that TQM advocates claims that in the TQM environment employees don't need those kind of schemes since they are inspired to improve quality. In this environment, recognition was claimed to be a strong enough motivator. In reality, Papa says, this isn't how it works: "It isn't easy to change the human nature. These processes cannot be self-sustaining." At a certain moment, employees will ask the following question: "What's in it for me?". Papa says that although employees are ready to strive for quality improvement, they still want to be rewarded accordingly. [62]

In their book "Why TQM Fails", Brown, Hitchcock and Willard [26] who believe in TQM, discuss how incentive schemes could help solve some of the problems that face TQM implementation. The authors first start by explaining why as soon as a company starts implementing TQM philosophy, it is faced by the fact that its current incentive scheme becomes an obstacle. The main reasons behind seeing the traditional incentive scheme as an obstacle is that it usually promotes quantity rather than quality and it also hurts the teamwork spirit. The authors discuss how instead of cancelling the incentive scheme, the company should redesign it in a way to help attain a better TQM implementation.

Conti [63] discusses the same conflict that many organisations face when they start implementing TQM while having an incentive scheme. Conti talks about the frequency of having such conflicts saying that they are "widely recognised", adding

that eliminating the incentive scheme is often a step that many of the organisations see inevitable on their way to implement TQM. However, Conti argues that "discontinuing such plans creates significant barriers to two of TQM's cornerstones: employee participation and continuous improvement." Conti explain his point of view by presenting several real workplace examples where cancelling the incentive schemes affected negatively the employees feeling of ownership of their workplace and their efforts to achieve improvement to the business. [63]

4.3 Summary

In chapter two the main groups of motivation theories were discussed. Starting with the first group of "content theories of motivation", the four most well known theories were discussed: Maslow's hierarchy of needs, Alderfer's theory (ERG), Herzerberg's and McClelland's theory of needs. The main common element between these theories was that all of them consider innate human needs as the key issue while studying behaviour and level of motivation.

The second group of motivational theories, which is known as "process theories of motivation", was then presented. This group of theories uses a different approach that sees the personal preferences, potential rewards and human's perception of these rewards as the main factors that determine the human beings' level of motivation.

At the end of this first section, the reinforcement theory was presented. The comparison between this theory and the first two groups of theories mentioned earlier showed that while the first ones use cognitive explanations of behaviour, by contrast, reinforcement theory explains human behaviour as a consequence of its environment.

In chapter three, the two categories of rewards and differences between them were presented: extrinsic and intrinsic. The main types of extrinsic rewards were then discussed in more details with main examples of each type, with emphasis on the financial incentive schemes.

In this chapter the term TQM was explored. Discussing then the difficulty of finding a generic definition for this term, it was considered preferable to follow the point of

view that defines the main attributes of TQM as the best way to understand this term. Those main attributes were then presented and discussed.

At the end of this chapter the relation between TQM and financial incentive schemes was presented and the refusal by TQM gurus and advocates to recognise such schemes was highlighted and the reasons behind this refusal were discussed. The point of view of the financial schemes supporters were then presented and their arguments were discussed. This difference in the point of view of both parties leads to the research question of this thesis as to whether a financial incentive scheme could be installed in a TQM environment without risking the main TQM attributes. The research project also tries to answer the question of whether the financial incentive scheme would actually benefit the organisation that has a strong TQM environment.

In the following chapter the organisation that was selected to be the subject of the research project is explored and the structure, systems and the environment of that organisation are discussed.

5 Organisation for case study

As mentioned in earlier chapters, the purpose of this research was to study the possibility of having a financial incentive scheme that can improve the performance of factory staff in a TQM environment without compromising the main TQM attributes. In this chapter the company which was selected to be the subject of the research project is presented. The structure, the relevant systems (particularly the rewarding system) and the TQM environment in that company is discussed.

5.1 Background

The parent company studied in this project operates in two main sectors, namely foods and home and personal care products. The local company (the subject of this research project) works only in the area of home and personal care products and it is a part of the Australasian operation that belongs to the multinational parent company. The Australasian operation includes two manufacturing sites for home and personal care products (one in New Zealand and the other in Australia) with a turnover around 430 million Australian dollars. There is one Board of Directors for the Australasian business with members from both countries. The local company started operation in New Zealand in 1919 producing only one type of detergent. Currently the local company produces on this site different variants of five main brand categories: Deodorants, Hair, Fabric Wash, Home Care and Skin and Personal Wash, with a total of 32 marketed brands.

The factory is built on an area of approximately 17,500 square meters. The total quantity produced of the mix of categories mentioned earlier were approximately 85,000 tonnes in 1998.

Total number of staff on the site is 390 with 226 permanent waged staff.

5.2 Company's vision and culture

The company has the following vision: "Leading brands, motivated people and best practice". The company's vision and its set of values are communicated to all staff.

Company wide targets and measures to be used (for Australia and New Zealand) are set yearly and cascaded to employees at all levels.

The company has followed the world class manufacturing systems for more than two decades. Continuous improvement is encouraged in the working environment using different tools and methodologies such as TQM, TPM, ISO9002 and ISO14001 as a framework. The relevant policies and procedures are communicated to everyone on site. The company has a strong TQM environment characterised by:

- Promoting continuous improvement in all areas of the business as the main tool that enables the business to retain its leadership position in the marketplace.
- A strong team environment with a very flat structure, and supervisory roles were eliminated over ten years ago.
- Employees are empowered to take the ownership of their processes supported by an efficient training system.
- The company supports the employees in leadership positions to play their role by enhancing their leadership skills through regional and global training courses and workshops.
- Customer-supplier relationships are actively promoted and enhanced with internal and external customers and satisfying the needs of all customers is the top objective of all departments.

Details of these characteristics are discussed further in this chapter and in following chapters.

5.3 Structure of the New Zealand branch

5.3.1 Departments

There are four operational departments (called in the organisation also as production departments) in the company. Those four operational departments are managed by three operational managers (one of the production managers is responsible for two departments). The Department of Engineering has a different manager while the Department of Stores is managed by one of the three operational managers.

The four production managers and the engineering manager report to the factory manager. The factory manger reports to the technical director who reports to the CEO of the Australasian operation.

The four production departments are:

- Soaps
- Liquids
- Powders
- Personal Products

The following departments work closely with the production departments as part of the Technical Department:

- Engineering
- Stores
- Quality Assurance
- Development

An organisation chart that shows the Technical Departments in the overall Australasian structure is available in appendix 1.

The following departments work closely with the Technical Department:

- Logistic (Planning & Supply)
- Technical Accounting
- Training
- Factory Personnel

Other departments are:

- Marketing
- Sales
- Human Resources
- Accounting
- Information Technology

5.3.2 Teams in production departments

In line with TQM practices, the company supports teamwork as a policy. Each of the four production departments consists of number of teams. Teams may or may not have a team co-ordinator. Teams are responsible for the day to day operational activities. Teams members agree on their teams' objectives that are cascaded from their departments' objectives. Teams are responsible for the majority of aspects that impact on the achievements of their objectives. The company provides the necessary tools, support and training to ensure that teams can achieve their objectives. Each team includes one or two fitters. A team support officer may be appointed to supervise cross-functional activities between different teams within the department or with other departments. The team support officers also have some administration tasks. Engineering support officers provide technical support to teams' fitters and operational members for all teams within the department.

5.3.3 The training system

Empowering teams to take the ownership of their processes is a TQM attribute. To enable the employees to take such ownership of their processes and to play an active role in the operational activities, the company had to support the employees with the skills they need for such responsibility. The company invests a considerable budget on training believing that it will benefit from having a skills based training system that aims to develop technical, operational, problem solving and interpersonal skills. The training can be on the job and or by courses on or off site in polytechnics or special training bodies. The company developed a "skills matrix" for factory staff with the contribution of employees from all departments. The "skills matrix" is the base on which the payment system of the factory's employees was structured and the company sets the following principles for the training system:

- All training will be voluntary (no one will be forced to train)
- The company will pay for all courses that are utilised in the "skills matrix"
- The company will provide the time needed for each employee to be trained

5.4 Rewarding System

There are two remuneration systems on site: the salary system and the wage system. People on the salary system are offered an annual salary, overtime (excluding managers), medical insurance, superannuation and some other fringe benefits (social club, staff sales, etc.). The focus in this research is on those people that are paid wages since the majority of factory's staff is on this system. In the following section the details of the wages remuneration system are presented.

5.4.1 Package

The company offers employees a package that consists of: hourly ordinary pay, allowances, medical insurance, superannuation, some other fringe benefits (social club, staff sales, etc.) when applicable. The number of skills acquired and which of the working hours schedules the employee follows are the two main factors that determine the package of each employee.

5.4.2 Working hours

Factory staff follow one of the following three schedules:

Day: For employees working 8 hours from Monday to Friday during normal working hours between 7.30 AM and 6.00 PM.

Shift: For employees working from Monday to Friday but outside the normal working hours.

Four by Four: Employees working four days followed by four days off. This schedule means that they are asked to work during weekends and during public holidays if needed.

5.4.3 Ordinary pay

An employee's hourly ordinary rate is mainly determined according to the employee's position on a "skills matrix" that consists of the following levels:

For operational departments:

- Trainee
- Operator

- Intermediate Technician
- Production Technician
- Operations Technician

For Engineering staff:

- Trades Person
- Advanced Trade
- NZCE

Employees can move from one level to a higher one once they acquire the needed skills for the higher level. The company provides needed training courses for all levels, so those employees can acquire the needed skills. The company neither forces nor constrains the of learning new skills.

5.4.4 Allowances

All employees are eligible to some or all of the following allowances: meal, travel, dirt, confined space/tank, on-call and container handling.
An allowance is paid to compensate the unusual working hours for those who are working on shifts or on the Four by Four system mentioned earlier. An extra tool allowance is paid only for trade persons.

5.4.5 Overtime

Overtime is calculated on a daily basis. Aside from shift work, all time worked outside or in excess of the ordinary working hours is considered as overtime. The overtime is paid at different rates based on the number of extra hours worked, which days of the week they were worked and whether they were during statutory holidays or not.

5.4.6 Medical insurance

The company offers a medical insurance policy that covers all permanent employees as well as their families. The policy covers 80% of the cost of the majority of medical

expenses (dental care and other minor services aren't included). Employees have the option of topping up the insurance policy to cover 100% of medical expenses.

5.4.7 Superannuation

The company helps employees to save for their retirement by sponsoring a superannuation scheme. The benefits of this scheme as well as the running costs are subsidised by the company.

5.4.8 The old financial incentive scheme

The factory's staff was covered by an old financial incentive scheme that was started in 1981.

5.4.8.1 Structure of the old scheme

The old scheme had two measures. The first was man-hours per tonne and the second was waste on some selected packaging materials. For both measures the result of each year is compared with that of the previous one. If there is a saving, this amount is shared between the company and employees.

5.4.8.2 Difficulties with the old scheme

The old incentive scheme was meaningless for the business and employees for several reasons. From the employees' perspective this scheme didn't seem relevant because:

- To reduce the operational costs, in the past, the majority of industrial organisations focused on maximising the output of their production facilities. With such a focus, the man-hours per tonne, which was used in the old incentive scheme, was a relevant measure as it keeps people focused on maximising the output of the factory. Now with the new planning and production philosophies (just in time, supply chain performance compared with factory performance, quick replenishment, etc.) employees are expected to produce just what is needed for the market for a certain period. In other words, the old incentive scheme was asking employees to ignore the production plans and produce as much as they could, which wouldn't be possible for them to achieve.

- The bonus was calculated by comparing the year's result with the previous year. Practically that meant that if employees had very good results in a certain year, it was most likely that no bonus (or very marginal) would be achieved the year after.
- Employees did not accept the fact that the scheme was based on the average performance of all four operational departments and they argued that a bad performance in one department would affect the bonus of all the other ones.
- Employees saw the bonus paid annually as a very remote reward and, therefore, they couldn't see a clear relationship between their day-to-day performance and their bonus at the end of the year.

From the business's point of view the scheme was seen to be failing for the following reasons:

- Using man-hour per tonne as a main measure meant that the organisation was promoting the maximisation of production volumes as a main driver which first, isn't in line with the TQM approach, secondly didn't match with the modern planning and production techniques (just in time, supply chain management, etc.).
- Although the waste on packaging materials was a concern for the business, motivating employees to reduce this waste could be achieved by compromising quality which wouldn't be accepted in a TQM environment and specifically with a high focus on consumers' satisfaction.
- The cost of non-packaging materials was more than double that of the packaging materials. Having a scheme that only focuses on packaging items did not meet the business's wish to have a better control over the manufacturing's cost.
- The scheme didn't have any motivational effect on employees

For the reasons mentioned earlier, the old scheme was considered to be meaningless for both employees and the business and as a result, for a long period, many parts within the organisation were asking for its cancellation. Some were asking that the scheme be cancelled and not replaced since they believed it would be unlikely to find an incentive scheme that could motivate people, deliver the business's needs and fits into a TQM environment. This belief in the incompatibility of financial incentive schemes with a TQM environment was discussed in the previous chapter and illustrated in the book of M. Brown, D. Hitchcock and M. Willard [26]. The authors

say in their book that as soon as a company starts implementing TQM philosophy, it is faced by conflicts between its existing incentive scheme becomes and the TQM approach. Those conflicts result in seeing the incentive schemes as obstacles in the way of the TQM approach and thus, in many cases, those schemes are cancelled or as in the case of this research, some companies just ignore the schemes and let them die. In this company (the subject of this research project) the old incentive scheme paid bonuses only twice in ten years totalling less than six hundred dollars. Although many parts of the business believed the scheme should be cancelled and not replaced (for the reasons mentioned earlier), some managers still saw the need for another trial to install an incentive scheme that linked the performance of employees to a portion of their income.

5.5 TQM awards

All factory employees were eligible for the benefits presented earlier. In addition to those benefits, the company presented special awards (called TQM awards) to particular employees and teams. Those awards are presented to individuals or teams that showed remarkable commitment to one or more of the following TQM attributes: continuous improvement, customer satisfaction (external or internal), leadership and teamwork. There are three categories of TQM awards. Awards are for employees across the whole site, which means that employees from outside the factory can earn them (from sales, marketing, accounting, etc.). The highest award is called the "TQM employee of the year" and this prize goes to only one individual based on the criteria mentioned earlier. The second award is the "TQM achievers of the year" and this one goes to eight individuals from different departments based on the same criteria mentioned above. It is possible that more than one person from the same department can earn this award. The last award is "TQM team of the month" and it goes to one team each month based on the same criteria mentioned earlier but usually it is linked to a particular project or job that helped to improve the quality of a process or to improve customer satisfaction.

5.6 Summary

In this chapter the systems and culture of the organisation selected to be the subject of the research project were presented. The problems that faced this organisation -which has a TQM environment- with their old incentive scheme were in line with the findings of the literature on the relation between TQM and incentive schemes discussed in the previous chapter. Those problems caused many parts of the organisation to recommend the cancellation of the old scheme with no replacement. On the other hand, some managers saw that linking a portion of the employees' income to some key tasks of high priority to the business could keep employees focused on those tasks and therefore increase the chance of achieving them. The only concern that those managers had was on whether an incentive scheme could fit in the TQM environment without hurting those TQM attributes that the business spent more than one decade reinforcing them.

In the following chapter the methodology used in this research project and the steps followed to design and install the new financial incentive are discussed.

6 Methodology

6.1 Introduction

As presented in chapter four, the advocates of TQM and modern management techniques put pressure on financial incentive schemes for different reasons that were discussed earlier. On the other hand, financial incentive schemes' advocates see that these schemes have proven, over many decades, that they deliver good results to a business. In between these two points of view exist a wide category of people who believe and operate in a TQM environment but in the same time wonder if the financial incentive schemes could help them to achieve better results for their organisations.

6.2 Research question

The aim of this research is to answer the question on whether a compromise between TQM and financial incentive schemes could be achieved to make the best use of both approaches. To answer this question, a financial incentive scheme was designed and implemented in a TQM environment. The performance of employees was monitored using some specific key performance indicators (KPIs) that will be discussed in details later on in this chapter. The scheme was structured and the KPIs were selected (or developed) bearing in mind the main TQM attributes discussed in the previous chapter. The KPIs used in this research project covered the performance of employees in the following areas of interest to the business:

- Product and process quality
- Manufacturing management
- Environmental compliance
- Safety compliance
- Cost effectiveness

6.3 Assumptions of the research

The main assumption of this research was that the alteration, if any, in the performance levels in the five areas mentioned earlier would be explained as a result

of changes in employees' performance as a result of implementing the financial incentive scheme. To validate this assumption, some main criteria were set while selecting the areas included in the research and the key performance indicators used to monitor employees' performance in these areas. First, the areas selected had to be, to a great extent, under the employees' direct influence. Areas that could be influenced by external factors away from employees' influence (such as currency rates or market fluctuations) were avoided.

Secondly, during the data collection period, all monitored areas were observed so that no significant changes would take place in the way these areas were managed.

The third criterion was that the key performance indicators were selected (or tailored in some cases) in a way to ensure that employees could not manipulate the data while trying to maximise the bonus they earned.

The fourth criterion was that, for benchmarking reasons, the way of measuring the key performance indicators used in the research stayed the same before and during the data collection period.

A final criterion, which was not needed to validate the assumption, was that the key performance indicators had to cover areas of interest to the organisation. This criterion was needed to ensure getting the essential support from management to the research project.

6.4 Methodology

To carry out this study, an organisation that has a strong TQM environment was identified for this research (discussed in the previous chapter). An incentive scheme was designed and implemented in this organisation and employees' performance was judged against some predetermined KPIs.

Although the selected KPIs were all measurable, in this particular research, human nature, employees' motivation, working environment and organisation's culture are key factors that affected these KPIs and, therefore, had to be considered.

Similar to many other systems and schemes, an incentive scheme, to operate properly, needed to win the support of all stakeholders, namely managers and employees.
In addition to obtaining support from management, encouraging different people, from all levels within the organisation in the design and implementation of such scheme was important to gain their support. Involving management and employees in the design and implementation process needed a high level of interaction with the researcher through all the different phases of the research.

6.4.1 Action research

Avison, Lau, Myers and Nielsen [64] define action research as a qualitative methodology that combines theory and practice and explain that action research is "an iterative process involving researchers and practitioners acting together". The authors add that this involvement between researchers and practitioners covers the whole process and stages of the research starting from the problem diagnoses to the final learning stage.
Avison, Lau, Myers and Nielsen add that to make academic research relevant, the researchers should test their theories "with practitioners in real situations and real organisations". [64]
Clark [65] sees action research as one of the main qualitative methodologies and he gives it the following definition: " Action research is one strategy for influencing the stock of knowledge of the sponsoring enterprise". Clark adds that this strategy is efficient for distributing knowledge and, in its best cases, the researcher and the sponsors both benefit through having a better understanding of a particular problem and therefore an increase in knowledge in this particular area of research. [65]

Kotnour, Barton, Jennings and Bridges [66] say that action research is more than just trying to ensure that a certain generic theory sounds valid. The main point, as the authors see, is that the validity of this theory should be tested in a certain specific environment with all its individualities. The authors add that in many cases, when action research is applied in organisations, conceptual models are developed and data is interpreted with an aim of meeting some specific needs for these organisations to "elicit best practices". [66]

Westbrook [67] mentions similar definitions of action research and highlights some basic differences between the role of the action researcher and the consultant. The first difference Westbrook sees is that although the consultant shares a certain common goal with the organisation, like the completion of an analysis or implementing a certain plan, the action researcher may still have a similar goal but as part of a larger primary goal. That primary goal is to reach a new knowledge and quite often such goal could be irrelevant for the company.

The second main difference between the consultant and the action researcher is that the consultant would always have his end target specified and detailed most probably from the very beginning of his project with the organisation. An action researcher can't offer such commitment to the organisation since he or she has to keep an open mind all through his research process and till the very end of it.

The last main difference, and the most important as Westbrook sees it, is that the consultant usually uses some well-known and most probably historically tried techniques. The action researcher, to the contrary, looks forward to develop and test new approaches and try to prove their validity. [67]

Baskerville and Stage [68] see that this methodology should be used when studying complex subjects involving social processes. The authors say that the best way to carry out the study is by introducing changes into that process and observing their effects.

Baskerville and Stage discuss that to validate the theory, we should look at the extent to which these changes successfully solve specific problems in the setting. The authors than added that this methodology is "distinct from other methods such as laboratory experiments or case studies in which the validity arises from replicablity or exhaustive"

6.4.2 Participatory action research

Participatory action research is a type of action research methodology. The main characteristic of this particular methodology is that it emphasises the importance of involving the subject of study, not only by being part of the experiment but also by being involved in the research process itself. Hecker [69] explains this difference saying that participatory action research "removes the passiveness of the subjects of

research by involving participants as co-researchers". Hecker adds that this methodology is a responsive and flexible and it covers the cycles of planning, actions and even evaluation.

Whyte [70] sees that this methodology is particularly powerful in situations where organisations are trying to have some changes of socio- technical nature. Whyte adds "in such situations, we need to develop a process of change, resulting in organisational learning, over a considerable period of time. To be useful in stimulating and guiding this process, the researcher cannot simply stand aside and just report research findings to the decision makers." [70]

6.4.3 Why participatory action research

In the previous sections, the main characteristics of the participatory action research methodology were presented and the advantages that this methodology gives to the researcher while dealing with complex subjects involving social processes were then discussed. Considering the complex nature of this research and the big influence of parameters with social aspects like human needs, motivation and working environment, it was then concluded that the action research is a suitable methodology to be used. The main reason behind specifically choosing participatory action research was that incentive schemes are meant to deal with people's motivation. For those schemes to succeed, the employees should have faith in them and the best way to ensure having this faith is by including employees in all different stages of developing the scheme. The second main reason behind choosing participatory action research was the organisation's objectives and its expectations from this research. Having an incentive scheme that motivates employees would not be a good reason for management to support such scheme unless it matches with the organisation's objectives. Managers, who represent the organisation, have a great influence on how the scheme could progress and involving them in all stages while developing the scheme was the best way to ensure their support to the scheme.

6.5 Research Project

The human resources manager represented the organisation while dealing with the university and the researcher. The main steps of this research projected were:

- A detailed study of the factory structure and conditions and general study of the organisation's structure and environment.
- Exploration of different options of incentive schemes
- Design of the incentive scheme
- Implementation of the incentive scheme
- Data collection

Details of these steps are discussed later in this chapter.

In order to assist the researcher in his project, the organisation represented by the human resources manager was committed to the following:

- To ensure that the researcher would have access to all relevant data needed for his research
- Provide needed facilities for the researcher on site: Office, computer, etc.
- To ensure an easy and efficient communication with employees within the organisation, the researcher got an email address on the organisation email system.
- The organisation would provide the researcher with possible support as needed.

In the following sections the different steps of the research project are presented

6.5.1 Study of the organisation and factory's operation conditions

Before starting the design of the incentive scheme, a general study of the organisation's structure and culture was undertaken. A detailed study than was carried out for the factory to cover the factory structure, nature and composition of operation, product flow and the operating conditions. This study was essential to determine the most suitable incentive scheme that could fit with the organisation's culture and match with the factory operating conditions.
The outcome of this study was presented earlier in the Background chapter.

6.6 Scheme design

In the following sections the different steps that the researcher followed to design the scheme are presented.

6.6.1 Formation of the design team

In a TQM environment, participative management style and self-management teams are part of the organisation's culture. In such environment, imposing a ready-made incentive scheme wouldn't work regardless of whether the scheme was well designed or not.

It is crucial for the success of any incentive scheme to win the support of employees on all levels. A design team was formed that included the human resources manager, factory manager, the three operational managers, the engineering manager, the factory employees support manager, an industrial engineer and the researcher. The human resources manager and factory managers were on a higher rank in the management structure. They introduced the researcher to the rest of the team and were committed to the provision of help to the researcher or the design team through all the different stages of the project.

The operational managers, engineering manager and factory employees' support managers are one step lower in the management structure and they are seen as the front line managers (the organisational chart is in appendix 1). Including the front line managers was essential in all the stages of the scheme's development. Due to their position in the management structure, these managers are aware of the organisation's strategic objectives and directions. At the same time, they have a detailed knowledge of the operation conditions, constraints, potential areas of improvement and, most importantly, they can feel and influence significantly the day to day performance of the shop floor employees (their subordinates). Having, from an early stage, the front line managers participating in designing the scheme was essential to come up with a scheme that fits well in the organisation's environment and ensured the support of all levels of managers to the scheme at later stages.

The industrial engineer administered the old incentive scheme. His participation was important since he knew the history and the weak points of the old scheme.

The researcher role was to manage and guide the project through the designing phase, get management approvals, prepare a communication plan and implement the scheme.

6.6.2 Preliminary work

There were four main preliminary steps that had to be undertaken at an early stage before designing the scheme.

The first step was to give the design team sufficient background on the main types of incentive schemes and the differences between them.

The second step was to determine the organisation's strategic objectives and their expectations on how far the incentive scheme should contribute to reach those objectives.

The third step while designing the incentive scheme was to identify the scheme's main features that could fit with the organisation's environment and its culture.

The last step was to explore the measures and KPIs available in the system.

6.6.2.1 General introduction on incentive schemes to the design team

Unless all the members of the design team have considerable experience with incentive schemes, it is essential to provide an introduction on the main types of incentive schemes. An introduction on the well-known incentive schemes was presented and covered the main features, history, potential benefits and risks associated with each of them. Finally some case studies of companies of similar size - and their operation conditions- that adopted those schemes were also presented to the design team.

6.6.2.2 Organisation's strategic objectives

The Board of Directors sets the organisation's objectives and the yearly objectives are communicated at the beginning of each year to all departments. The yearly objectives cover the following main areas as mentioned in the yearly plan.

- Market share
- Consumer satisfaction
- Customer satisfaction
- Cost effectiveness
- Manufacturing management
- Business excellence

- People excellence
- Environmental excellence
- Profit &
- Cash

In the yearly objectives, the Board of Directors states the measures to be used to judge performance in each of the areas mentioned above. Departments' heads decide together on each department's share and way of contribution in order to reach those objectives.

From the organisation's point of view, the incentive scheme was expected to be a tool that helps managers to keep their subordinates focussed on achieving the key objectives of the organisation.

6.6.2.3 Scheme's main features

The design team agreed from the very beginning on the following main features that any scheme should have to be able to fit with the organisation's environment:

- To be in line with the organisation's strategic objectives
- To cover the shop floor employees (280 persons)
- Not to be a part of the employees' contract with the company. This feature was essential for management to be able to adjust the scheme to the business's annual plan with no need to get the unions' approval.
- Transparent
- Simple to manage
- Meaningful for employees

6.6.2.4 Measures and KPIs

At this early stage of the project it was essential to explore the available measures in the system. Keeping in mind the main business's objectives, it was important to ensure the availability of the measures needed for these objectives. A second point that had to be looked at was the accuracy and relevance of those measures. Although

a measure like the organisation's profit is accurate, it was seen that it was remote from the direct influence of the shop floor employees and, therefore, wasn't necessarily relevant when monitoring the performance of the category of employees that was the subject of this project. The details of the measures actually used in the scheme are discussed in later sections.

6.6.3 Exploring the different options

Having finished the preliminary work, a good background was developed on the company's objectives, available measures and culture. This enabled one to go through the different types of incentive schemes, shortlist them and present to the design team the ones that should have the highest potential for success in their environment. Keeping in mind the main features agreed on earlier, the business objectives and the available measures in the system, the design team studied each of the proposed schemes. In the following sections the different options identified are presented with the outcome of the discussion of each of them with the design team.

6.6.3.1 Profit sharing

As discussed earlier in chapter three, the idea behind profit sharing schemes is to share part of the extra net profit of the business with employees. This option has the following two advantages:

- It promotes the idea that all departments and units share the responsibility of reaching the objectives of the business as well as the potential benefits of reaching these objectives. Having an incentive scheme that promotes this idea of commonality of goals is inline with the TQM environment in the organisation.
- The second advantage found with this option was that since the bonus is a part of the extra benefits reached, the business should not suffer any financial pressure in case no extra benefits were gained.

On the other hand, profit sharing has the following disadvantages which were mainly a result of using the net profit as the measure to judge shop floor employees' performance and determine their bonus:

- Not easy for shop floor employees to understand the way of calculating the net profit and therefore not transparent enough

- Doesn't help keep employees focussed on their objectives since there is no clear and direct link between their effort and the business overall net profit.
- Their bonus is greatly affected by factors far from their control like fluctuation in sales figures, changes in taxes and legislation, change in currency rates, extra promotion activities, etc.

Because of these disadvantages, profit sharing was not considered to be the best option.

6.6.3.2 Gain sharing

While profit sharing schemes focus on the overall organisation's performance, the gain sharing schemes usually focus on the performance of the operational facility.
As discussed earlier in chapter two, gain sharing schemes usually judge employees performance by measuring the ratio between the value of the good production they manage to produced during a certain period with the cost of labour, raw materials, energy and other running costs during the same period.

The gain sharing was seen by the design team to have the following advantages:

- Shop floor employees have great influence on some of the measures used to calculate their bonus like materials usage and repair cost. Having this influence increases the potential of achieving gains in these areas.
- As many of the measures mentioned earlier are shared between different operational departments, the scheme would promote sharing knowledge, experience, responsibility as well as gains.

On the other hand, the gain sharing schemes were seen to have the following disadvantages:

- Although shop floor employees have much greater control on many measured parameters, there are still some key parameters affected by factors out of their control. An example of those parameters is energy cost which could vary (increase or decrease) from one period to the other due to change in energy prices or the introduction of new equipment with different energy consumption rates. A second

example is materials cost that could be affected by several factors out of the employees' control.

- Productivity (or the amount of production produced in a certain period) is a key measure in gain sharing schemes. This measure, just like energy and materials cost, could be affected by reasons out of employees' control like fluctuations in demand because of competition or other market related issues. Another factor that made this measure unusable in a modern manufacturing environment is that maximising the volumes produced does not necessarily add value to the business. The cost of stock on hold is an area which every business tries to control and therefore the focus is on producing no more than the required quantity at the proper time
- Although having the necessary focus from employees on measures like cost of materials or energy cost looks promising for achieving savings to the business, the greatest risk of using such measures is in the potential negative effect on product quality. In a market where the quality of products or services is a minimum outcome that any company has to ensure to survive, a TQM company would definitely be cautious of using such measures.

Because of the disadvantages mentioned earlier and specifically those ones related to quality, the gain sharing schemes were seen inappropriate and did not fit in with the organisation's culture.

6.6.3.3 Pay for performance

As presented in chapter two, pay for performance schemes are about relating remuneration to individuals' or teams' performance. Performance is usually judged against some targets and measures agreed early in the year between managers and subordinates. Assessment sessions between managers and subordinates usually take place once or twice a year and some organisations have them on quarterly basis.

These schemes were seen to have the following advantages:

- They enable the organisation to include the most relevant strategic objectives and measures to judge their employees and therefore keep them focused on these objectives.

- Assessment sessions are a good opportunity to agree on the future action plans to reach the targeted objectives and to identify the training needed for employees in order to have the right skills to reach the agreed objectives.

The pay for performance schemes were seen to have the following potential disadvantages:

- In almost all operation activities, there is a strong interdependency between individuals or teams. With such interdependency, having people focused only on their own performance means the overall performance of the business usually suffers.
- Having individuals or teams focused on their own performance isn't promoting co-operation and knowledge sharing. In extreme conditions, which happen in many cases, an unhealthy competitive environment between the individuals or the teams is generated.
- Linking employees' performance to remuneration (base pay) results in the organisation being committed to irreversible levels of pay. In the case where the same performance that was reached by an individual during a certain period wasn't repeated during the following period, the organisation is still committed to the higher pay level this individual reached during the period of high performance. This negative point in these schemes is due to the difficulty in decreasing someone's base pay because of regulations or just because of the impracticality of doing it.
- In the pay for performance schemes, managers play the main role in evaluating their subordinates' performance, which decreases the degree of transparency of these schemes.
- Different managers could have different perceptions of performance, which adds an extra complexity when using those schemes. It is common to have considerable differences while different managers assess the same job. Having clear and determined goals and objectives decreases the chances of having such differences. On the other hand, while trying to minimise the variations in perceptions by more specified and robust measures, the goal setting and the administration of the measures could become more and more sophisticated and difficult to manage.

Although the pay for performance schemes looked very promising with the potential of linking people's goals with the organisation's objectives, a more careful study of the negatives, mentioned earlier, of such schemes resulted in their being considered them risky and incompatible with the organisation's culture.

Welbourne and Mejia [25] discuss the main negative points faced in different organisations when using the Pay For Performance schemes, and conclude that these schemes are difficult to administer and objectivity isn't guaranteed.

6.6.4 Conclusion

After studying the advantages and disadvantages of each of the schemes mentioned earlier, it was concluded that tailoring a scheme could be the most suitable option. The idea was to try to encompass the relevant advantages of the schemes discussed earlier and avoid their disadvantages in order to develop a scheme that satisfied the organisation's needs and fit with its culture. In the next sections, the process of designing such scheme is discussed.

6.7 Proposal

During the development process the design team, considering the outcome of exploring the different options, identified the scheme's features, structure, KPIs, cost and potential benefits. In the following sections, the main steps that the design team took to develop the scheme's proposal are discussed.

6.7.1 Scheme's main features

In addition to the main features agreed on an early stage (mentioned earlier in this chapter), the design team added the following three features:

- Having explored the danger of schemes based on individuals' or teams' performance (unhealthy competitive environment) and inconvenience of schemes based on the overall organisation's performance (measures are remote from the control of employees), it was agreed that departments' results were the most appropriate measures to be used in this research project.

- It was agreed that the scheme should promote co-operation and knowledge exchange between individuals and teams
- Only those areas that could be influenced by employees' performance were to be considered. Areas that could be affected by remote factors such as market fluctuations, currency, etc. were excluded.

6.7.2 Structure of the scheme

The scheme was operated at the departmental level. The departments covered under the scheme were the four operational departments (detailed in chapter three) and the support departments that work closely with the operational departments. The support departments included are Engineering, Stores and Canteen. The decision to include the three service departments was taken by the organisation mainly because these three departments were originally covered by the old incentive scheme, which was replaced by the new one developed for this research project. The organisation was concerned that taking some employees off an incentive scheme could have a demoralising effect. In all the departments included, only employees on wages were covered by the scheme. A few key salary persons that work closely with wages staff and affect their day to day performance were included as well. Overall the number of employees covered under the scheme was 280 employees.

The four operational departments had five areas to focus on (details of these areas are discussed later). In each of the five areas, two tasks were to be achieved.

The service departments' performance is judged against the average performance of all four operational departments as well as some internal tasks relevant to each of these departments.

The results of the scheme are communicated monthly and incentives are paid quarterly.

Incentives are based on the number of tasks achieved for each department. Details of incentive calculation are presented later in this chapter.

6.7.3 Main areas and KPIs used

In chapter two (motivation theories) we explored the concept of performance management with emphasis on task setting techniques. McKenzie and Shilling [71]

emphasise the importance of selecting the appropriate measures, adding that selecting the right measures should result in having a "motivational" performance management scheme. The authors mention some of the key characteristics of motivational tasks such as their being realistic and achievable, under the employees' direct control, fitting within the environment and culture of the workplace and their simplicity. In this research project, the guidelines of the performance management approach was used while selecting the tasks and KPIs that were used in the research project and while setting the levels of achievement expected from employees (as is discussed later in this chapter).

From the areas identified by the Board of Directors (mentioned earlier in this chapter) as important for the organisation's success, the following five areas were selected to be included in the research project.

- Product and process quality
- Cost effectiveness
- Manufacturing management
- People excellence
- Environmental excellence

In the following sections the KPIs used by the organisation in each of these areas are presented. Those KPIs were studied to meet the guidelines of performance management techniques mentioned above and detailed in chapter two (motivation theories). The advantages and disadvantages of each of those KPIs from the research perspective are discussed and the ones selected for the research project are detailed.

6.7.3.1 Product and process quality

All organisations try their best to ensure as much satisfaction as possible for their consumers. Providing consumers with a high quality product is the first and the main step in order to ensure their satisfaction. A major part of the responsibility to produce high quality products is within the hands of factory employees. In the following section the available performance indicators and those used are discussed.

Factory fault consumers' complaints

The first available option was to monitor any potential change in the number of complaints received from consumers after introducing the scheme. The organisation has in place a nation-wide system to collect consumers' complaints. The system is based on collecting complaints through retailers and directly from consumers through a free call number or a postal address printed on all products. The consumers' complaints are stored on a database after being reviewed and investigated. The total number of consumer complaints per month is a formal measure used on site and widely communicated to all employees. The main concern with this measure was that not all the complaints received are due to factory faults or under the employees' direct influence.

To make this measure usable in this research, among the total received complaints, only these ones that were under the employees' control were included in the scheme. An investigation process was established to review and filter the customer complaints received. More details of this process are discussed later in the Data Collection chapter.

The name of this new modified measure was "factory fault consumers' complaints".

Non Reported Non-Conformance Products

The organisation has in place a system to collect and measure the volumes of "non-conformance" products. "Non-conformance products" are those products that don't meet the specified quality standards and detected before they reach the consumer. A product could be classified as "non-conformance" at any stage of the process starting from the operational facility, passing through the different storage stages and through to the retailers. Anyone on site can raise a non-conformance report when a quality problem is detected. The Department of Quality Assurance (QA) then reviews the suspected product and a decision is made regarding the quality of that product. The Departments of QA and Development together with operational departments investigate the problem and identify its source and who is responsible. The non-conformance reports with the results of the investigation are stored on a database.

The organisation monitors the volumes of the "non-conformance products" for two main reasons. The first is to have this measure as a buffer to detect and deal with as many quality problems as possible before they reach the consumer. The second reason is to identify causes of these quality problems, to learn from accumulated

experiences and follow up progress as different solutions are tried to eliminate the causes of these problems.

The main issue with this measure is that having the volumes of "non-conformance products" as a measure has a high potential quality risk since employees can manipulate the results by not reporting the non conforming products while trying to maximise their bonus and as a result work against the organisation's best interest. In a strong TQM environment, such as in this research case, employees have the ownership for the quality of their products and are usually the first line of defence that detects "non-conformance products" and raise the non-conformance reports. Due to the potential high risk for products' quality and the negative attitude that could result in linking this measure to an incentive scheme, a different measure was needed for the scheme. The new measure used was the "Non Reported Non-Conformance Products". This measure looks only at the defective volumes produced and detected by people outside the production teams. People outside production teams could be quality auditors, managers, fitters, stores people or even retailers. From the research perspective, this new measure had the advantage of being independent of any manipulation risk by the employees. From an organisational point of view, this measure promoted the organisation's message of giving the ownership of quality of the company's products to their employees since detecting and reporting the defect is the only way for employees to avoid someone else reporting the defect and, therefore, threatening their bonus.

For the purpose of this research, the two modified measures were used to reflect the employees' performance in the area of products and processes quality.

6.7.3.2 Cost effectiveness

There are several measures used on site to measure the cost effectiveness targets that the organisation sets for their employees. In the following section samples of the main available measures are presented and the measure used is discussed.

Trading Contribution

The trading contribution is a similar measure to the net profit used in many organisations. It includes all kind of expenses, from all departments, such as

marketing research, advertising campaigns, development programs, salaries and wages, depreciation, etc. and compares them with the dollar value of the goods sold. Factors such as currency exchange rates, interest rates and all financial factors in the market affect the Trading Contribution and, therefore, this measure reflects the real overall organisation's financial performance during a specific period. However, referring to the criteria of used measures, mentioned earlier, the Trading Contribution was found to be a measure which is so considerably remote that employees cannot influence it directly and, therefore, this measure was excluded.

Factory operating cost

Factory operating cost is a measure that focuses only on the factory's financial performance. This measure includes all cost related to running the factory such as the factory's staff wages and salaries, machinery, materials, energy, training of factory staff, depreciation, etc. The sum of all expenses is then compared with the dollar value of the goods produced. Although the factory operating cost reflects to a greater extent the financial performance of the factory's employees when compared with the Trading Contribution, there are still some external factors, like changes in material costs and energy price or the selling values of goods produced, that could affect this measure.

Materials savings

For all the materials used on site, there is a predetermined standard utilisation figure set by the four operational departments together with the Department of Development. This standard utilisation figure includes the theoretical usage rate for each material plus an allowed waste percentage that shouldn't be exceeded. The allowed waste factor is to cover acceptable process wastage which can occur, for example during change-overs on production lines, development trials as well as reasonable left over quantities in drums and containers.

For each period, the Department of Technical Accounting looks at the actual dollar value of materials used to produce the goods during a certain period and compares this figure with the standard materials usage dollar value. The difference between these two figures highlights any extra loss or savings.

Although this measure isn't affected by any external factors, it has two weak points. The first is that, in many cases, an under usage of a certain material could be offset by

an over usage of another material. Having the measure looking at the total net dollar value of savings achieved cannot detect the actual materials usage figures for each item. The second weak point with this measure is that it focuses staff on the reduction of material waste. In extreme conditions while employees are trying to maximise their bonus, they may tend to under-utilise materials (specifically the most expensive). In such circumstances, the quality of products could be compromised which was a risk that a TQM environment wouldn't allow. Another KPI that measures the usage of materials with no risk on quality was modified for the purpose of this research and is discussed later.

Energy cost savings

Energy is a significant cost component. Energy cost savings is an important measure on site. This measure looks at the energy dollar cost per tonne of product.

Although this measure is important on the site and widely communicated, there are some concerns regarding the use of such a measure to judge people's performance. The first concern is when introducing new products, the energy needed for these products isn't necessarily similar to the old products and, therefore, no easy benchmarking is available.

The second concern is, due to the nature of the process with several production lines, there is a minimum energy that would be consumed regardless of the volumes produced on these lines. In the case when the volumes produced are changing, which happens frequently because of market changes, the energy consumption rates for these specific products change. Due to the two concerns above, the measure of energy cost savings was seen to be irrelevant to the research project and not under the employees' direct control. Therefore it was not used in this research project.

Manpower cost per tonne

Manpower cost per tonne is a measure that looks at the labour cost for each operational unit or area and compares it with the number of tonnes produced in this area in a certain period. Although this measure could reflect employees' productivity and the savings on labour cost, some important concerns were seen.

The first concern was that each area produces a particular mix of different products with different unit weight. In the case when the mix of these products is changing

from one period to the other, the total tonnes produced are changing and, therefore, the manpower cost per tonne is changed. The second main concern is that this measure promotes increase in outputs, which could compromise quality in extreme cases.

Materials usage compliance

Except for the measure of materials saving, all other cost effectiveness measures discussed earlier were, to differing extent, affected by factors outside the control of the production employees.

Although the materials saving measure didn't have the same weak point (mentioned earlier) as the other measures, it still had the two weak points detailed earlier namely over-usage on some materials could be offset by under-usage on others and secondly the potential risk of compromising quality while trying to achieve as much saving as possible. To avoid these two weaknesses, the measure was modified to monitor the materials usage compliance. As mentioned earlier, for each material used on site, the Department of Development and the four operational departments together set a standard usage figure and a waste allowance. The modified measure monitors the number of materials being used within the standard usage and the waste allowance. In other words, for employees to earn a bonus, they had to avoid any over or under usage for as many materials as possible and thus the company could avoid losses while maintaining good quality products.

This measure was decided to be the only one that met all the criteria for an accurate reflection of employees' performance in the area that the business calls "cost effectiveness".

6.7.3.3 Manufacturing management

In this area the organisation measures the reliability of the different operational units. In other words it measures the ability of different operational units to produce the demands required by the market within a specified time frame. The following two measures are available on site.

Production versus plan (total tonnes)

Production output versus planned output is a measure that compares the total planned tonnage in a given period with the quantity actually produced. The plan is reviewed monthly and adapted to market needs. The first concern with this measure is that it promotes producing as much product as possible, which could have a negative impact on quality. The second concern is that under producing one variant could be offset by over producing another one and although the end result is not being able to deliver the needed quantity of specific items to the market, the measure overall will show a good result.

Production versus plan (% of variants)

The production versus plan as percentage of variants is a measure that looks at the quantity produced of each individual variant versus the original plan. For each variant, if the quantity produced is within the limit of plus or minus 10% of plan, this specific variant's plan is considered to be met. For each operational area, the number of variants that meet this condition (of +/- 10% of plan) is calculated.

The only concern with this measure is if the operational units managed to produce many variants within the +/- 10 but the majority of these variants are one side only of the 10% allowed tolerance. An example is if the majority of variants produced were on the negative side (i.e. only 90% of the planned quantity). In this case, although the number of variants meeting the condition is high, the overall tonnage produced could be as low as 90% of the plan.

From the organisation's perspective, it was seen that using both measures would ensure delivering the needed products with needed volumes on time.

6.7.3.4 People excellence

There are several KPIs used in the organisation to measure what the business calls in its annual plan "people excellence". Among these KPIs are acquiring new skills, employees satisfaction and safety in the workplace. Safety in the work place was seen as the one that employees could influence the most. The organisation puts a lot of emphasis on safety and spends considerable effort in this area. The following safety measures are the main ones used on site.

Lost time incidents

This measure looks at the number of incidents that result in a lost time that equals or exceeds one working day. The lost time incident is usually a major one that needs medical care for the injured person and therefore it is very unlikely not to be reported.

Minor incidents

This measure looks at the number of incidents that happen but do not cause working time loss. The concern with this measure is that people, for bonus reasons, could hide such incidents. The risk is that the incentive scheme, in this way, would promote a negative behaviour that the organisation is trying to change. Reporting the minor incidents isn't only about keeping accurate records, it is about highlighting potential areas of risk that, if ignored, could lead in the future to lost time incidents.

Hazards identification cards

Hazards identification cards are used by employees to highlight and report any place on site that could have a high potential safety risk. There is a formal procedure on site to explore the areas of high risk and to complete and submit the hazard cards. The number of the hazards identification cards raised by the factory's employees per month is a measure which already existed on site. Although the hazard identification cards were seen as an efficient way to treat the root causes of safety problems, the concern was that should this measure be included in the scheme, employees would focus on the quantity of these cards rather than their content or value. In order to prevent such an attitude, all hazard cards had to be reviewed by the Safety Committee that includes representatives from all departments including managers and factory employees, and only the cards that were seen adding value were included in the scheme.

The number of days lost through accidents and the number of hazard identification cards (approved by the Safety Committee) were the two measures used to monitor employees' performance in the area of safety.

6.7.3.5 Environmental excellence

Because of the increasing environmental awareness and the stricter conditions that society sets for all industries, the organisation has in place several measures to monitor its compliance with the environmental requirements. In the following section the major measures used are presented.

Reportable incidents (Type A)

Reportable incidents (known in the research field as type A incidents) are those environmental incidents that employees fail to contain and treat on site and lead to the prosecution of the company. This failure could occur because the incident was beyond the capability of the internal systems to handle or it could be a small incident but went beyond the company's boundaries because of a lack of following appropriate procedures. Such reportable incidents are a threat to the surrounding community's environment and eventually to the organisation. The organisation considers this measure as major one on the site. A failure to meet the rules in this area could eventually lead to the organisation being prosecuted and or risking its image in the community and the market.

The organisation already enjoyed a clear record of such incidents for many years. However, this task was included in the scheme, first to ensure keeping the same level of achievement, and secondly, to promote adherence to the preventative policies and practices that existed to avoid such incidents from occurring.

The off-boundaries incidents (Type B)

This measure (known in the research field as type B incidents) looks at the number of incidents that involve any sort of pollution that goes beyond the boundaries of the company but doesn't result in a prosecution. Examples of these incidents are noise, dust, effluents, odours, etc.

Minor contained incidents

This measure considers the number of minor incidents contained on site. The organisation promotes avoiding such incidents but should they happen, the organisation encourages employees to report them. There are two main concerns with this measure. The first is that employees could manipulate this measure by simply

hiding these incidents. This can be easily done in a lot of cases because of their small size. The second concern is that including this measure in the scheme would decrease the chance of having these incidents reported. The organisation's policy is to promote reporting these incidents in order to identify the problem areas that, if ignored, could hide a potential risk of more dangerous incidents.

In this environmental area, the two measures of reportable incidents and the major contained incidents were included. Both measures were seen to be, to a great extent, under employees' control and at the same time they are key objectives for the organisation. On the other hand, the minor incidents measure was seen as an easy measure to manipulate by employees and, therefore, it was decided to ignore it.

6.7.4 Tasks setting

After agreeing the KPIs to be used in the research project, the management team together with the researcher rephrased these KPIs into tasks with clear expected levels for employees to achieve. The levels of these tasks had to be realistic and, in order to identify the right levels for these tasks, the researcher recommended counting on the historical levels of achievement. The data for the KPIs included in the research project were collected as from the beginning of the year (eight months before implementing the incentive scheme). Wrong setting in the levels of these tasks could have a significant negative impact on employees' motivation. Such negative impact could be clearly explained in light of the Expectancy theory discussed in chapter two. The Expectancy theory [2] argues that a person is motivated to achieve a certain task following three steps: The first is whether or not the effort spent will result in achieving the needed level of performance. The second step is whether or not achieving this performance will lead to a certain outcome (reward). The last step is whether or not this reward has a value that justifies the effort spent. These three steps are called, respectively, expectancy, instrumentality & valence. Expectancy theory gives a rating to each of those steps and the level of the individual's motivation is the result of the multiplication of the rating of these three steps. In light of this theory the design team agreed on the importance of setting achievable tasks based on the available historical data for each of the tasks. Because there were new KPIs with no available historical data, it was agreed with management to delay the launch of the scheme for two months during which the new KPIs were monitored in order to

identify realistic levels for these KPIs. An example of these KPIs is the non-reported non-conformance reports, which was a new measure introduced with the research project. However, because it was a new measure and it wasn't clear how employees would react to such a measure, the design team agreed to use the data collected for the previous two months to get one average figure for all four operational departments.

On the other hand, as discussed in chapter four, in a TQM environment having stretching targets is part of the continuous improvement process in any TQM environment such as the subject of this research. Thompson, Hochwarter, & Mathys [54] explain the importance of having stretching targets from business's perspective, saying that " it is not only to allow employees to stretch their abilities to new levels, but also to change the organisation's competitive position by dynamically altering its business processes". In order to make sure that the selected tasks were stretching but also realistic, the design team identified the average historical performance for each of the KPIs and set the tasks to be (reasonably) higher than this historical performance.

Although the design team agreed on the concept of counting the historical data while setting the tasks for the incentive scheme, some of the KPIs selected existed with clear levels of achievement in the yearly work plan of the business (called Strategy Into Action: SIA). An example of those KPIs is the number of complaints received from consumers due to factory faults. The yearly plan stated clearly the maximum allowed number of complaints for each of the four operational departments. For three out of the four operational departments, the tasks set in the work plan were reasonable compared with the historical achievement of those departments. The exception was with the Department of Soaps where the target set for this department was far better compared with the historical performance of this department. Another example of tasks that the researcher had to include in the research project as they were set in the business's yearly work plan was the off-boundaries environmental incidents (type B). However, in this case, except for the Department of Non Soap Detergent (which has a high record of those incidents), this task was seen easy to achieve by the other three operational departments considering the good records that they already enjoyed.

The tasks for all four operational departments are in appendix 2

6.8 Payments levels and bonus calculation

The bonus level was a critical issue for the progress of the research project. Agreeing the bonus level, from the organisation's perspective, was influenced by many considerations like cost of payroll and budgets, employees who are not covered by the scheme and equity issues, the potential benefits for the business to justify the bonus paid, and finally the overall pay structure in the organisation. From the research perspective, although the considerations of the organisation had to be met so the research project could continue, the potential motivational effect of the bonus was the most relevant issue to the research project. The researcher put considerable emphasis on this issue with the design team to clarify the importance of the reward level, bearing in mind the Expectancy theory discussed in chapter two (motivation theories) and briefed in the previous section above. The Expectancy theory suggests that the motivation of individuals is affected greatly by whether or not the potential reward has a value that justifies the effort spent. Having a low bonus wouldn't motivate employees and, therefore, the results of this research project wouldn't be effective.

6.8.1 Payments levels

There were three levels of payment for the three levels of achievements. Payment was a percentage of the base salary and the same percentage was paid for all employees in each department. The first level, which was the minimum payment, equalled 4% of the base salary while the second was 6% and the third was 8%. The levels of payment were seen as capable of achieving a high motivational effect since the usual annual base pay increase was between two and three percent. Employees in several focus groups perceived this potential bonus as generous.

6.8.2 Bonus calculation

6.8.2.1 Operational departments

For operational departments, there are two KPIs for each of the areas mentioned earlier with the exception of the area of cost effectiveness where only one KPI exists but there are two tasks or levels of achievement that employees are challenged to reach (first level of Materials Usage Compliance and a second higher level of the same measure). The total number of tasks that employees tried to achieve was ten and

they had the opportunity to gain one of three levels of payments. To be entitled to the first level of bonus (minimum), employees had to meet at least one task in each of the five areas and any other three tasks. To reach the second level of bonus, employees had to meet one task in each of the five areas and any other four tasks. To reach the highest level of bonus, employees had to reach all ten tasks in the five areas.

The idea behind having at least one task per area in the first and second level of bonus was to prevent employees from totally ignoring one area and focusing on the others. The message that the organisation was sending was that all areas are of equal importance to the business.

6.8.2.2 Service departments

The service departments were getting 70% of their bonus based on the average results of the four operational departments and the remaining 30% was based on their own performance judged against some internal goals. For each of the service departments, one of their internal goals was to ensure customer satisfaction. The customer in this case was their internal customer that could be any of the other departments.
Having 70% of the service departments' bonus based on the performance of the operational department ensured that service departments were focusing on the same objectives that the organisation set for the operational departments.

6.8.3 Cost of scheme

The estimated cost of the scheme was between zero (if none of the departments achieved any bonus) and NZ$ 520,000 per annum (if all departments reached maximum bonus). The cost varies according to the achievement levels of all departments.

6.9 Approval of main stakeholders

The main stakeholders of the scheme were the design team members (mentioned earlier), the technical director, the human resources director and the Australasian Board of Directors. From an early stage of the research project the human resources and the factory manager emphasised to the researcher that the incentive scheme

should be separate from the employment contract and away from the bargaining mechanics agreed with the unions. This arrangement is dictated by a policy followed by the parent company world-wide. However, before seeking the approval of the main stakeholders, the researcher agreed with the management team to present a draft of the proposal to a representative sample of employees from all departments included in the research project.

6.9.1 Presenting the proposal to a sample from employees

The managers of the departments covered by the scheme nominated the persons participating in these focus groups. It was agreed with the departments' managers to select a sample that represented different levels of knowledge and ranks from all areas within the departments.

The purpose of having these focus groups was to ensure that the proposal prepared by the design team was perceived as clear and fair from employees' point of view.
The results of these focus groups highlighted a few minor issues that the design team had to readdress and finalise before sending the proposal for approval by management. Apart from these issues, the feedback from the focus groups was very promising.

6.9.2 Main stakeholders

The main stakeholders of the scheme, as mentioned earlier, were the design team members (mentioned earlier), the technical director, the human resources director and the Australasian Board of Directors. These main stakeholders studied the scheme focussing on the following points:

- The scheme's coverage range (who is covered under the scheme)
- Whether the KPIs used in the scheme were in line with the objectives of the business.
- The potential benefits to the business
- The expected motivational effect
- Potential risks of the scheme
- The structure of the scheme

- The payments' levels

The approval process followed the sequence presented below

6.9.3 The design team

The approval of the design team wasn't an issue since they were deeply involved in the development of the scheme from the very beginning. However, two points were discussed thoroughly without reaching a consensus and, therefore, it was agreed to raise them while getting the approval of the next level of management (the technical and human resources directors). Being in a TQM environment that promotes interaction between departments and focuses on the overall organisation's performance, the first point was the inclusion of other non operational departments in the scheme like Planning, Development and Technical Accounting. The second point concerned the proposed payment levels. Some members of the design team perceived the proposed payment levels as too high and not likely to passed by the Board of Directors and other members perceived those levels as appropriate and essential to ensure the needed motivational impact.

6.9.4 Technical and human resources directors

The technical and human resources directors are members of the Australasian Board of Directors and they were the two key persons that the Board relied on to make a final decision on whether or not to approve the scheme. The two directors accepted the scheme as proposed by the design team. The two points mentioned earlier (payment levels and expanding the scheme) were discussed thoroughly with the two directors and the following decisions were made:

- Not to expand the scheme and to include only the factory employees, considering the scheme as "pilot" and to revisit this issue after a six months trial period.
- To pass the proposed payment levels to be discussed and decided by the Board of Directors.

6.9.5 Australasian Board of Directors

Although the proposal stated that the scheme's coverage range included only the factory's employees, the Australasian Board of Directors members raised the question of including other departments in the same scheme. The final decision made, on this point, was to consider the first twelve months as a trial period for the scheme and revisit the area of including other departments after this piloting period.

As for the payments' levels, the Australasian Board of Directors couldn't make a final decision and agreed to seek the advice of the human resources corporate director. In a later meeting including the human resources director, the technical director, the researcher and the corporate human resources director, the payments' levels were approved.

This last approval was considered the final approval for the scheme and the design team had a green light to proceed with the implementation phase after presenting a clear communication plan to the human resources and technical directors. The communication plan is discussed in the following section.

6.10 Communication plan

Communicating the scheme to all employees was a crucial phase that the design team considered and which the Board of Directors acknowledged as a key element for the scheme's success. The main objectives of the communication plan were the following:

- All employees covered by the scheme had to know why the business introduced the new scheme and what were the potential benefits of this scheme to both the employees and the business.
- All employees had to understand how the scheme was structured and how much money they could earn based on their achievements.
- All employees had to know what areas the business needed them to focus on.
- At least some employees from each department had to know, in detail, how to calculate the bonuses
- At least some employees from each department had to know, in detail, what factors affect the KPIs they have and how to achieve the tasks they have for their departments.

To achieve these objectives the following communication plan was prepared and executed.

6.10.1 Communication committee

Each manager of the departments covered under the scheme nominated two or three persons from each department to be members of a communication committee. The communication committee had the following responsibilities:

- To present the scheme in a simple way to all employees on the floor
- To highlight the ways, and to guide their departments to the best practices to reach their tasks
- To answer the day-to-day questions concerning tasks, KPIs and bonus calculations
- To review the scheme's results before being published in order to highlight any odd figures or issues that could be reviewed.

The researcher, backed up with the design team, worked closely with the committee's members to ensure that they had the knowledge required to carry out their responsibilities.

In addition to the Communication Committee, an industrial engineer (who was member of the design team) was assigned to be the scheme's technical administrator with the following responsibilities:

- Ensure that scheme's results are collected on time and to follow up any delays
- Communicate the results to the Communication Committee members and answer any issues they may raise
- Get the final approval of management on results
- Maintain the results of the scheme on the shared electronic network of the company (detailed later)
- Advertise results on notice boards

6.10.2 Launching activity

An official launching activity was necessary to ensure everyone at each site knew the importance of the new scheme to the business and the potential benefits for employees. This activity included a presentation by the factory managers to all employees covered by the scheme. During this presentation, the factory manager introduced the communication committee and explained their role.

6.10.3 Publications

It was essential to have the following documents ready by the time the scheme was launched:

- A policy that was considered as the official document for the company and for employees.
- An explanatory document that presented, in a simple form, all that employees needed to know about their tasks, the KPIs used, what they could do to improve their performance and examples that showed how their bonus was calculated. (Appendix 3)
- The yearly official tasks for each department. (Appendix 2)
- A flyer that was used during the launching activity. The flyer highlighted the areas of concern to the business that the scheme covered and the potential rewards that people could earn.

6.10.4 Notice boards

The monthly and quarterly results were advertised on a notice board for each department. The monthly estimated bonus and the quarter to date results were advertised on these boards. At each quarter end the official results were published on these boards.

6.10.5 Network shared drive

A storage space was booked on the company's Intranet shared drive to advertise the scheme's results. The relevant persons updated the results on this shared drive on a

monthly basis and for some KPIs the update was done on weekly basis. This location on the shared drive was considered the source of the official results and all the results published on the notice boards were generated from this shared drive.
All members of the communication committee, as well as many other employees, had access to the shared drive and to this location.

6.10.6 Scheme's implementation

After the communication plan was ready and following the factory manager's launch presentation, the scheme was implemented and the researcher started monitoring and collecting relevant data for the research project.

6.11 Limitations of the research

The research took place in an industrial environment and results shouldn't necessarily apply to organisations of different natures.

The incentive scheme was designed and implemented only for four operational departments and three service departments and it didn't cover management in these departments. As presented earlier in this chapter, the service departments would get 70% of their bonus based on the average bonus of the four operational departments. Having the majority of the bonus of those service departments not directly linked to their performance didn't match with one of the criteria (mentioned earlier) that only tasks that are under employees' direct control would be included in the research project. Therefore, although those service departments were covered by the scheme, they were not included in the research project. The effect of incentive schemes on support services could be an area for future research.

Because of timing constraints, the research project covered only eight months before the implementation of the incentive scheme and three months after the implementation. An eight-month period following the implementation of the scheme would represent more accurately the impact of this scheme on employees' performance.

7 Data Collection and Analysis

In this chapter the data collected for the key performance indicators (KPIs) used in the research project is presented and analysed. Due to limitations dictated by the time frame of the research project, only three months of data were collected after implementing the incentive scheme (September, October and November) compared with eight months of data before the implementation (January to August). In case of the new KPIs, only two months of data were collected before implementing the scheme and three months of data after the implementation. This short period permitted a limited quantitative statistical analysis of some of the KPIs where relevant data were available. On the other hand, a qualitative analysis was carried out by participating in assessment sessions, which included a widely representative management team. This team included the factory manager, the four operational managers, the human resources manager and the engineering manager. In these sessions, the management team reviewed the different KPIs, compared the results before and after the scheme and tried to relate them to the attitude of employees after implementing the scheme. In addition to these sessions with the management team, several assessment sessions were organised by the factory human resources manager with some key persons on the production floor (team support officers).

During the period of collecting the data included in this research project (mentioned above), it was important to ensure that no significant changes occurred in the operational conditions or the measurement of the KPIs used before or after introducing the incentive scheme.

In the following sections, the results for each of the KPIs are presented and discussed including:

- Data collected for the KPI before and after introducing the scheme and the source of this data
- Whether or not a change occurred in the way the KPI was measured before and after introducing the incentive scheme or in the operational conditions that might impact this particular KPI (other than introducing the incentive scheme)
- Comparison of the results before and after implementing the scheme. The comparison is shown as a percentage of change –if any- that took place after

implementing the scheme. The results for each of the KPIs against the targets set for the four operational departments are presented.

- The assessment done by the management and non-management groups.
- When enough data was available, the quantitative statistical analysis was produced.

7.1 Environmental compliance

As detailed in the previous chapter, the KPIs used to measure the environment compliance were the reportable incidents and the off-boundaries incidents.

7.1.1 Reportable incidents (Type A)

These are the incidents that employees fail to contain and treat on site and lead to the prosecution of the company. The company hasn't had any of these incidents for years and the inclusion of this measure in the scheme was, firstly to ensure that this performance would continue and, secondly, to encourage employees to further develop preventative systems to avoid such incidents from happening.

7.1.1.1 Results

The table 7-1 shows the record of the reportable incidents for the four operational departments before (from January to August) and after implementing the scheme (from September to November). The data were obtained from a spreadsheet kept on the computer-shared drive of the company. The researcher developed this spreadsheet and kept it on the computer-shared drive (which is accessed by many of the employees) to ensure that the employees would have an easy access to the updated results. The spreadsheet included also the second environmental KPI used in the research project as well as other environmental data. The environmental incidents are monitored by the city council, internal auditors, the management of each operational area and the environmental site co-ordinator. The environmental site co-ordinator owned and updated the spreadsheet regularly.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
NSD	0	0	0	0	0	0	0	0	0	0	0
Liquids	0	0	0	0	0	0	0	0	0	0	0
PPs	0	0	0	0	0	0	0	0	0	0	0
Soaps	0	0	0	0	0	0	0	0	0	0	0

Table 7-1- Reportable environmental incidents

7.1.1.2 Qualitative assessment

As table 7-1 shows, all operational departments kept the records clear of reportable environmental incidents. The management team agreed that the results matched their expectations for this KPI and they also agreed that they had not noticed signs of extra effort spent by employees in this area. The management team explained that the fact that the company enjoys clear records for a significant number of years gave the employees the feeling that the task of keeping clear records is an easy one. One of the operational managers said that his employees considered this task as "a given" and therefore they didn't put extra emphasis on it.

7.1.1.3 Quantitative analysis

The data in table 7-1 didn't allow for a quantitative statistical analysis.

7.1.2 Off-boundaries incidents (Type B)

The off-boundaries incidents are those incidents that involve any sort of pollution that goes beyond the boundaries of the company, but doesn't cause a prosecution. Examples of these incidents are noise, dust, effluents, odours, etc. The four operational departments had a task of not exceeding a maximum of two of these incidents per quarter.

7.1.2.1 Results

The table 7-2 shows the record of the off-boundaries incidents for the four operational departments before (from January to August) and after implementing the scheme

(from September to November). The data were obtained from the same spreadsheet that included the reportable incidents, which was mentioned earlier.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
NSD	2	1	0	0	1	0	1	0	0	1	0
Liquids	0	0	0	0	0	0	0	0	0	0	0
PPs	0	0	0	0	0	0	0	0	0	0	0
Soaps	1	0	0	0	0	2	0	0	0	0	0

Table 7-2- Off-boundaries environmental incidents

7.1.2.2 Qualitative assessment

The PPs and Liquid Departments kept clear records of these incidents for a long time and this task was included to ensure they keep the same good performance. The fact that the records of these departments are clear of such incidents is mainly due to the nature of their process and the efficient backup systems that prevent such incidents from occurring. The operational manager (these two departments are managed by the same operational manager) of these departments didn't notice any extra effort spent by his people to improve or further develop the environmental systems in place saying, "the preventative systems are so robust to the limit that it would be very difficult to have those incidents"

The other two departments on the other hand didn't enjoy such clear records. In the Department of Soaps, the operational manager of this department mentioned efforts undertaken by the teams to improve their environmental records. An area that employees in this department focussed on was the high PH level of effluent water that leaves their process which is historically the main cause of these incidents. Employees in this department worked closely with the Department of Quality Assurance to set a more robust system to monitor the level of PH of their effluent and to alert the operators in the department whenever the PH readings deviate from the optimum level.

As for the NSD Department, an off-boundaries incident occurred. The operational manager mentioned that his teams didn't spend extra effort to improve their environmental control systems till this incident occurred. The operational manager

explained this attitude by saying that his teams were more concerned with other tasks that they perceived to deserve more focus from them (mainly the tasks of achieving the production plans). However, the operational manager expected more focus from his teams after this incident, but because this incident occurred at the end of the data collection period, the researcher couldn't monitor the signs, if any, of more effort spent by teams in this area.

Overall, all four departments achieved their target of not exceeding two of those incidents during the quarter's period. During the assessment sessions, the operational and the factory managers agreed on reviewing the targets for this KPI for the following periods, considering the maximum of two tasks per quarter to be "soft". In the case of the Departments of Liquids and Personal Products, the design team agreed that having the target in the future set to zero would be more realistic considering the good historical record of these departments.

7.2 Safety compliance

As detailed in the previous chapter, the KPIs used to measure the safety compliance were the lost time incidents and the hazard identification cards

7.2.1 Lost time incidents

Lost time incidents are those incidents that result in lost time equal to or exceeding one working day. The company enjoys a good record with very few of these incidents for the last previous years. Including this measure in the scheme was mainly to make sure that people would continue to maintain good records and further develop the practices that promote safety awareness. For the incentive scheme, all departments had the task of keeping a record clear of such incidents.

7.2.1.1 Results

The table 7-3 shows the record of the lost time incidents for the four operational departments before (from January to August) and after implementing the scheme (from September to November).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
NSD	0	0	0	0	0	0	0	0	0	0	0
Liquids	0	0	0	0	0	0	0	0	0	0	0
PPs	0	0	0	0	0	0	0	0	0	0	0
Soaps	0	0	0	0	1	0	0	0	0	0	0

Table 7-3- Lost time incidents

The results for this KPIs were collected from a spreadsheet owned by the occupational health nurse. The spreadsheet is available on the computer network shared drive and it shows the records of all safety incidents per department and as well the records of safety hazards identification cards (which is the second KPI used in the safety area) generated by each department.

7.2.1.2 Qualitative assessment

As shown in the table of results 7-3, the company enjoys a good record with few lost time incidents. Before the single incident that occurred in the Department of Soaps in May 99, the company enjoyed over two full years without any incidents. Employees in all four operational departments kept the records clear of such incidents for the period covered by the research project. The management team agreed that they did notice an increase in employees' interest in the safety topic. This increase in interest showed in extra pressure from employees on their managers (and Engineering Department, Health Centre, etc.) to resource and accelerate the fix of areas of high safety risks. Another sign of the increase in employees' interest in the safety topic was the quantity and quality of the hazard identification cards generated by employees to highlight the areas of high potential risk. More details about this point are discussed later.

7.2.1.3 Quantitative analysis

The data shown in table 7-3 didn't allow for a quantitative statistical analysis.

7.2.2 Hazard identification cards

Employees follow a formal safety audit procedure to explore the areas of high risks on

site. As a result of this audit, employees fill in and submit hazard identification cards to highlight these risk areas and management and other relevant departments (Engineering, Health Centre, etc.) take corrective actions based on these cards. The employees had the task that each department would fill and submit at least six of these cards per quarter with an average of two cards per month.

7.2.2.1 Results

The table 7-4 shows the record of the hazard identification cards presented by the four operational departments before (from January to August) and after implementing the scheme (from September to November). The results were collected for this KPI from the same spreadsheet used for recording the Lost Time Incidents, which is owned by the occupational health nurse.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
NSD	2	2	0	1	1	1	3	2	5	4	4
Liquids	1	1	2	0	1	2	1	1	3	4	3
PPs	0	0	2	0	1	1	1	0	3	2	2
Soaps	0	0	0	2	1	3	2	2	3	2	2

Table 7-4- Number of Hazards identification cards

7.2.2.2 Qualitative analysis

As discussed in a previous chapter, the main aim of including this KPI in the scheme was, firstly, to promote the use of the hazard cards as a proactive practice that should eventually result in a safer work place, secondly, to improve the quality of these cards due to the fact that only those cards that would be approved by the Safety Committee were to be included in the scheme. The management team agreed that teams had more focus on auditing the safety conditions and put more effort on producing better quality hazard identification cards. The management team also agreed that they noticed an increase of the number in cards submitted by teams (which is discussed later in the quantitative analysis section). However, one operational manager raised a concern that before including the hazard identification cards in the incentive scheme, employees would raise less cards but, on the other hand, would follow up the cards they raised and make sure that a solution would be found to the source of hazard. The

operation manager explained his point of view saying that, "Asking employees to present valid hazard identification cards isn't enough because people would aim to meet the requirement of the incentive scheme, which is only to present the cards". The operational manager added that he would expect that employees would not show the same effort to find a real physical solution to the cause of hazard since the scheme wouldn't pay them for this part of the process. The other operation managers didn't agree with this point of view, however, this issue is discussed in more detail in the following chapter.

7.2.2.3 Quantitative analysis

The quantitative analysis compared the average of the hazards identification cards raised by each of the operational areas before and after introducing the incentive scheme (from January to August and from September to November). The increase or decrease in the average number of cards in the period following the implementation of the scheme was then used to calculate the percentage of improvement or deterioration in the number of the cards issued. From table 7-4 of the results, it can be seen that all four departments achieved or exceeded their target of two hazard identification cards submitted per month.

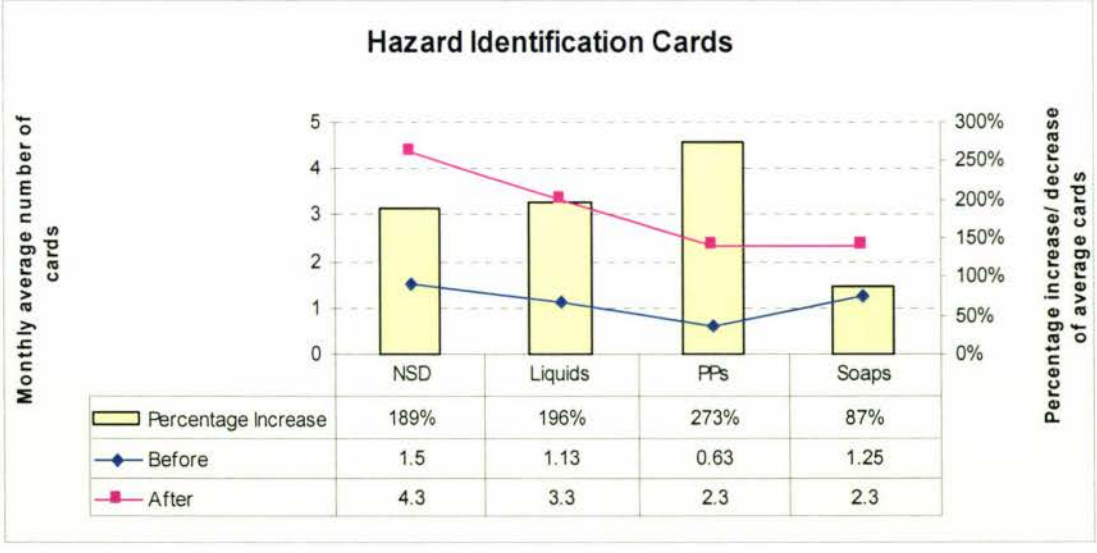


Figure 7-1- Average of Hazard Identification Cards issued before and after introducing the scheme and percentage of increase following introducing the scheme

Figure 7-1 shows an increase in the average number of hazard identification cards issued after introducing the scheme for all four operational departments. The figure 7-1 also shows the percentage increase in the average number of cards issued after implementing the scheme and indicates an improvement for all four operational departments.

The second quantitative analysis used a T test analysis on the two sets of data of hazard identification cards collected before and after implementing the scheme. The analysis was done based on an 80% confidence level and the results (illustrated in table 7-5) show an improvement (increase) in the number of cards presented after the introduction of the incentive scheme for all four departments. This improvement was confirmed with a confidence interval of equal to or greater than 92%.

Department	Probability of Error	Conf. Int. for Diff. (80%)	Mean-Before	St. dev. before	Mean-After	St. dev. after
NSD	0.14%	-3.48, -2.05	1.57	0.976	4.3	0.577
Liquids	0.54%	-2.83, -1.59	1.125	0.641	3.33	0.577
PPs	1.60%	-2.36, -1.06	0.625	0.744	2.33	0.577
Soaps	8.00%	-1.83, -1.06	1.25	1.16	2.33	0.577

Table 7-5- T test analysis on 80% confidence level- hazard identification cards

7.3 Product and process quality

As detailed in the previous chapter, the KPIs used to measure the performance of employees in the area of process and product quality were the non-reported, non-conformance reports and the factory faults consumer complaints

7.3.1 Non-reported, non-conformance reports

This was a new KPI developed for the purpose of the research project. This KPI measured the quantity of defective products that employees of the operational department didn't capture within the boundaries of their departments while these defective products were captured by persons from other departments (QA, Stores,

etc.). The aim of this KPI was to encourage employees on the production lines to take ownership of the quality of their products and processes. The employees covered by the incentive scheme had the task of reducing the quantity of non-conformance products reported by persons outside their departments such that the maximum allowed quantity reported by others shouldn't exceed 0.2% of the overall production for each of the four operational departments. A system was developed, with the help of members from the Department of QA, to monitor these reports and a database was built to collect and administer them.

7.3.1.1 Results

The results of this measure shown in table 7-6 represent the quantity of those missed non-conformance products as a percentage of the overall good production produced. Because it is a new measure, the only available data were those of the two months before implementing the scheme and three months following the implementation.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
NSD							1.04%	0.30%	0.11%	0.08%	0.00%
Liquids							0.00%	0.50%	0.68%	0.00%	0.00%
PPs							0.95%	1.50%	0.00%	0.00%	0.00%
Soaps							0.04%	0.00%	0.00%	0.00%	0.00%

Table 7-6- Non Reported Non- Conformance Reports (non-conformance products as percentage of total production)

7.3.1.2 Qualitative assessment

As mentioned in an earlier chapter, this measure was developed and included to encourage the operational employees to take the ownership of the quality of their processes and products and prevent out off specifications products from going to the market. The management team agreed that they identified a clear focus from their teams on the quality of their processes and products. The degree of focus varied from one department to another. The operational manager of the Department of Non Soaps Detergents (NSD) said that the Non Conformance Reports (NCRs) reported by persons outside his area were a major concern to him. The operational manager added

that since the scheme started, employees in his department showed an increased focus on the quality of their processes and products and that they were proud of achieving remarkable progress in this area. The operational manager of the Department of Personal Products (PPs) had a very similar comment to that of the NSD operational manager and added that the results of this department shown in the table above confirm his point of view. In Liquids (managed by the same operational manager) the operational manager said that he noticed a slight increase on capturing quality problems within the boundaries of the department. However, the real focus on this issue, he added, was clear after missing on this task in the last week of the first month after implementing the scheme. A team support officer in the same department added that employees were really keen in his area on investigating the reasons behind not performing well on this task and they arranged for a task force team to make sure this problem wouldn't happen in the future.

In the Department of Soaps the situation was slightly different because the NCRs weren't historically a major problem in this department. However, the operational manager of Soaps mentioned an increase in quality awareness and focus levels of his employees. The operational manager of Soaps expected that the employees in his department would manage to maintain a clear record for this KPI.

7.3.1.3 Quantitative assessment

Quantitative analysis wasn't easy for this KPI because of the limited number of samples which didn't allow a T test analysis to be carried out on the two sets of data collected before and after implementing the scheme. However, the graph in figure 7-2 shows a reduction in the average percentage of the non-reported NCRs after implementing the incentive scheme for all departments. The results showed also that two out of the four departments had no non-conformance reports reported by persons outside the department. One of these two departments (Personal Products) used to have a high record of those reports. The Department of Non Soaps Detergents (NSD) had also previously a high record of such reports but managed to achieve a noticeable reduction following the introduction of the incentive scheme. The last department (Liquids) had a marginal improvement in this area.

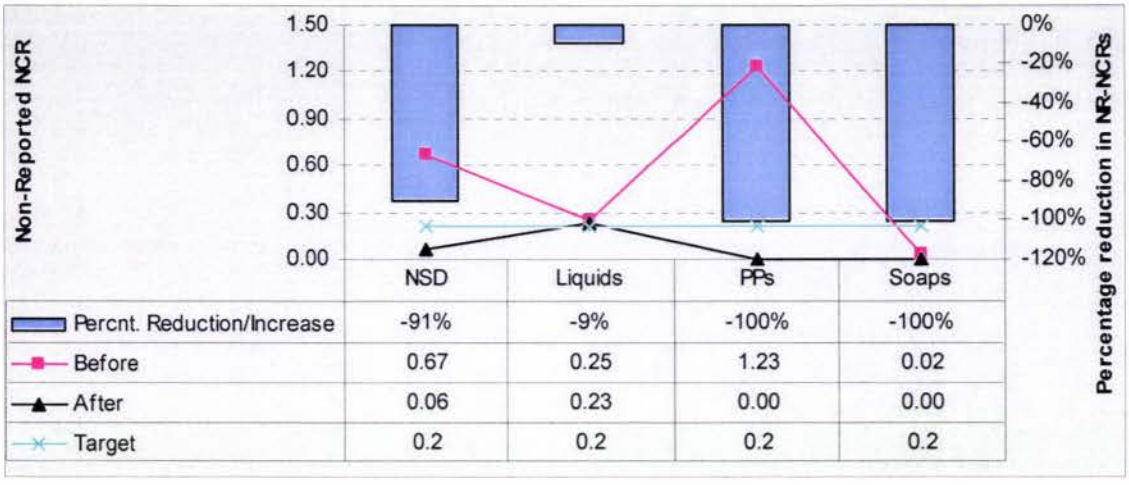


Figure 7-2 Average of percentage of Non-Reported Non-Conformance Reports raised before and after introducing the scheme, the target for each department and percentage of reduction following introducing the scheme

7.3.2 Factory faults consumers' complaints

The original KPI (overall consumer complaints) measured the overall number of complaints received from the consumer and this is administered by the consumer advisory office. The "factory faults consumers' complaints" was a new KPI introduced for the purpose of the research project and it measured the number of consumer complaints (per million units produced) that resulted from a factory related problem. The researcher agreed with the consumer advisory officer, the operational managers and the factory manager, on the criteria to identify the factory faults which became consumers' complaints. As detailed in a previous chapter, the criteria were to ensure that only the faults that occurred from causes under the control of the employees of the operational departments were included.

7.3.3 Results

The consumer advisory officer produced a monthly report that showed the results of this measure for each of the operational departments. These results were then recorded in the records of the incentive scheme and forwarded to the administrator of the incentive scheme to advertise them on site.

Although it was a new measure, in order to have a larger sample of data prior to the implementation of the scheme, the researcher used the criteria mentioned earlier to

filter the complaints received in the eight months preceding the implementation of the incentive scheme. The table 7-7 shows the results of this KPI for the four operational departments for the eight months prior to introducing the incentive scheme and the three months following the introduction.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
NSD	17	25	13	16	23	26	26	38	17	14	14
Liquids	15	13	16	5	2	2	5	11	0	3	5
PPs	17	11	10	9	8	10	13	13	6	11	6
Soaps	9	10	5	11	19	22	21	22	15	13	14

Table 7-7- Factory Faults Consumer Complaints

7.3.3.1 Consistency of operational conditions and measurement

No changes took place in the way the original KPI was measured (overall consumer complaints) for the period covered by the research project (eight months before introducing the scheme and two months after the introduction). As mentioned earlier, the researcher filtered the data before introducing the scheme to come up with complaints that met the criteria of the new measure introduced for the purpose of the research project, the factory fault consumers' complaints.

No operational changes took place that might have had an impact on the results of this KPI after introducing the incentive scheme. However, the consumers complaints received by the consumer advisory office reflect quality issues in products that were produced, on average, two to four weeks earlier than the date of production. This period of two to four weeks is the period between sending the product out of the factory and it reaching the consumer. In occasional cases (due to retailers handling issues) some products could be sold after a longer period, that could be up to several months. An attempt was made to filter the complaints using the production date printed on the products but it wasn't possible due to the fact that the majority of consumers complaints were received through the free-call telephone number and the fact that many of the consumers didn't send back the defective products. A more accurate way of judging this KPI would be to wait for a sufficient period following the implementation of the scheme, which could be up to three to four months.

However, because of the time limitations, mentioned earlier, that faced this research project, the only option was to include the available data for the three months following the introduction of the scheme.

7.3.3.2 Qualitative assessment

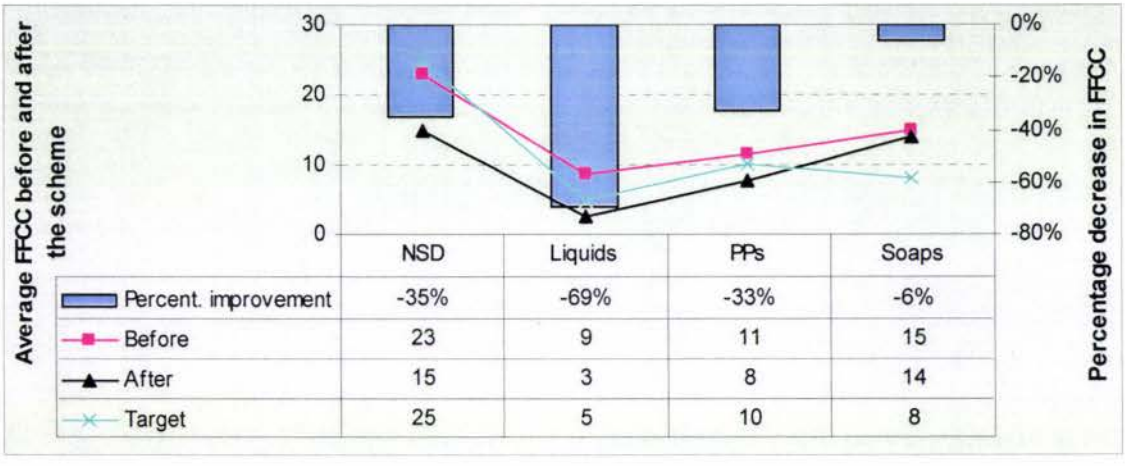
During the assessment sessions with the management team and other key persons in the factory, all agreed that employees showed an increased interest in following up the results of consumers' complaints resulting from factory faults. An operational manager mentioned that he got feedback from the Sourcing Department that employees in his department became extremely careful about the quality of raw and packaging materials they received from the suppliers. The operational manager explained that his teams showed great resistance to accepting any materials that might contribute in producing an out of specifications product that might bring a consumer's complaint. A team support officer added that more effort was spent on the lines to fix any problem that could be a potential reason for having the occasional defective products that could end up in the hands of consumers.

7.3.3.3 Quantitative assessment

The quantitative analysis was done, by comparing the average number of factory faults consumers' complaints received by each of the operational areas before and after introducing the incentive scheme (from January to August and from September to November). The increase or decrease in the average of number of factory faults consumers' complaints in the period following the implementation of the scheme was then used to calculate the percentage of increase or decrease in the number of factory faults consumers' complaints received. Figure 7-3 shows these results and a noticeable decrease in the average number of these complaints after introducing the scheme for all four operational departments. Also, three out of the four departments managed to stay below the maximum allowed number of consumer complaints due to factory fault. The only exception was the Department of Soaps which had a marginal improvement that wasn't enough to meet its target. As discussed in an earlier chapter, to ensure being realistic, the tasks in this research project were set based on the historical performance of each of the departments. The number of consumers' complaints was the other exception; in addition to the task of production versus plan

(% of variants) where the researcher and the design team had to adopt some predetermined levels. Those levels were set in the yearly plan issued by the Board of Directors for these two tasks. In case of Soaps, the target set for this department (max 8 complaints) was significantly higher than their historical achievement (15 complaints). This point is discussed in more details in the following chapter.

The figure 7-3 shows also the percentage decrease in the average number of complaints after implementing the scheme, which indicates an improvement for all four operational departments.



	NSD	Liquids	PPs	Soaps
Percent. improvement	-35%	-69%	-33%	-6%
Before	23	9	11	15
After	15	3	8	14
Target	25	5	10	8

Figure 3- Factory Faults Consumers' Complaints before and after introducing the scheme, the targets set for each department and the percentage of decrease following introducing the scheme

A T test analysis on the number of consumer complaints received before and after implementing the scheme showed a reduction in the number of complaints due to manufacturing faults for all departments except the Department of Soaps. The results of the T test analysis in table 7-8 (based on 80% confidence level) confirm an improvement in the case of the three departments (NSD, Liquids and PPs) with a low probability of error of 2.7% for the Department of NSD, 4.5% for liquids and 15% for PPs. As for the Department of Soaps, although a low standard deviation could be seen for the results after installing the scheme, the mean of those complaints showed marginal reduction from 14.88 to 14 complaints.

Department	Probability of Error	Conf. Int. for Diff. (80%)	Mean-Before	St. dev. before	Mean-After	St. dev. after
NSD	2.70%	3.9, 12.1	23	7.86	15	1.73
Liquids	4.50%	2.5, 9.5	8.62	5.78	2.67	2.52
PPs	15.00%	.5, 6.9	11.38	2.88	7.67	2.89
Soaps	74.00%	-2.6, 4.39	14.88	6.83	14	1

Table 7-8 T test analysis on 80% confidence level- factory faults consumers' complaints

7.4 Manufacturing management

The KPIs used to measure the performance of employees in the area of manufacturing management were the production versus plan (total tonnes) and the production versus plan (% of variants). As detailed in the previous chapter, these two KPIs had existed on site for a long period and the combination of these two KPIs was necessary for the business to deliver the required production on time to cover the needs of customers.

7.4.1 Production versus plan (total tonnes)

This measure monitors the total tonnes produced as a percentage of the total tonnes planned for each month. The planning manager monitors the output of each of the operational departments and this measure is one of the KPIs that he advertises on a monthly basis. The planning manager keeps the results for this KPI on a spreadsheet (on the company's computer-shared drive) from which the results for this KPI were collected.

7.4.2 Results

The table 7-9 shows the percentage of plan (tonnes produced/ tonnes planned *100) achieved by each of the four operational departments for the period prior to the research project (from January to August) and the period following the introduction of the incentive scheme (from September to November).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
NSD	89	112	101	93	103	85	78	86	97	101	97
Liquids	100	88	93	91	90	98	98	95	94	98	98
PPs	78	82	64	77	73	79	81	94	93	98	98
Soaps	73	97	91	91	100	93	97	94	96	99	103

Table 7-9- Percentage of tonnes produced versus planned (tonnes)

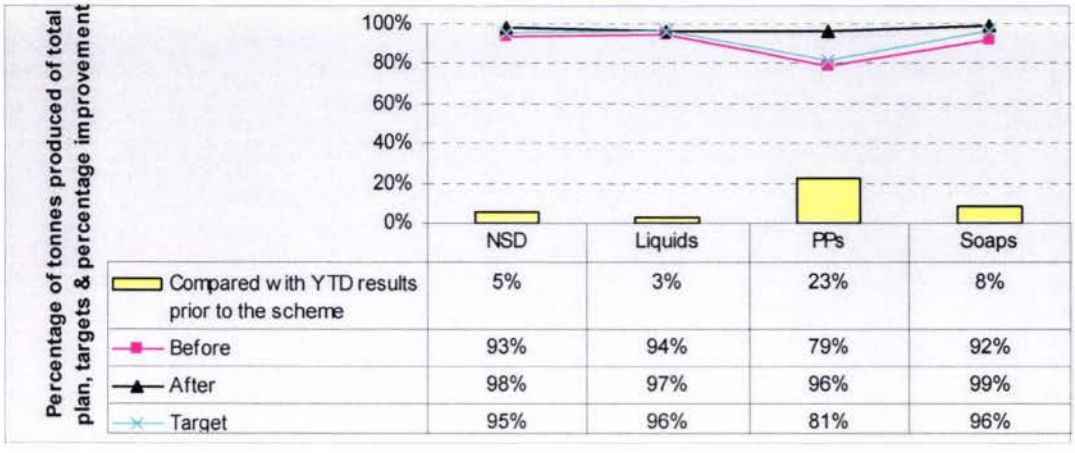
7.4.2.1 Qualitative analysis

During the assessment sessions with the management team and other key persons in the factory, they all agreed that employees were very focused on achieving the production plans. A team support officer mentioned that he had never seen the fitters in his area so supportive to the production teams and even driving them in some cases to achieve the production plan.

7.4.2.2 Quantitative assessment

The quantitative analysis was carried out, by comparing the average percentage of achieving the planned tonnes per month for each of the operational areas before and after introducing the incentive scheme (from January to August and from September to October).

The increase or decrease in this average in the period following the implementation of the scheme was then used to calculate the percentage of improvement or deterioration in achieving the planned tonnes. Figure 7-4 shows these results and there is a noticeable improvement in the planned tonnes achieved for all four operational departments. A moderate improvement occurred in the three departments of NSD, Soaps and Liquids due to the fact that they already had a high performance record on achieving their plans. On the other hand, the graph below shows a big improvement (22%) achieved by the Department of Personal Products (PPs) who didn't previously have such a high performance.



	NSD	Liquids	PPs	Soaps
Compared with YTD results prior to the scheme	5%	3%	23%	8%
Before	93%	94%	79%	92%
After	98%	97%	96%	99%
Target	95%	96%	81%	96%

Figure 7-4 Percentage of tonnes produced versus planned before and after introducing the incentive scheme, targets and percentage improvement

A T test analysis was performed (table 7-10) on the two sets of data for tonnes produced versus planned before and after implementing the scheme. The analysis (based on 80% confidence level) confirmed improvement in only two departments (PPs and Soaps). As for the Department of NSD, because the standard deviation was large before the implementation of the scheme, it was difficult to prove any significant change. In the case of Liquids the difference between the mean before and after the scheme was marginal, therefore, no change could be confirmed.

Depart-ment	Probability of Error	Conf. Int. for Diff. (80%)	Mean-Before	St. dev. before	Mean-After	St. dev. after
NSD	27.00%	-10.8, .9	93.4	11.2	98.33	2.31
Liquids	25.00%	-5.4, .3	94.12	4.32	96.67	2.31
PPs	0.08%	-22.6, -13	78.5	8.47	96.33	2.89
Soaps	7.40%	-12.3, -2.4	92	8.3	99.33	3.51

Table 7-10 T test analysis on 80% confidence level- Production Vs Plan (total tonnes)

From an organisational perspective, having a variation in the results of this KPI puts pressure on the production facility, suppliers and disturbs the whole supply chain. Thus the consistency and stability for this KPI is a key to having an efficient supply chain management. Variation, as well as level, is another measure that should be

controlled. However, time did not permit further investigation of the variation and this would be a subject for future study. It should be commented, however, that more data should see the variation reduced as three data points are inadequate to give a good measure of the standard deviation of the KPIs after the improvement.

7.4.3 Production Vs Plan (% of variants)

Production versus plan expressed as a percentage for different variants (or products) is a KPI that compares the quantity produced of each individual variant with the quantity originally planned. For each variant, if the quantity produced is within the limit of plus or minus 10% of plan, the plan of this specific variant is considered to be met. In other words, while the KPI of production versus plan (total tonnes) focuses on the overall tonnes achieved, this KPI (% of variants) focuses on the achievement of plans for each of the variants within the plan. More details of this measure are available in chapter six. The planning manager monitors this KPI for each operational area and calculates the number of variants that meet this condition (of +/- 10% of plan). The planning manager keeps the results for this KPI on a spreadsheet (on the company's computer-shared drive) from which the results were collected for this KPI.

7.4.3.1 Results

The table 7-11 shows the percentage of variants that met the condition of (+/- 10% mentioned above) for all four operational departments for the period prior to the research project (from January to August) and the period following the introduction of the incentive scheme (from September to November).

7.4.3.2 Qualitative assessment

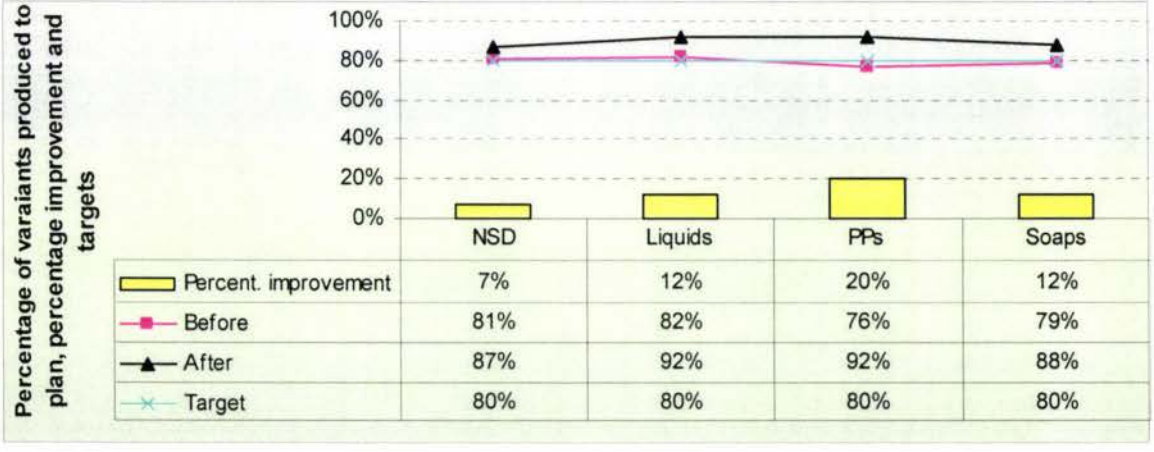
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
NSD	82	92	81	85	76	81	71	80	83	91	87
Liquids	76	82	75	80	73	94	90	82	85	93	97
PPs	75	71	66	80	82	67	84	86	91	92	92
Soaps	68	81	75	75	87	87	76	80	79	94	92

Table 7-11- Production Vs Plan (% of variants)

During the assessment sessions with the management team and other key persons in the factory, all agreed that employees were very focused on achieving the production plan for each variant.

7.4.3.3 Quantitative assessment

The quantitative analysis was done first, by comparing the average percentage of variants produced within the +/-10% margin of plan for each of the operational areas before and after introducing the incentive scheme (from January to August and from September to October). The increase or decrease in this average in the period following the implementation of the scheme was then used to calculate the percentage of improvement or deterioration in achieving the planned tonnes. Figure 7-5 shows these results and there is an increase in the number of variants produced to plan for all four operational departments. The figure also shows that all four operational departments achieved and exceeded their targets. The Department of Personal Products (PPs) achieved a big improvement of 20% over the eight-month period prior to the implementation of the incentive scheme.



	NSD	Liquids	PPs	Soaps
Percent. improvement	7%	12%	20%	12%
Before	81%	82%	76%	79%
After	87%	92%	92%	88%
Target	80%	80%	80%	80%

Figure 7-5 Percentage of variants produced within +/- 10% of plan before and after introducing the scheme, target and the percentage improvement

The T test analysis, based on 80% confidence level, on the data for this KPI before and after implementing the scheme confirmed an improvement achieved by all departments. The results for this test illustrated in table 7-12 show this improvement for all four departments particularly in the Department of PPs. In case of the

Department of PPs, the analysis confirmed the improvement achieved with a confidence level of around 99.91%.

Department	Probability of Error	Conf. Int. for Diff. (80%)	Mean-Before	St. dev. before	Mean-After	St. dev. after
NSD	12.00%	-10.7, -1.3	81	6.14	87	4
Liquids	8.10%	-16.9, -3.5	81.5	7.33	91.67	6.11
PPs	0.09%	-19.2, -11.38	76.37	7.76	91.667	0.577
Soaps	16.00%	-18.3, -1.1	78.62	6.48	88.33	8.14

Table 7-12 T test analysis on 80% confidence level- variants produced within +/- 10% of plan

7.5 Cost effectiveness

As mentioned in an earlier chapter, the KPI used to measure cost effectiveness is called the Materials' Usage Compliance. For each material used on site, the Department of Development and the Department of Production together set a standard usage figure and a waste allowance. For a material to be considered complying with the usage level, employees shouldn't use over or under the allowed usage levels. In other words, for employees to earn a bonus, they had to avoid any over or under usage for as many materials as possible and thus the company could avoid any losses while maintaining good quality products. The materials usage compliance KPI measures the percentage of materials compliance for each of the operational departments.

A system was developed to collect the usage figures for the items included in the scheme from the Department of Technical Accounting. These usage figures were then entered in a spreadsheet developed for this research project so that they could be compared with the waste allowance figures predetermined by the Department of Development. The spreadsheet calculates the complying items for each operational department and the percentage of these complying items over the total items included in the scheme. The Department of Technical Accounting owned and updated the spreadsheet and it was used to collect the data for the research project.

Although this measure was new, it was possible to process ten months of historical data for this measure using the data available in the records of the technical accountants.

7.5.1.1 Results

The table 7-11 shows the percentage of materials complying for each of the four operational departments during the period prior and following to the introducing of the incentive scheme

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
NSD	19%	8%	4%	20%	9%	11%	19%	3%	18%	41%	12%
Liquids	0%	6%	22%	33%	18%	10%	9%	25%	33%	32%	23%
PPs	6%	18%	0%	11%	15%	2%	11%	2%	9%	14%	16%
Soaps	0%	8%	13%	17%	13%	0%	12%	15%	13%	12%	23%

Table 7-13- Percentage of complying materials

7.5.1.2 Qualitative assessment

The operational managers for all four departments (and some key persons in the factory) agreed that employees have spent considerable efforts on this particular KPI. The operational managers agreed that this KPI was perceived by employees as the most difficult one and explained that this perception was due to the fact that this KPI was a new one that used a different approach to those used on site before the scheme. As discussed in an earlier chapter, the other measures used to focus on savings using dollar figures rather than staying within some predetermined margins. The concept of losing bonus because of slight underusage of any material wasn't easy to explain to employees and it definitely wasn't an easy ask to change their attitude. The operational manager of the Department of NSD said that this task was a real challenge to his people who arranged for a very skilful task force to take ownership of driving an improvement project in this area.

7.5.1.3 Quantitative assessment

The quantitative analysis was done first, by comparing the average percentage of complying materials for each of the operational areas before and after introducing the

incentive scheme (from January to August and from September to October). The increase or decrease in this average in the period following the implementation of the scheme was then used to calculate the percentage of improvement or deterioration in the compliance levels. Figure 7-6 shows these results and illustrates that all four operational departments achieved an increase in the percentage of the complying materials compared with the period prior to the implementation of the incentive scheme.

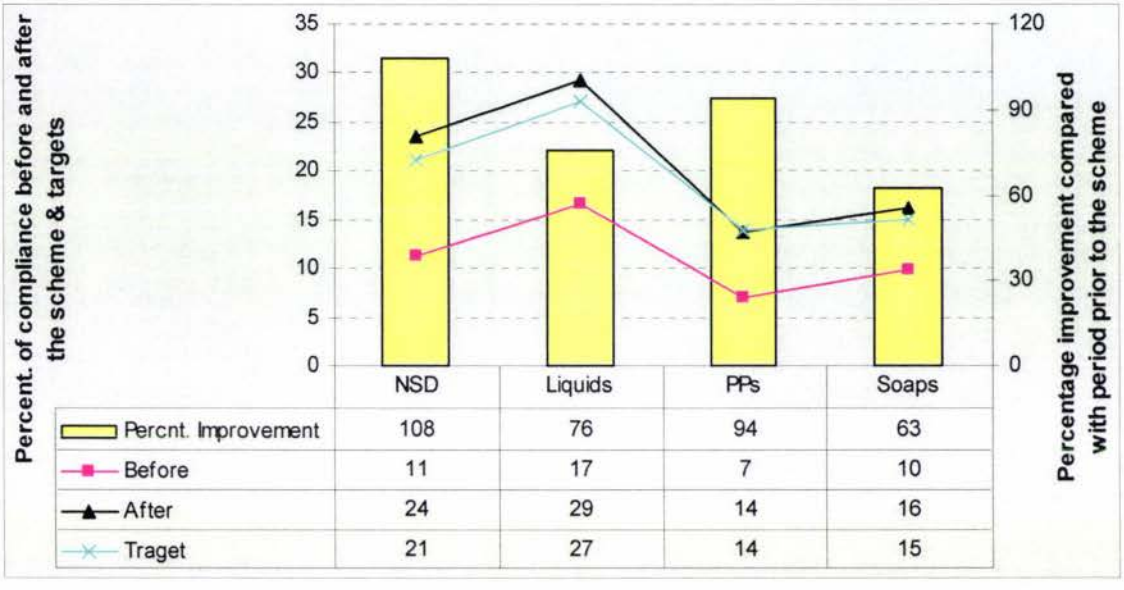


Figure 6- Percentage of materials' compliance before and after introducing the scheme and percentage improvement

A T test analysis was performed on the two sets of data for the percentage of complying materials during the eight months prior to the implementation of the incentive scheme and the three months following the implementation. The table 7-14 shows the results of the T test analysis, which was based on 80% confidence level. As we can see in the table of results, the analysis confirmed an increase in the number of complying materials for only the Departments of Liquids and PPs with confidence levels of 97.3% and 84% respectively. In case of the Departments of NSD and Soaps, an increase in the complying materials could be noticed in the means after the implementation of the scheme as showed in table 7-14. However, the test didn't confirm an improvement for these two departments mainly due to the fluctuations in the performance of these departments particularly after the implementation of the

incentive scheme. These fluctuations could be noticed in the high values of standard deviation for these two departments following the implementation of the incentive scheme.

Department	Probability of Error	Conf. Int. for Diff. (80%)	Mean-Before	St. dev. before	Mean-After	St. dev. after
NSD	32.00%	-29.3, 5.2	11.63	6.89	23.7	15.3
Liquids	2.70%	-21.1, -6.8	15.4	11	29.33	5.51
PPs	16.00%	-9.3, -.4	8.12	6.62	13	3.61
Soaps	23.00%	-13.1, .6	9.75	6.54	16	6.08

Table 7-14 T test analysis on 80% confidence level- percentage of materials' compliance

7.6 Summary

In this chapter the results and the analysis performed on those results for each of the KPIs were presented. The outcomes of the qualitative and quantitative analysis showed improvement in most of the KPIs following the implementation of the financial incentive scheme. In the following chapter firstly, the results and the outcomes of the analysis are discussed for each of the operational departments and secondly the overall results and outcomes of this case study are discussed versus the ideas of the TQM's advocates presented earlier in chapter four with regard to the financial incentive schemes.

8 Discussion of results

In the previous chapter the results for each of the KPIs used in the incentive scheme were presented and analysed. In this chapter the results are discussed for each of the operational departments and the payment levels for these departments are presented. In this chapter also the arguments of TQM's advocates, the main TQM attributes and the relation between the incentive schemes and TQM (presented in chapter four are discussed in light of the results and findings of this research project. Finally the methodology used in this research is discussed in light of the experience of this research project.

8.1 Results per department and payment levels

In this section the focus is on reviewing the overall results for each of the operational departments versus the tasks that employees in those departments were given. The effect that the incentive scheme had (when applicable) on employees in these departments is discussed and the levels of payment that employees earned from the incentive scheme are presented. Before starting the discussions mentioned above, the structure and payment levels of the scheme is first reviewed.

8.1.1 Structure of the scheme and payment levels

For operational departments, there were two KPIs for each of the five areas that employees had to focus on. The area of cost effectiveness was the exception with only one KPI but with two tasks or levels of achievements that employees were challenged to reach (first level of Materials' Usage Compliance and a second higher level of the same measure). The total number of tasks that employees tried to reach was ten and they had the opportunity to earn one of three levels of payments. To be entitled to the first level of bonus (minimum), employees had to achieve at least one task in each of the five areas and any other three tasks. To reach the second level of bonus, employees had to achieve one task in each of the five areas and any other four tasks. To reach the highest level of bonus, employees had to achieve all ten tasks in the five areas.

In the following sections tables that illustrate the tasks versus results are presented for each of the four operational departments. As presented in chapter six, although the

results were communicated at least on a monthly basis, the bonus was calculated based on the results for the three-month quarter.

8.1.2 Department of Non Soap Detergents (NSD)

Area	KPI	Task	Results
Cost Effectiveness	Materials' Usage compliance- Level1	Min 14%	24.00%
	Materials' Usage compliance- Level2	Min 21%	
Product & Process	Non-reportable Nonconformance Reports	Max 0.20%	0.12%
Quality	Factory Fault Consumer Complaints	Max 25	15
Safety	Lost Time Accidents	0	0
Compliance	Hazard Identification Cards	Min 6	13
Environment	Type A incidents	0	0
Compliance	Type B incidents	Max 2	1
Manufacturing	Production Vs Plan (variants)	Min 80.0%	87.00%
Management	Production Vs Plan (tonnes)	Min 90.0%	99.00%

Table 8-1 Results versus tasks for the Department of NSD for the three months period following the implementation of the incentive scheme

As shown in table 8-1, in the area of cost effectiveness the employees in the Department of Non Soap Detergents (NSD) had achieved and exceeded the two tasks of Materials' Usage Compliance. As discussed in the previous chapter, the qualitative and quantitative analysis highlighted an improvement in this area. The operational manager of this department confirmed that there was an extra effort and focus from employees to achieve these tasks which resulted in almost doubling the percentage of compliance that employees used to achieve before the implementation of the scheme.

In the area of product and process Quality, the qualitative and quantitative statistical analysis confirmed an extra effort that employees put in this area. The results in table 8-1 show that employees in this department exceeded their tasks for the two KPIs in this area. As discussed in the previous chapter the first KPI, which was the consumers' complaints, showed a 35% reduction compared with the period prior to the implementation of the incentive scheme. As for the second KPI, which was the percentage of Non Conforming Products detected by persons outside the department, it showed a decrease of around 90% compared with the results for the period prior to the implementation of the scheme.

In the area of safety compliance, employees achieved both tasks (table 8-1). The qualitative analysis showed more focus from employees on the safety topic. The quantitative analysis confirmed an increase in the number of hazard identification cards submitted by employees in this department.

In the area of environmental eompliance, employees have achieved both tasks. However, the statistical analysis didn't show any improvement in performance by employees in this area. The operational manager commented that he didn't notice any extra effort by his teams on this area until they had an off-boundaries incident (type B incident). The operational manager expected more focus from his teams on the off-boundaries incidents in particular; these were historically a concern in his department. Unfortunately this incident occurred toward the end of the period covered by the research project and, therefore, it wasn't possible to investigate whether any changes would take place in the attitude of employees as a result of this incident. On the other hand, the management team agreed that having the task set on a maximum of two off boundaries incidents was soft and should be reviewed for the following periods.

In the area of manufacturing management employees exceeded their two tasks of production versus plan (total tonnes) and production versus plan (per variant). The statistical analysis presented in the previous chapter confirmed the improved performance that employees in this department achieved on this area. In case of the KPI of production versus plan (total tonnes) the results presented in the previous chapter showed very limited variability in this task for the three months included in the research project (97, 101 and 97%). Having such low variability in the outputs is a positive sign for the business because it reflects the reliability of the production operation. However, because of the high fluctuation in the results of this same measure prior to the implementation of the scheme, the T test analysis didn't confirm that improvement.

For this operational department, except for the area of environmental compliance, the results and the analysis of these results showed that employees had extra focus on the areas included in the scheme which resulted in improvements in the results of these areas. As for the area of environmental compliance the first task of the reportable incidents (Type A) was included mainly to keep the good record that the department

kept for years with no such incidents. As discussed earlier in this chapter, the task of off-boundaries incidents was the one that was expected to get more focus from employees, but which didn't happen. This attitude could be explained by the fact that the employees in this department put more focus on other tasks that they perceived as real challenges for them, particularly the task of Materials' Usage Compliance and the two tasks in the area of product and process quality.

As a result of achieving all tasks (table 8-1), employees in this department were entitled to the maximum payoff, which was eight percent of their pre-tax base income.

8.1.3 Department of Liquids

Area	KPI	Task	Results
Cost Effectiveness	Usage compliance on monitored materials	Min 18% Min 27%	29.00%
Product & Process Quality	Non-reportable Nonconformance Reports	Max 0.20%	0.23%
	Factory Fault Consumer Complaints	Max 6	3
Safety Compliance	Lost Time Accidents	0	0
	Hazard Identification Cards	Min 6	10
Environment Compliance	Type A incidents	0	0
	Type B incidents	Max 2	0
Manufacturing Management	Production Vs Plan (variants)	Min 80.0%	94.00%
	Production Vs Plan (tonnes)	Min 96.0%	97.00%

Table 8-2 Results versus tasks for the Department of Liquids for the three months period following the implementation of the incentive scheme

In the area of cost effectiveness, similar to the Department of NSD, the employees in this department had achieved and exceeded the two tasks of Materials Usage Compliance (table 8-2). As discussed in the previous chapter, the qualitative and quantitative analysis demonstrated improvement in this area.

In the area of product and process quality, the qualitative and quantitative statistical analysis confirmed that employees had made extra effort to reduce consumers complaints due to factory faults and as result employees exceeded their task on this KPI. The results presented in the previous chapter showed a reduction of 69% in these complaints in the period following the incentive scheme compared with the eight months period prior to the implementation of the incentive scheme.

For the other KPI in this area (non-reportable non-conformance reports), as discussed in chapter seven, the employees failed to capture, in one incident, a relatively big quantity of defective product which was detected by the Department of Quality Assurance. This quantity (as showed in table 8-2) equated to .23% of the total production produced during the three months following the implementation of incentive scheme, therefore, the employees lost on this task in which they were allowed to a maximum of .2% of non-reported non-conforming products. It is relevant to mention that after this single incident occurred, the employees showed a focus on this KPI which was reflected in having no more incidents for the following two months.

Similar to the Department of NSD, in the area of safety compliance, employees had achieved both tasks, which confirmed the results of the qualitative and quantitative analysis performed in the previous chapter (table 8-2).

In the area of environmental compliance (table 8-2) employees have achieved both tasks and kept clear records of any of the environmental incidents. However, the operational manager of this department didn't notice any extra effort spent by employees to improve or further develop the environmental systems in place. The operational manager commented that in this department reliable preventative and backup systems are in place to make sure such incidents don't occur and having those tasks is mainly to ensure keeping the good practises that already exist. The management team agreed that, although the employees perform very effectively in some areas, it was still important to have some tasks in the scheme that were included just to keep the same levels of performance. However, the setting of this task for this department (of a maximum of two off-boundaries incidents) was seen by the management team to be soft considering the good records of this department and thus it was agreed to review this setting for the following periods.

In the area of manufacturing management (table 8-2) employees exceeded their two tasks of production versus plan (total tonnes) and production versus plan (per variant). The statistical analysis presented in the previous chapter confirmed the improvement that employees in this department achieved in this area.

For this operational department, the results and the analysis of these results showed that employees had extra focus on the areas included in the scheme, which resulted in improvements in the results of these areas. Except for the task of non-reportable non-conformance reports, the employees in this department achieved all remaining tasks and therefore were entitled to the second level of payoff that was six percent of their pre-tax basic income.

8.1.4 Personal Products (PPs)

Area	KPI	Task	Results
Cost Effectiveness	Usage compliance on monitored materials	Min 9% Min 14%	14.00%
Product & Process Quality	Non-reportable Nonconformance Reports	Max 0.20%	0.00%
	Factory Fault Consumer Complaints	Max 12	7
Safety Compliance	Lost Time Accidents	0	0
	Hazard Identification Cards	Min 6	7
Environment Compliance	Type A incidents	0	0
	Type B incidents	Max 2	0
Manufacturing Management	Production Vs Plan (variants)	Min 80.0%	92.00%
	Production Vs Plan (tonnes)	Min 81.0%	96.00%

Table 8-3- Achievements versus tasks for the Department of Personal Products

In the area of cost effectiveness in the Department of PPs, different to the other departments who exceeded their tasks, employees in this department had just achieved the second level of the task (table 8-3).

In the area of product and process quality employees exceeded the tasks set for them for the two KPIs (table 8-3). In the previous chapter the qualitative analysis presented showed an extra effort by employees in this area, which was confirmed by the quantitative statistical analysis. As a result of that extra effort, employees achieved a 33% reduction in the number of consumer complaints compared with the eight months period prior to the implementation of the incentive scheme and exceeded the target set for them for this KPI. As for the other KPI in this area (non-reportable non-conformance reports), the results showed that employees managed to capture all the non-reportable non-conformance reports themselves which is a significant improvement considering the results from the two months prior to the implementation of the incentive scheme.

Similar to the other two departments, in the area of safety compliance, employees had achieved both tasks, which was confirmed by the results of the qualitative, and quantitative analysis discussed in the previous chapter.

In the area of environmental compliance employees have achieved (and exceeded) both tasks and kept clear records of any of the environmental incidents (table 8-3). However, similar to the case with the Department of Liquids, the operational manager of this department didn't report any extra effort spent by employees to improve or further develop the environmental systems in place due to the fact that this department already enjoyed good environmental records.

In the area of manufacturing management employees exceeded their two tasks of production versus plan (total tonnes) and production versus plan (per variant). The statistical analysis presented in the previous chapter confirmed the improvement that the employees in this department had achieved in this area. This area of manufacturing management was a concern for this department for a long period. The results presented in the previous chapter show that this department had the highest percentage of improvement for the two KPIs of production versus plan tonnes and production versus plan variants with respective improvement percentages of 23% and 20%.

Generally speaking, for this operational department, except for the two environmental tasks that were easy to achieve, the results and the analysis of these results showed that employees had extra focus on the areas included in the scheme, which resulted in improvements in the results of these areas. The employees in this department achieved all tasks (table 8-3) and therefore were entitled to the highest level of payoff that was eight percent of their pre-tax basic income.

8.1.5 Department of Soaps

In the area of cost effectiveness, similar to the Department of NSD and Liquids, in this department employees had achieved and exceeded the two tasks of Materials Usage Compliance. As discussed in the previous chapter, the qualitative and quantitative analysis highlighted an improvement in this area. Employees had around

a 60% increase in the number of materials complying during the three months following the implementation of the incentive scheme compared with the period before the implementation. However, as discussed in chapter seven, because of the fluctuations in the results of this department, the T test analysis didn't confirm an improvement. A longer coverage period of the research project after implementing the scheme could allow a more robust analysis.

Area	KPI	Task	Results
Cost Effectiveness	Usage compliance on monitored materials	Min 10% Min 15%	16.00%
Product & Process Quality	Non-reportable Nonconformance Reports	Max 0.20%	0.00%
	Factory Fault Consumer Complaints	Max 8	14
Safety Compliance	Lost Time Accidents	0	0
	Hazard Identification Cards	Min 6	7
Environment Compliance	Type A incidents	0	0
	Type B incidents	Max 2	0
Manufacturing Management	Production Vs Plan (variants)	Min 80.0%	88.00%
	Production Vs Plan (tonnes)	Min 96.0%	100.00%

Table 8-4- Achievements versus tasks for the Department of Soaps

In the area of product and process quality, the results showed that employees in this department had clear records of non-reportable non-conformance reports following the implementation of the scheme. However, the results of this department, prior to the implementation of the scheme, didn't show that this task would be a concern.

On the other hand, although this department achieved a minor reduction in the number of consumers complaints, the improvement wasn't enough to reach their target (table 8-4) and therefore they missed on this task. From the meetings with the operational manager of this department, persons from the management team and employees from the department, it was concluded that most of the consumer complaints resulted from one particular area of the process. Employees in this department faced problems because of this particular area of the process four months prior to the implementation of the incentive scheme. That particular problem was found to be difficult to fix and needed some capital expenditure, which would take several months before being totally under control. The number of consumer complaints (table 7-7) showed a reduction compared with the period prior to the implementation of the incentive scheme. That reduction was explained to be due to more effort from employees to capture the defective products before they went to the consumers. However, the

improvement achieved by the employees was not enough to reach their task (table 8-4) for this KPI.

In the area of safety compliance, employees had achieved both tasks, which was confirmed by the results of the qualitative, and quantitative analysis performed in the previous chapter.

In the area of environmental compliance employees have achieved both tasks and kept clear records of any of the environmental incidents. As mentioned in the previous chapter, employees in this department showed considerable efforts to improve their environmental records. The area that employees in this department focussed on was the high PH level of effluent water that leaves their process, which is historically the main cause behind the environmental incidents in this department. Employees in this department worked closely with the Department of Quality Assurance to set a more robust system to monitor the level of PH of their effluent and to alert the operators in the department whenever the PH readings deviate from the optimum level.

In the area of manufacturing management employees exceeded their two tasks of production versus plan (total tonnes) and production versus plan (per variant). The statistical analysis presented in the previous chapter confirmed the improvements that employees in this department had in this area after the introduction of the incentive scheme.

For this operational department, except for the area of product and process quality, the results and the analysis of these results showed that employees focused on all other areas and achieved good progress in all the other KPIs. As for the area of product and process quality, employees achieved moderate improvements after the implementation of the incentive scheme and missed on one of the tasks in this area, which was the number of consumer complaints. The employees in this department achieved all their targets except the number of consumer complaints and, therefore, they were entitled to the second level of payment, which was six percent of their pre-tax base income.

8.2 TQM attributes and incentive scheme in this research

As discussed in chapter four, for the purpose of this research, it would be more relevant to deal with the subject of TQM by focusing on the main TQM attributes in an operational environment rather than dealing with TQM as a philosophy or a concept. In the following section the main TQM attributes are discussed in light of the results of the findings of this research project presented earlier. The discussion will mainly focus on whether the TQM attributes mentioned earlier (customer focus, leadership, continuous improvement, employees empowerment and teamwork) were promoted, hurt or weren't affected by the introduction of the incentive scheme.

8.2.1 Customer focus

In the majority of the literature on TQM, "customer focus" is considered as one of the basic attributes of TQM. In this research project this attribute was dealt with firstly in the area of "product and process quality" and secondly in the area of "manufacturing management". In the area of product and process quality the employees were asked first to reduce the number of consumer complaints and second to increase the sense of ownership of the quality of their processes and products by reducing the quantity of defective products detected by persons outside the operational departments.
The second area where the attribute of customer focus was dealt with was the area of manufacturing management. In this area the employees were asked to deliver to the customers (in this case the retailers) the quantity of production needed on time.

Considering the results presented in the previous chapter and discussed earlier in this chapter, it was noticed that the incentive scheme promoted the attribute of customer focus. Although it was noticed that one department (Soaps) had only a marginal reduction in the number of consumer complaints, generally speaking, the results discussed earlier in this chapter and the previous chapter showed a considerable reduction in number of consumer complaints and quantities of defective production detected by persons outside the operational departments. Such reduction indicates that the scheme promoted the attribute of customer focus.
Secondly the attribute of customer focus was further promoted by improving the accuracy and reliability in supplying the customers with the exact quantities of

products on time which was reflected in producing the needed tonnes of different variants to plan. As presented earlier in this chapter and chapter seven, the percentage of production produced versus planned (whether in tonnes or as variants) improved for all four departments.

8.2.2 Leadership

The incentive scheme in this research project covered employees on production lines and a few key support personnel who work closely with these employees and therefore management wasn't included in this scheme. Taking the management out of the equation and considering that the organisation, to a great extent, had a flat structure, the attribute of leadership wasn't really tested properly particularly due to the short period that the research project covered following the implementation of the scheme. From the observation of the researcher, the managers or the leaders of the departments just continued their support and coaching to their people. On the other hand, within the employees themselves, some individuals showed clear leadership skills while working with their peers on achieving their tasks.

It appears that the attribute of leadership wasn't hurt in any way if not slightly promoted.

8.2.3 Continuous improvement

The main idea behind installing an incentive scheme is to improve the existing performance of an organisation. Using an incentive scheme to achieve a continuous improvement depends mainly on the design and the structure of the scheme installed. Having a scheme with a rigid structure or project-type tasks wouldn't help creating an environment of continuous improvement. The structure of the scheme in this research project was seen to be flexible enough to deal with the changing needs of the organisation. Assuming that employees had reached the level that the organisation needs them to reach in one of the five areas or assuming that the organisation reprioritised its strategic objectives, any of the five areas could be easily substituted with another one relevant to the organisation.

As discussed in chapter four (TQM), using stretching tasks is one of the techniques that are commonly used by organisations that follow the TQM approach to promote

an environment of continuous improvement. In chapter six the process of setting the tasks was presented. To ensure that the tasks were stretching for most of the cases while setting them, a percentage improvement was expected from employees on top of their historical performance and the levels of those tasks were all to be reviewed on a yearly basis to ensure continuous progress.

However, some of the tasks used in this research project couldn't be considered as "stretching". Examples of those tasks are the number of lost time incidents and the reportable environmental incidents. A lost time incident is an incident that causes the employees to be offsite for one or more days while a reportable environmental incident (or environmental incident type A) is that incident that goes offsite and results in the prosecution of the company. Employees had clear records of these incidents, which means that they could not get better results. From the perspective of the organisation, such tasks were still seen needed in the scheme to ensure that employees would keep the same good records and to encourage them to further develop the systems that result in having such good records. However, the findings of this research project didn't confirm that extra effort was always spent to further improve the systems for all such tasks. As discussed earlier in this chapter, the Departments of PPs and Liquids didn't show any extra effort to further improve their environmental preventative systems. One can argue that those systems were very robust, which was confirmed by the operational manager of these two departments, to the extent that any further work on developing them would be practically a waste of time compared with other tasks that employees had to invest considerable effort to achieve.

8.2.4 Employees' empowerment and team work

TQM is an organisation-wide approach, which means that it is not appropriate to depend only on the leaders to manage and improve all the processes within the organisation. Moon and Swaffin [45] define the term empowerment as: "The voluntary transfer of ownership of a task or situation to an individual or a group having the ability and willingness appropriate to that situation, in an enabling environment." The researcher sees that the incentive scheme implemented in this research project promoted such a voluntary transfer and ownership of the tasks from

management or other departments (such as QA in the area of products and processes quality) to operational employees on the line. With the support of management and the training systems set in place, the employees on the lines showed that they could handle such tasks and achieve remarkable progress. In a TQM environment such as in the field of this research, the teamwork is the frame that all employees work within. However, because the scheme was based on departmental performance rather than individual or team performance, it further promoted the teamwork spirit between teams because of the fact that none of the teams could earn its bonus without the help of the other teams. During one of the assessment sessions one of the employees noted that an increased sense of co-operation was noticed between manufacturing and packaging teams; previously they did not enjoy a very co-operative relationship.

8.3 Incentive schemes and arguments of the TQM's advocates

In this section the main arguments that the TQM's advocates have against the financial scheme (detailed in chapter four) are reviewed and discussed against the results of this research project.

Deming is a well known quality management advocate and pioneer and he is recognised as a tough opponent of incentive schemes. Drummond [57] discusses one of the main reasons that makes Deming oppose the incentive scheme, which is that many of the incentive schemes are based on productivity. Drummond says that Deming urges organisations to abandon productivity based incentive schemes on the grounds that they are detrimental to good workmanship. "Piece work, says Deming, is an incentive to produce scrap." [57]

In trying to test Deming's point of view (about productivity based schemes) in this research project we can make the following points:

- The incentive scheme that was implemented in this research project wasn't a productivity-based scheme, but rather it was structured in a way to motivate employees to focus on five different areas amongst which productivity was only one of the areas (the other areas being quality, environment, safety and cost).
- The quality of products and processes was one of the five areas that employees had to cover in order to reach their bonus. Employees had two KPIs to be

measured against in this area, namely the number of consumer complaints due to factory problems and the quantity of non-reported non-conformance reports (raised by persons outside the operational departments). In the results presented in the previous chapter and earlier in this chapter we could see that employees in three out of the four operational departments had a significant reduction in consumer complaints that varied between a 33% and a 69% reduction. The fourth department (Soaps) had a marginal reduction of 6%. As for the quantity of non-conformance reports raised by persons outside the operational departments, the results show a significant reduction in these reports in three operational departments (NSD, Soaps and PPs) and moderate improvement for the Department of Liquids. Such reduction in consumer complaints and the amount of quality issues captured by persons outside the operational departments indicates that employees had more ownership of the quality of their processes and products after implementing the scheme.

- The scheme gave equal weighting to all five areas mentioned earlier to ensure that employees would not focus on one area at the expense of the others. Going through the results of the quality related KPIs (mentioned above) and the productivity related KPIs (production versus plan), we can see no evidence that suggests that employees gave more attention to the productivity related KPIs at the expense of the quality ones. Even in the case of the department that showed the least reduction in the number of consumers complaints (Soaps) we can see no evidence that this department had an unusual improvement in the productivity KPIs to suggest that employees favoured productivity over quality.
- The productivity KPIs in this research project were different to the classical ones that the researcher considers Deming refers to while attacking such KPIs. The productivity KPIs in this project were to achieve a predetermined plan rather than just maximising the quantity produced. In one of the productivity measures in this research project employees would risk losing their bonus if they produced more than 10% above the planned quantity for any of the variants.
- The researcher does agree with Deming's point of view that having an incentive scheme that is based only on productivity could actually motivate people to compromise on quality while they focus on maximising their output. However, considering the points discussed above, the researcher believes that such concern

wasn't relevant to this research project due to the structure of the incentive scheme that motivated employees to focus equally on different areas included in the scheme rather then only on quantity of products going out of the factory's door.

But Deming isn't just against the productivity based incentive schemes. Snape, Wilkinson and Redman [58] discuss the point that Deming sees the MBO (managing by objectives) schemes as one of the "deadly diseases" of Western management even though they aren't based on productivity measures. According to Deming, those schemes motivate employees to look for short term achievements to meet their appraisal objectives and ignore the long-term improvement that the organisations need the most. Testing this point of view against the findings of this research project the following points could be made:

- One of the criteria that was used to select the areas covered by the incentive scheme was the importance of those areas to the organisation. As mentioned in chapter six, all of the five areas included in the research project already existed in the yearly plan known in the organisation as Strategy Into Action (SIA). The Australasian Board of Directors sets the yearly plan, which is a part of a five-year strategic plan, and thus it covers the strategic areas of interest to the business. The incentive scheme covered five of those strategic areas (quality, manufacturing management, environment, safety and cost reduction) rather than just focusing on short-term tasks.
- The incentive scheme was structured in a flexible way to allow changing the KPIs (if needed) in any of the areas to ensure that the scheme could support any changes in the business's needs in the future.
- The KPIs included in the research covered areas of ongoing activities rather than short-term temporary project type tasks (consumer complaints, environment incidents, etc.)
- However, the incentive scheme in this research project didn't cover all the areas of interest to the organisation. It isn't clear at this point whether the incentive scheme could have a negative, positive or neutral effect on the areas that were not covered by the scheme such as new capital expenditure, growth, net profit, etc. Unfortunately the time frame for this research project didn't allow for such

investigation and this could be the basis for further research work. On the other hand, one can argue that having the areas covered by the scheme are in line with the organisational strategic objectives and this should mean that the organisation would be stepping toward achieving its strategic objectives at the same time as the employees achieve their targets.

Another negative point that Deming sees in the MBO (Managing By Objectives) schemes is that they "discourage employees from constructive criticism of their managers" since they have control over their appraisal [58]. London & Higgot [72] add that Deming sees the MBO schemes as unfair because it is impossible to have fair ratings in such systems due to "supervisor biases, worker competition and organisational politics". [72]

Considering the structure and the administration of the incentive scheme in this research project the following points could be made:

- Most of the KPIs used in the research project are administrated by persons other than the operational managers and these managers have very little say on the results of these KPIs. For example, the number of consumer complaints is a measure owned and administrated by the consumers' advisory officer who doesn't fall under the authority of the operational managers. The productivity measures (production versus plan) are administrated by the planning manager who falls under a different department in the organisation's chart.
- The KPIs and results were administrated in an open environment to ensure transparency. As discussed in the chapter of methodology, the results of all KPIs and the raw data used to calculate those results were available all the time to the employees on the company's computer shared drive and on notice boards in all departments. The scheme administration officer and the members of the communication committee were responsible of communicating the results personally to the employees and answer their enquiries. The employees had the chance to challenge and question any of the results (which happened more than once during the period of the research project).
- Including in the scheme areas of interest to the business (cascaded from the general strategic plan) meant that both managers and subordinates had the same agenda. The factory manager said in one of the meetings with his operational

managers that the employees would put pressure on their management while trying to reach their bonus. Although the operational managers had a little to say in administrating and controlling the measures, they did have a great chance to significantly help and assist their employees to reach their targets in most of the areas. Examples of those areas are environment and safety where mangers can contribute by providing the advice and the resources needed to improve the systems in place to reduce the number of incidents. From the researcher's observation the managers were trying to assist their teams as much as possible which in the same time helped them to reach their own goals.

Deci is another TQM advocate who doesn't believe in incentive schemes but for different reasons. Steers, Porter and Bigley [59] present Deci's main criticism against the incentive scheme saying that although extrinsic rewards work (like money), they do so at the expense of intrinsic rewards. As discussed in chapter three, the intrinsic rewards are those kind of rewards that are generated inside the person as he or she is doing something positive or achieving a certain goal while the extrinsic rewards are those administered by someone different from the individual who receives them. Deci added that, "Contingent pay systems do not appear to be compatible with participative management systems". [59] A main difference between Deci's and Deming's point of view about incentive scheme is that Deci doesn't exclude the possibility of getting positive results from incentive schemes. However, Deci's concern is that having a system that rewards employees for doing the right thing (which is an extrinsic reward) weakens the effect of the intrinsic rewards that employees would internally experience after achieving a certain achievement. In other words, having employees accustomed to being rewarded for achievement will reduce the chances that these employees would try to improve unless their improvement was externally rewarded.
Because of the time limitations following the implementation of the incentive scheme, this research project didn't cover the possibility of having a reduction in employees' intrinsic motivation as a result of an extrinsic rewarding system such as an incentive scheme. More details of this issue are discussed in the chapter of recommendation for further study. However, the researcher received a comment that relates to Deci's point of view mentioned above from one of the operational managers. The comment that this operational manager made was about the task of presenting a certain number of hazard identification cards to highlight the areas with high potential of risk on

safety. The operational manager acknowledged an increase in the number and an improvement in the contents of the cards presented. However, this operational manager showed a concern that employees could consider presenting the hazard identification cards the end of their job whereas prior to the incentive scheme they would follow up the cards and make sure that a solution would be found to the problem. During the design phase of this research project, the design team thought of having a task that asked employees not only to present the hazard cards, but also to find and implement a solution to eliminate the risk. The design team didn't take this option because, in many cases, the responsibility of implementing such solutions is in the hands of persons other than the employees on the lines (management, engineering crews, buying, etc.). Having such a task wouldn't meet one of the criteria set earlier for this research project which was to have tasks that employees would have under their direct control. The point of view of that operational manager (mentioned above) could be considered in light of Deci's opinion about the negative effect of incentives on motivation as a result of intrinsic rewards. One can argue that because the incentive scheme doesn't pay (extrinsic reward) for implementing a solution to eliminate the hazard, employees would expend only enough effort to get their bonus which is only to present the cards. That operational manager was concerned that the incentive scheme didn't promote employees to be self-motivated to eliminate the source of hazard. The reward that employees would get in such case is an intrinsic reward that could be a feeling of self-esteem or achievement.

However, no evidence could be noticed that justifies the concern of that operational manager at least during the period of the research project. Indeed, the other operational managers didn't share the same point of view and stressed the fact that the scheme delivered more hazards identification cards and that the quality of those cards (their content) improved following the implementation of the incentive scheme.

Joiner [28] is one of the advocates of modern manufacturing techniques and he doesn't believe in incentive schemes because he sees that it is the systems rather than individuals that mainly determine performance. In his book "Fourth Generation Management", Joiner talks about research done by some managers who believe in the modern management techniques. The outcome of that research was that organisations' performance is largely determined by the system within which

employees work i.e.: Policies, processes, procedures, training, equipment, instructions and materials. On the other hand they found that individual skills, ability and motivation are important but play a much smaller role than the others already mentioned. In light of this research project the researcher has the following points:

- As discussed earlier in this chapter and in the previous chapter, employees achieved improvements in almost all the KPIs included in the research project. Those improvements were achieved while the systems, policies, procedures, equipment, etc. were unchanged at least during the period covered by the research project (eight months prior and three months after the implementation of the incentive scheme). From the findings of this research project it was concluded that the performance of motivated employees improved significantly while using the same systems.
- In several cases, having a motivated workforce could further support and enforce the systems already in place. An example is the system for raising the non-conformance reports. Those are the reports that employees raise once they detect a defective product. Prior to the implementation of the incentive scheme the Department of Quality Assurance (that administers the system of non-conformance reports) faced difficulties in getting employees to fill in and handle properly the non-conformance reports. Those reports were lost from time to time and the information on those reports wasn't always accurate. Employees on the line gave the administration of that system far less attention compared with their other production activities that seemed to them to be more relevant to their jobs. Although those employees were good in capturing the defective products, they regarded filling in the reports and sending them to the relevant personnel as an administrative task that the Department of Quality Assurance should be responsible for. Following the implementation of the scheme a remarkable improvement to the non-conformance system was noticed and confirmed by the personnel of the Department of Quality Assurance. That improvement could be explained by the fact that one of the tasks, as presented in chapter six, that the employees had to achieve was to capture and report as much as possible of the non-conforming products. To get their bonus, the employees knew that capturing the defective product isn't enough and they should document and report the incidents properly through the system of non-conformance reports. In this

example of non-conformance reports, not only the organisation has benefited from reducing the quantity of defective products (as discussed in chapter seven), but also has managed to capture accurate information related to the incidents where non-conformance products were produced. That information was used to analyse properly the conditions in which the incidents occurred and thus work on solving the root problems that caused those incidents.

- In some areas, in order to reach their targets, employees had challenged and improved the existing systems to make sure they could achieve their tasks. Examples of such initiative was in the Department of Soaps where employees initiated a project (with help of the Department of Development and Quality Assurance) to review the existing environmental control system in their department. The result of this review was to have a better system that should help preventing and controlling the environmental incidents in this department.
- It is fair to say that employees would find it difficult to reach their targets if they didn't have the knowledge in the first place, the skills and the support of management. In a TQM environment such as in the subject of this research, employees have several things that should help them to reach their targets like training systems to acquire the needed skills, supportive management to support their efforts and procedures in place to improve the processes. In other words, in a proper environment, an incentive scheme could be an efficient tool to drive people to challenge, review and improve the systems to make sure they get the maximum out of them.

One other point that Joiner [28] sees as a major concern with financial incentive schemes is that they promote unhealthy competition between employees and as a result the business as a whole is the main loser. From this research project the researcher can make the following points:

- That unhealthy competition that Joiner mentioned does exist and it is a major concern for many organisations that have incentive schemes in place. However, such competition occurs mainly when incentive schemes are structured around individuals or teams. The structure of the scheme in this research project was based on department performance rather than individuals or teams' performance, thus the issue of competition between individuals or teams is not relevant to this

research. To the contrary, in this research project, a better co-ordination and co-operation between teams was noticed within the same departments in order to reach their common targets.

- As for competition between different departments, due to the nature of the processes, no significant interdependency existed between those departments and, therefore, they were to a great extent like separate work units or factories. The only issue that was raised in one of the meetings with representatives from different production locations was the issue of shared resources like the workshop. Operators from some departments commented that in some cases, the workshop is directed by management to give more support to one operational department compared with the others for reasons such as promotions, urgent orders, special trials, etc. Such preference could cause the other departments to suffer and fail in reaching some of their tasks because such lack of support. The management responded to this argument saying that in the few cases that such urgent help would be needed from a shared resource, the decision would be made based on the benefit of the business as a whole. However, no such situations are rare and none of them occurred during the period of this research project.

8.4 TQM and incentive schemes in this research project

In the last few years, some efforts were spent to clarify the relationship between TQM and incentive schemes and why they don't appear to match. Papa [62] and Brown, Hitchcock and Willard [26] believe in TQM, however, they agree that incentive schemes can live in a TQM environment. From several case studies and experiences carried out in organisations that adopt the TQM approach, these authors noticed that a main weakness in those schemes was that they promoted mainly productivity and cost cutting which was usually done at the expense of quality. Compromising the quality of products or services would hurt the customer's satisfaction which is one of the most important drivers in a TQM environment as described in chapter four. A second weak point noticed in many of the incentive schemes was that their majorities are based on individuals' performance, which weakens the co-operation and teamwork environment.

Conti [63] discusses the same conflict that many organisations face when they start implementing TQM while having an incentive scheme already installed. Conti talks about the frequency of having such conflicts saying that they are "widely recognised" adding that eliminating the incentive scheme is often a step that many of the organisations see as inevitable on their way to implement TQM. However, Conti argues that "discontinuing such plans creates significant barriers to two of TQM's cornerstones: employee participation and continuous improvement." Conti explains his point of view by presenting several real workplace examples where cancelling the incentive schemes affected negatively the employee's feeling of ownership in their workplace and their efforts to achieve improvements to the business. [63]

Snape Wilkinson and Redman [58] discuss the unclear relation between TQM and incentive schemes saying, "There has been growing interest in total quality management (TQM) and also in various forms of incentive pay. Both have been seen as helping organisations to meet the challenges of increasing competition and more demanding customers. However, the prescriptive literature on the one development has often ignored the other, so that the relationship between TQM and incentive pay is less well understood than we might wish". [58]

This research project tried to throw some light on the relationship between TQM and incentive schemes by designing an incentive scheme, implementing it in a TQM environment and monitoring the results of this implementation on some main TQM attributes. The researcher acknowledges the point of view of the majority of TQM advocates that opposes the classical incentive schemes that promote quantity and savings at the expense of quality and customer satisfaction. In this research project and during the task setting process, including a task of materials savings was for the majority of the design team a common sense one that should improve the competitive advantage of the organisation by producing cheaper products. However, being in a TQM environment, it was easy to see the potential risk of such a measure on the quality of products and as a result another measure was tailored that rewards employees for using the right amount of each material rather than saving as much as possible. With this new measure, in many cases employees risked losing their bonuses because of slight under-use of some materials. In other words, to ensure having

products of right quality, employees were penalised for saving money for the business.

Structuring the incentive scheme based on the performance of teams was another trap that the design team needed to avoid. Being in a strong team environment suggested to the design team that a team-based scheme could be the logical structure to adopt. However, reviewing the idea of teamwork from a broader perspective made the design team realise that the teamwork spirit is not only about co-operation between the members of the same team but also co-operation between different teams within the workplace. Considering each of the teams as a separate identity could indeed create unhealthy competition between teams working in the same department or even on the same production line (in different shifts). The design team then decided to adopt a departmental structure that promoted the teamwork spirit within each department. A potential unhealthy competition between departments wasn't a real issue because each of the operational departments was independent from the others and, to a great extent, worked as a separate working unit.

Based on the results presented in the previous chapter and the discussion of these results in this chapter, it could be argued that incentive schemes that were designed within a TQM mainframe could work in a TQM environment, improve the performance of the organisation and could promote the main TQM attributes.

8.5 Motivation in this research project

In chapter two, the complexity that researchers and professionals face when dealing with motivation in the workplace was discussed. Steers, Porter & Bigley [59] discuss that complexity saying, "Motivation, as a concept, represents a highly complex phenomenon that affects, and is affected by, a multitude of factors in the work milieu." The authors see that the best approach to use while dealing with motivation in the workplace is that of the human resources model. That model argues that employees could be motivated by a variety of factors like money, working environment, meaningfulness of their job, need for affiliation, etc. Each employee could be motivated with a balance of some or all of those parameters. McNerney [16] acknowledges that complexity and adds that there is no single theory that can explain

employees' motivation "since people are not purely economic, social, political or psychological beings". [16]

Finding the right balance of the different parameters that motivate each employee (money, job contents, etc.) wasn't part of this research project. The aim of this research project was to answer whether a particular parameter, which is a financial reward, will improve the performance of employees in a TQM environment without hurting the main TQM attributes. From this perspective, the focus in this research project was on developing a financial incentive scheme that motivates employees in a TQM environment. As mentioned in chapter six, the concepts of the expectancy theory were found to be useful in the design phase of the incentive scheme. According to the expectancy theory (detailed in chapter two) the individual's decision to work hard or not is the outcome of a three-step process. The first step is whether or not the effort spent will result in achieving the needed level of performance. The second step is whether or not achieving this performance will lead to a certain outcome (reward). The last step is whether or not this reward has a value that justifies the effort spent. In this research project the concepts of the expectancy theory were considered during the process of setting the tasks for the employees and while determining the bonus payoff. During the process of tasks setting, all tasks were considered to be achievable. As mentioned in chapter six, the tasks were set based on the historical data collected for the KPIs during the eight months prior to the implementation of the incentive scheme. Using the historical levels of performance of the employees ensured that the tasks would be achievable. However, as mentioned in chapter four and six, a reasonable improvement was expected from employees on top of their historical performance. Some exceptions were made and the historical data were not used as a guide while setting the tasks for the incentive scheme. Those exceptions were made for the KPIs that were predetermined by the Board of Directors in the yearly plan. An example of those exceptions was the maximum number of consumer complaints due to factory faults, which was a task predetermined for each of the four operational departments.

Based on the expectancy theory, the second step that the individual takes to decide to work hard or not is whether or not achieving a certain performance will lead to a certain outcome (reward). This step was seen irrelevant to this research project since the rewarding system (the incentive scheme) was structured so that it paid a reward

every time the employees achieved predetermined levels of performance. This second step could be relevant in other types of rewarding systems such as the scheme of quality awards (detailed in chapter five) used in the subject of this research. In those systems, because there is only a limited number of awards that individuals and teams compete to win, expending an extra effort on a certain task could only be a reason to be nominated to earn one of those awards rather than a guarantee to earn one of them.

The last step that affects employees' motivation and therefore affects their decision on whether to spend extra effort on a particular task is whether the value of the reward would justify the effort spent to earn it. As discussed in chapter six, the bonus that could be earned was four, six or eight percent of the employees' base pay. Considering that the yearly pay raise that the employees get varies between three and five percent, an extra earning that could reach as high as eight percent was perceived to be attractive to all employees. Some of the employees called this pay "generous".

The fact that two departments were entitled to a bonus of six percent and the other two were entitled to a bonus of eight percent indicates that the tasks were achievable. Considering the considerable improvements in almost all the KPIs used in the scheme (presented earlier in this chapter and in the previous chapter), one can argue that the scheme did motivate the employees to improve their performance.

8.6 Performance management techniques in this research project

In chapter two the approach of performance management was discussed and the main characteristics of the measures and tasks used in a performance management system were presented. As discussed in chapter six those characteristics were considered while selecting the measures and while setting the tasks that were used in the incentive scheme. A common characteristic of all measures used in the incentive scheme was that all those measures were under the direct control of employees. From ten different areas of high importance to the business, only the measures from the five areas that were under the employees' direct control were used in the scheme.

Including tasks away from the control of employees could cause a negative impact on the employees' motivation.

A second characteristic of the tasks that were used in the incentive was that they were realistic, in other words achievable. The effect of having non-realistic tasks on employees' motivation could be explained in light of the expectancy theory as discussed above.

A third key characteristic of the measures used in this research project was that they matched the culture of the organisation and they fitted well in its environment. As discussed in chapter six and in this chapter, the measures used in this research project all matched with the TQM approach that dominated the environment of that organisation. Including measures that don't match with the TQM approach would definitely face resistance from different areas within the organisation. An example of such measures commonly used in many organisations is cost cutting particularly in the area of raw materials. Although they could deliver cost savings, in a TQM environment such savings were regarded as short-term savings that could compromise the quality of products and risk the consumers' satisfaction and therefore, a new measure of materials compliance was developed. As discussed in chapter six the measure of materials compliance encouraged employees to focus on using the right amount of each of the materials rather than saving as much as they could. That new measure of materials compliance penalised employees for over- or under-using any item above the allowed rates. Such tasks that make employees focus on using exactly the right amount of materials (to ensure delivering a consistent product to the consumers) was perceived as a reasonable task that fits well in a TQM environment.

8.6.1 Communication plan

An efficient communication plan is needed as part of any successful performance management system. The communication plan is needed during the launching period of a performance management scheme and on an ongoing basis to give a feedback to employees on their performance. As presented earlier in chapter six, an efficient communication plan was planned and implemented. A communication committee was formed from representatives from employees from different departments and a

scheme administrator was selected. An outside graphic design firm was used to develop posters and handouts that were used during the launching period. Those posters and handouts were designed to be a simple and attractive tool to present the scheme to the employees on all levels.

A location on the company's computer shared drive was dedicated to advertise all relevant information to the incentive scheme: tasks, results and the raw data for the measures for all departments. Notice boards were installed in each of the departments to advertise the same information for those employees who have no access to the computers.

The communication plan proved to be effective from the strong feedback that followed the launch of the incentive scheme as well as following the announcement of the results of each month. The communication plan also ensured that the scheme was administrated in a transparent way. As mentioned earlier in chapter seven, employees challenged the results in more than one case. Having the results and the raw data used to process those results published openly gave employees the confidence in the way the scheme was administrated.

8.7 Action research in this project

Participatory action research is a type of action research methodology. The main characteristic of this particular methodology is that it emphasis the importance of involving the subject of study not only by being part of the experiment but also by being involved in the research process itself. William Foote Whyte [70] see that this methodology is particularly powerful in situations where organisations are trying to make some changes of a socio- technical nature. Whyte adds "in such situations, we need to develop a process of change, resulting in organisational learning over a considerable period of time. To be useful in stimulating and guiding this process, the researcher cannot simply stand aside and just report research findings to the decision-makers" [70]

Whether or not financial incentive schemes are compatible with a TQM environment was, from the researcher's perspective, a question that needed an answer. From the perspective of the organisation and the people in the organisation, designing and installing an incentive scheme is, as Whyte mentions above, about having changes of a socio-technical nature that need some processes of change to happen. All through

this research project the researcher worked closely with a design team and different people on the production floor. The project was not at all about sitting in an office, designing an incentive scheme, giving it to the employees and then studying the effect of having this scheme on the TQM environment and its main attributes. Designing and installing an incentive scheme required a lot of interaction, communication and negotiations between the researcher, management and employees. It required as well a good understanding of the field of the research (operating conditions, management style, environment, etc.) which made it very important for the researcher to interact with all components of the field of research.

The participatory action research was seen to be a suitable methodology for this type of research project because it enabled the researcher to interact with the subject of the research during a process of complex socio-technical change.

8.8 Summary

In this chapter the results for all four operational departments were presented. The discussion of those results showed that the four operational departments achieved the majority of the tasks set for them in the incentive scheme and in some cases those tasks were exceeded. Two operational departments out of four earned the maximum bonus of eight percent and the other earned the middle bonus of six percent.

The TQM attributes were reviewed in light of the results of this research project and the fact that none of those attributes were negatively affected because of the incentive scheme was discussed. The arguments of TQM's advocates who resist the financial incentive schemes were reviewed in light of the finding of the research project and it was discussed that those arguments were not relevant to this particular incentive scheme.

The performance management approach followed in this research project was then presented and the main performance management techniques that helped in this research project were discussed.

Finally the methodology of participatory action research was reviewed in light of the experience of this research project. That review showed that this methodology was very convenient to this type of research where a great deal of interaction is needed between the researcher and the subject of research in a complex socio-technical process.

9 Summary and conclusion

9.1 Total Quality Management and Incentive Schemes:

The topic of motivation at the workplace is discussed in the TQM literature. However, the main TQM advocates tend to exclude financial incentive schemes from their motivation agenda. These TQM advocates, as shown in earlier chapters, attack those particular practices for different reasons and argue that they cannot fit within a TQM environment. Deming is a well known quality management advocate and pioneer who argues that financial incentive schemes promote quantity at the expense of quality, motivate employees to look for short term achievements rather than long-term improvements and discourage employees from criticism of their managers who will appraise them.

Deci is another TQM advocate who sees that although financial incentive schemes can deliver some benefits to the organisation, they cause employees to become accustomed to being rewarded financially for every achievement, and this eventually reduces the effect of intrinsic rewards. Intrinsic rewards as detailed in chapter three (section 3.1.1) are those kind of rewards that are generated inside the person as he or she is doing something positive or achieving a certain goal. Deci sees that organisations should provide to their employees an environment full of interesting and challenging jobs with opportunities for advancement. Such an environment promotes intrinsic rewards such as: feelings of competency, personal development and self-esteem.

Joiner and Scholtes of Joiner Associates are also opposed to financial incentive schemes. They consider that the financial incentive schemes promote an unhealthy competition between employees, which eventually has a negative impact on the organisation as a whole.

On the other hand, there are still many advocates for financial incentive schemes who believe in the influence of such motivators on organisations' performance. As discussed in chapter four (section 4.2) these advocates, backed up with several case studies and surveys, argue that financial incentive schemes are an essential tool for

any organisation to shape its performance. William [1] in her paper "Currents in compensation and benefits" explores a study done by consulting firm Sibson & Company. According to this study, "Individual and broad-based incentive pay and the attendant performance systems are proven--and significant--change agents for American businesses. These powerful business practices are fundamental to our success. Let's not throw out the proverbial human resource system baby with the bath water because it does not yet support the new ways of quality management".

In between these two extreme points of view there exists a substantial group of managers who operate in a TQM environment and adopt modern management techniques but, in the same time, still believe in incentive schemes as an efficient tool that can help improve the performance of their organisations. These managers are confused by these two extreme points of view and find it difficult to decide whether or not installing a financial incentive scheme can fit in their TQM environment.

The purpose of this research project was to answer the question on whether a compromise between TQM and financial incentive schemes could be achieved to make the best use of both approaches. To answer this question an organisation with a strong TQM environment was identified and a financial incentive scheme was designed and installed in that organisation with the help of a design team from the same organisation. The results of installing the financial incentive scheme were then used to study the effect of installing that scheme on the TQM environment and particularly on some specific TQM attributes.

9.2 Design and introduction of an incentive scheme:

A design team was formed that included the human resources manager, factory manager, the three operational managers, the engineering manager, the factory employees support manager, an industrial engineer and the researcher. The design team agreed on the main features of the incentive scheme, such as: to be in line with the organisation's strategic objectives, to include only those tasks that the employees can directly influence, transparent and simple to manage. Several types of incentive schemes were considered such as gain sharing, profit sharing and PRP (pay for performance). To ensure that the incentive scheme would cover the particular needs

of the organisation and that it will match its culture, the design team finally decided to tailor an incentive scheme. That incentive scheme covered the main areas of interest to the business that the employees can influence namely: product and process quality, manufacturing management, environmental compliance, safety compliance and cost effectiveness. To ensure the tasks were achievable, the design team used the historical performance to set the majority of tasks included in the incentive scheme. The scheme was discussed with a sample from the employees before being submitted to the Board of Directors for approval. The research project covered the implementation of the scheme in the four operational departments namely: Non Soaps Detergents (NSD), Soaps, Liquids and Personal Products (PPs). A communication committee was formed from representatives from all departments covered by the scheme. Members of this committee were responsible for explaining the scheme to their co-workers and answer their questions.

The introduction of the scheme to employees included presentations by management and by the communication committee backed up with posters, explanatory documents and notice boards.

9.2.1 Improvements in the areas covered by the scheme

In chapter seven the results collected for the key performance indicators included in the scheme before and after the implementation were presented and a quantitative and qualitative analysis was performed on that data. The results of the analysis showed improvement in almost all areas covered by the incentive scheme and that improvement was discussed in chapter eight (section 8.1) for each of the four operational departments.

9.2.1.1 Products and processes quality:

In the area of product and process quality the results presented in chapter seven showed a reduction in the number of consumer complaints for all four operational departments. However, while that reduction was remarkable in the departments of Non Soaps Detergents, Liquids and Personal Products, the Department of Soaps achieved a marginal reduction in the number of consumer complaints. As discussed in chapter eight (section 8.1.5), a major process problem occurred in the Department of Soaps few months prior to the implementation of the scheme. To solve the problem a

capital expenditure was needed and it would take several months to acquire the capital items be in place and the employees covered by the incentive scheme had no control over these actions.

In the same area of product and process quality the three Departments of Non Soaps Detergents, Personal Products and Soaps showed progress in their ability to capture any defective product before it left their production lines. As for the Department of Liquids, they had one incident where a significant quantity of output was produced outside the specification just after the implementation of the scheme. That error was captured by the Department of Quality Assurance. Following this incident the Department of Liquids had no incidents detected by employees outside their department for the remaining three months covered by this research project.

9.2.1.2 Manufacturing management:

The area of manufacturing management measures the ability of each of the four operational departments to deliver the needed quantity of products on time. In this area of manufacturing management all four departments showed improvement in meeting their production plans. The Department of Personal Products had a particularly remarkable improvement in this area which was historically one of its weakest points.

9.2.1.3 Environmental compliance:

In the area of environmental compliance, all four departments met their targets. Employees particularly in the Departments of Soaps showed remarkable improvements in working with other support departments to improve their environmental protection systems. In the Department of Non Soaps Detergents, an environmental type B incident occurred in the first month after the implementation of the scheme. Environmental type B incidents are those incidents that go beyond the boundaries of the company but do not lead to the prosecution of the company. Examples of those incidents are noise and dust. As discussed in chapter eight (sec 8.1.3), employees gave considerable attention to this area following this incident and kept a clear record of those incidents for the remaining period covered by the incentive scheme. It is relevant to say that although the environmental incident occurred, the Department of Non Soaps Detergents had a better result for the three

months following the implementation of the scheme when compared with the results from similar periods prior to the implementation.

9.2.1.4 Safety compliance:

In the area of safety compliance the four departments kept clear records of any accidents involving loss of time. All of the four departments also showed an increase in the number of hazard identification cards and exceeded their targets of presenting six of those cards during the three months period following the implementation of the scheme (chapter 7 section 2).

9.2.1.5 Cost effectiveness:

In the area of cost effectiveness, all four departments achieved an increase in the number of materials complying. The complying materials as presented in chapter six (section 6.7.3.2), are those materials that employees managed to use within the allowed usage figures determined by the Department of Development. In other words, the complying materials are those ones where no over or under usage was reported. All the four operational departments met or exceeded their targets in that task.

9.2.1.6 Overall results:

From those results detailed in chapter seven and eight and illustrated above, it could be concluded that the financial incentive scheme implemented as part of this research project managed to motivate employees to reach almost all of the targets set for them. It is also relevant to mention that two of the four operational departments achieved the maximum bonus they could get while the other two departments managed to receive the payment in the middle of the range.

9.3 Promotion of the TQM attributes by the incentive scheme

As discussed in chapter eight (section 8.2) the incentive scheme implemented as part of this research project did not result in any impairment of the main TQM attributes considered important in this work environment. To the contrary, the incentive scheme actually promoted many of the TQM attributes.

9.3.1 Customer focus

It was noted that the attribute of consumer focus was actually promoted in two areas that were covered by the incentive scheme. The first area was that of process and product quality in which a remarkable reduction in the number of consumer complaints was noticed following the implementation of the incentive scheme. Another area where the attribute of customer focus was promoted was that of manufacturing management. In that area an improvement was noticed in meeting production plans by all four operational departments. Meeting the production plan ensured that the consumers' needs (in this case the retailers) were met on time.

9.3.2 Continuous improvement:

Another TQM attribute that was promoted by the incentive scheme was that of continuous improvement. As discussed in the previous chapter, the scheme showed an improvement in all five areas of importance to the organisation. As mentioned in chapter six, the tasks used in those five areas were "stretching" tasks and were to be reviewed every year to ensure that continuous improvement was achieved in those areas.

9.3.3 Teamwork and empowerment:

The third main TQM attribute that was focussed on in this research project was the employees' empowerment and teamwork. As presented in chapter eight (section 8.2.4) employees were empowered to take more ownership of their processes and products following the implementation of the incentive scheme. An example of the areas that the employees were empowered to take the ownership of the quality of their products was in the area of process and product quality. In that area the employees had the task of reducing the number of non-conforming products which were not reported. This task penalised employees for any defective products that were produced by their production line and detected at a later stage by employees in the Department of Quality Assurance, Stores or by the retailers. In other words, that measure promoted the concept those employees in the operational departments who were totally responsible for the quality of their products.

The teamwork attribute was strongly promoted in the organisation studied in this research project. However, the incentive scheme further advanced teamwork since the

bonus was paid based on the results of each of the departments as a whole. Therefore, none of the individuals or even teams would be able to achieve any of the tasks on their own. As mentioned in chapter eight, more co-operation was noticed between different teams following the implementation of the scheme.

9.3.4 Leadership

The last main TQM attribute that was monitored in this research project was that of leadership. As discussed in chapter eight (section 8.2.2) the incentive scheme in this research project covered only the employees on the production floor and a few key persons who worked closely with them. Employees in managerial positions were not included in this research project and, therefore, the attribute of leadership could not be studied properly. However, as mentioned in chapter eight, within the teams themselves some employees undertook leadership roles while working on achieving the tasks for the incentive scheme.

The area of materials compliance mentioned earlier in this chapter was a new area that represented a challenge for employees in the four operational departments. In each of the four departments employees selected some individuals to lead the teams to work on this particular area and the results presented in chapter seven showed that all four operational departments achieved their tasks in the area of materials compliance.

9.4 Views of the well-known Total Quality Management advocates

In chapter four (section 4.2) the main reasons for the opposition by TQM advocates to financial incentive schemes were given.

One of the main concerns that Deming had concerning financial incentive schemes was that they promote quantity over quality. As discussed in the previous two chapters and earlier in this chapter, the financial incentive scheme used in this research project actually promoted more focus on quality and satisfying the needs of the customers. Another concern that Deming had was that the financial incentive schemes motivate employees to focus on short-term objectives in order to reach their bonus and ignore the activity that relates to the long-term improvement that should be

the main focus of the business. As discussed in chapter six (section 6.6.2.2) and the previous chapter (section 8.3) all of the five areas included in this incentive scheme (product and process quality, manufacturing management, environmental compliance, safety compliance and cost effectiveness) were areas of strategic interest to the business. The tasks in those areas were far from being short term, project-type tasks. The majority of those tasks (such as consumer complaints, environmental incidents, etc.) already existed on site before the incentive scheme was introduced and will remain whether the incentive scheme remains or not.

9.4.1 Appraisal of employees by management for bonuses:

A further main concern that Deming had about financial incentive schemes is that they discourage employees from criticising their managers who appraise them. As discussed in chapter six the structure of the scheme and the way it was administered didn't give management that control over the employees in the operational departments. As discussed in chapter eight, the results for most of the tasks in the incentive scheme were calculated in departments other than the operational departments. This means that management in those departments had very little influence over those results. Example of such results are consumer complaints which were administered by the office of consumer advisory (part of the Department of Marketing), the production versus plan that were administered by the planning managers, the safety tasks that are administered by the Department of Human Resources, and so on. To summarise, the issue of discouraging employees from criticising their managers isn't applicable to the incentives used in this research project.

9.4.2 Effect of financial incentives on intrinsic rewards:

Deci is another TQM advocate who sees that financial incentive schemes have a negative effect on intrinsic rewards. Examples of intrinsic rewards are feelings of competency, personal development and self-esteem. As discussed in the previous chapter, the time limitations in this research project did not allow for a proper investigation on whether or not the financial incentive scheme negatively affected the intrinsic rewards and if so to what extent. This issue is discussed in more detail in the following chapter.

Joiner, who is one of the modern TQM advocates, suggests that financial incentive schemes result in an environment of unhealthy competition between individuals within the same organisation. As presented in chapter six and discussed earlier in this chapter, the incentive scheme in this research project was based on the performance of the department as a whole. From the findings of this research project, it was concluded that the incentive scheme used actually promoted co-operation between the individuals and teams within the same departments.

As discussed in chapter eight (section 8.3) and summarised above, it could be concluded from this research project that most of the reasons that the TQM advocates do not approve financial incentive schemes do not necessarily apply to all financial incentive schemes. We can conclude that although some of the concerns that the TQM advocates have about incentive schemes are legitimate, most of have been avoided in the scheme used in this research project.

9.5 TQM could help installing an efficient incentive scheme

From this research project it was concluded also that it is possible to design a financial incentive scheme that incorporates the main TQM attributes and motivates employees to further focus on those attributes. As discussed in the previous chapter (section 8.4) and mentioned earlier in this chapter, attributes such as consumer satisfaction and teamwork were promoted by the incentive scheme developed for this research project.

One remark that could be made here is that it could be easier to install an efficient incentive scheme in an environment with a strong TQM culture as compared with other environments. In a TQM environment the objectives of the organisation are usually well determined and most of the measures necessary to monitor those objectives are already in place. Having clear objectives and measures in place means that the process of setting the tasks for an incentive scheme can be relatively easy. For example, it is difficult to imagine how an incentive scheme could be introduced in an environment that doesn't monitor areas such as safety or quality. In other words, if the

same incentive scheme was installed in an environment where the quality of products wasn't monitored properly, it would be possible to expect an increase in the number of defective products reaching the consumers which eventually will impact negatively on the interests of the organisation. Having the necessary measures that cover the main areas of strategic interest to the business actually facilitates the development of an incentive scheme that further promotes those areas of interest to the business.

9.5.1 Organisational objectives:

Another point that could help while installing an incentive scheme in a TQM environment is that the objectives of the organisation and the measures used to monitor those objectives are usually well communicated through proper channels to the employees on different levels within the organisation. As discussed in chapter six (section 6.6.2.2) and eight (section 8.3), the effectiveness of the communication plan for the incentive scheme is a crucial factor in the success of the scheme. In this research project it was noticed that having the employees familiar with almost all of the KPIs used in the scheme (except the new ones) was an important factor that helped the design team and the members of the communication committee to communicate the scheme to the employees in a relatively short time.

9.6 Performance management techniques

The process of setting the tasks for the incentive scheme was seen to be a critical one in this research project. As discussed in chapter two (section 2.3), six (section 6.7.3) and eight (section 8.6) the two following main guidelines of the performance management technique were followed.

9.6.1 Achievable tasks

Having realistic and achievable tasks was one of the issues considered in this research project and as detailed in chapter six, the historical performance of the employees before the implementation of the incentive scheme was used as a guide to set the tasks for the incentive scheme. More than once the members of the design team were tempted to set over-challenging tasks for employees to achieve rapid improvement. The techniques of performance management helped to alert those members of the design team to the risk of setting tasks that are very difficult to achieve.

9.6.2 Tasks should be under the employees' control

Another technique of performance management used was to select only those tasks that are under the direct control of the employees. Including tasks over which employees have little influence would reduce the motivational effect of the scheme. As discussed earlier in chapter six the yearly plan set by the Board of Directors included ten areas of high priority to the business. However, only the ones that were seen to be under the direct control of the employees were included in the incentive scheme.

From the findings of this research project it could be concluded that the performance management techniques helped the design team to develop an incentive scheme that managed to motivate the employees to achieve most of the tasks set for them.

9.7 Expectancy theory

According to the expectancy theory presented in chapter two, the employee's decision to work hard or not is the outcome of a three-step process. The first step is whether or not the effort spent will result in achieving the required level of performance. The second step is whether or not achieving this performance will lead to a certain outcome (reward) and the last step is on how employees perceive the reward. In this research project the three steps of the expectancy theory were considered throughout the different stages of developing the incentive scheme and particularly the first and last steps were found to be of great help to the design team. The first step as to whether or not the effort that the employees spend would result in achieving their tasks was actually not far removed from the technique of performance management of setting achievable tasks. In other words, if the employees perceive the tasks not achievable a reduction in the motivational effect of the scheme will result. As mentioned in the previous chapter (section 8.6), the second step of the expectancy theory wasn't relevant to this research project since the incentive scheme was structured so that it rewards the employees every time they reached their targets. As for the last step, which concerns how the employees value the reward, the percentages of payments offered by the scheme were perceived by the employees to provide motivation.

9.8 The incentive scheme from the perspective of the organisation

In this project it was found that employees managed to achieve almost all the tasks set for them by the incentive scheme. From the assessment sessions that took place as part of the qualitative analysis the management team agreed that the employees had achieved improvements in all of the four operational departments in which the financial incentive scheme had been implemented. From the perspective of the management team, the scheme helped to maintain and improve the organisation's performance in the five key areas for the business as mentioned earlier in this chapter and in the previous chapter. The Australasian Board of Directors agreed to have a formal assessment of the scheme after ten months from the initial implementation and if the results of that assessment show that the performance of employees is still improving due to the incentive scheme, the scheme will be expanded to cover all the support departments.

9.9 Summary

From this research project it was found that an incentive scheme could be designed to fit into a TQM environment and could actually promote the main TQM attributes. It was even noticed that in a TQM environment, with clear and well-communicated objectives and measures, the design and the implementation of the incentive scheme could be easier than in a non TQM environment.

This research project showed that the organisation benefited from the implementation of the incentive scheme in five different areas of strategic interest to the business, namely: product and process quality, manufacturing management, environmental compliance, safety compliance and cost effectiveness.

The research project also showed that the guidelines of performance management techniques and the expectancy theory were of great value during the different phases

while developing the financial incentive scheme implemented in this research project.

10 Recommendations

In the following section areas that were not covered by the research project due to time limitations or because they were not directly related to this research project are discussed. The recommendations that were presented to the organisation (from a business perspective) are also discussed.

10.1 Extrinsic-intrinsic rewards in a TQM environment

The research project covered five areas that were under the direct control of employees and, at the same time, were of importance to the organisation in which the research project took place. The five areas covered in the research project were product and process quality, manufacturing management, environmental compliance, safety compliance and cost effectiveness. In each of these areas the employees had two tasks to achieve. Those tasks were monitored before and after the implementation of the incentive scheme to identify the effect that the scheme had on the performance of employees involved in those tasks. Although, as discussed in chapter seven and eight, the results showed improvement in almost all tasks included in the incentive scheme, it isn't clear at this point what effect the scheme had on the areas and tasks that were not included in the scheme. As mentioned earlier in this research project only the areas that employees could influence directly were included in the incentive scheme. On the other hand, other areas of great interest to the business such as meeting the annual budgets, cash flow, net profit, market share, etc. were not included in this research project because they were not under the direct control of the employees included in this research project. However, although employees don't have the same degree of influence on these areas as they have on the five areas included in the scheme, employees can still, to a certain extent, influence areas such as budgets, net profit and market share.

Steers, Porter and Bigley [5] discuss the concerns that Deci (a TQM expert) has regarding the effect of financial incentive schemes on the intrinsic motivation of employees. Deci sees that "although extrinsic rewards work (like money), they do it at the expense of intrinsic rewards". [5] Intrinsic rewards are those rewards that are generated inside the person as he or she is doing something positive or achieving a

certain goal while extrinsic rewards are those rewards administered by someone different from the individual who receives them. An example of an intrinsic reward is the feeling of self-esteem that a person feels after achieving a certain task. An example of an extrinsic reward is a bonus or a promotion that a person gets as a result of reaching a certain achievement. Applying Deci's point of view on this research project, one can question the level of interest that employees gave to the tasks that weren't included in the incentive scheme. Deci's idea suggests that because those tasks were not included in the incentive scheme, the employees will not spend enough effort trying to achieve them since they will not be rewarded financially should they achieve them. In other words, Deci sees the danger of having a financial incentive scheme (extrinsic reward) in an organisation is that employees will be accustomed to getting a financial reward for achieving particular tasks and, therefore, employees will show less interest in those other tasks with no expected financial outcome. One can argue that in a TQM environment the strategic tasks and work plans for the business are well communicated to employees on all levels and so, employees would still show interest in all tasks whether or not they expected an extrinsic reward. An area for future study could be to investigate the effect of financial incentive schemes on the performance of employees in the areas or tasks that are not included in the scheme but which they could influence to a certain degree. In other words, a question that could be answered in future research work is whether or not, in a TQM environment, an incentive scheme becomes the driver for employees' behaviour rather than just one amongst other drivers and, therefore, the effect of intrinsic rewards of employees will weaken.

10.2 Expectancy theory

According to the expectancy theory (detailed in chapter two section 2.2.2.1) the individual's decision to work hard or not is the outcome of a three-step process. The first step is whether or not the effort spent will result in achieving the needed level of performance. The second step is whether or not achieving this performance will lead to a certain outcome (reward). The last step is whether or not this reward has a value that justifies the effort spent. Robbins, Waters-March, Cacioppe and Millett [10] emphasise the fact that the expectancy theory focuses on the employees' perceptions

in all three steps mentioned earlier rather than on the management or the organisation's perception. If we take the first step as an example - whether a task is achievable or not - the expectancy theory focuses on how the employees perceive this particular task. In other words, whether or not the task is achievable and regardless of how management sees that task, from an expectancy perspective, the main issue is how the employees perceive that task. The same concept of "employees' perception" applies on the other two steps that determine the motivational level of employees toward a certain task. The second step is whether or not employees perceive that achieving a certain performance level will lead to a certain outcome (reward). The last step is how the employees will perceive the reward versus the amount of effort they have to put in to achieve a certain task. In simple words, the employees check whether or not the reward is worth the effort they have to spend to reach that reward.

In the following section two areas of future research work are presented that could be studied in light of the expectancy theory. The first area is a detailed study of how all the employees of the operational departments (that were included in the research project) perceived the incentive scheme. The second area is on how the employees in the service departments (Stores, Engineering and Canteen) perceived the incentive scheme.

10.2.1 The incentive scheme from the perspective of operational employees

Considering the importance of how employees perceive the tasks, the effort they need to spend to achieve those tasks and how they perceive the potential reward in this research project, a selection of employees was involved in several stages of developing the incentive scheme.

The first involvement by employees was when a draft of the scheme was presented to a selection the factory's employees before being presented to the Board of Directors for approval. The presentation was mainly to test how the employees perceived the structure of the scheme as a whole and each of the tasks in the incentive scheme from a clarity and fairness point of view. The results of this presentation indicated that, in general, the scheme was perceived to be clear and fair from the perspective of this sample of employees. The second main stage where a selection of employees was

involved was during the launch phase as members of the communication committee. The operational managers nominated two employees from each department to represent their departments on this committee. The members in this committee had the responsibility of explaining the scheme in a simplified way to their co-workers and answer any queries they might have concerning the tasks, the structure of the scheme or payment levels. The last stage where a selection of employees was involved was during the assessment sessions after the implementation of the scheme. As mentioned in the introduction of chapter seven, the factory human resources manager organised assessment sessions with some key persons from the production floor (mainly team support officers) at the end of the three months period covered by this research project. During those sessions this sample of employees was asked whether they noticed a change in the way their co-workers performed in the areas covered by the incentive scheme.

Although, as mentioned above, selected employees were involved in different stages throughout the development of the incentive scheme, a proper survey that included all employees covered by the scheme was not able to be conducted because of time limitations and could be the subject of future research work. The employees involved during the different development phases of the scheme were selected mainly by the management team. Although the management team tried to have a representative sample, surveying all of the employees that were covered by the scheme could still be of great value to this area of research. Such a survey could be useful in exploring different areas that were not included in this research project or were included briefly.

An example of such an area, that could be the subject for future research work, is a detailed study on how employees perceived the different tasks in the scheme and the structure of the scheme as a whole. Another area that could be explored is whether employees perceived the scheme differently from one department to the other and within the same departments and if so, what were the reasons for having different perceptions. A last area of relevance to this research project that could be highlighted by a survey is to what extent the employees were motivated as a result of introducing the incentive scheme. The outcome of such a survey could be used to confirm from the employees' perspective the positive results of this research project considered to have been achieved by the management team and by the observation of the researcher.

Another potential benefit of such survey is to further improve the structure of the scheme or the task setting process for coming periods.

10.2.2 The incentive scheme from the perspective of employees in service departments

As presented in chapter six (section 6.7.2), the organisation decided to include the three service departments: Engineering, Stores and Canteen together with the four operational departments. These departments were covered by the old incentive scheme that existed from almost twenty years ago. As discussed in chapter five (section 5.4.8.2), that scheme wasn't particularly meaningful for the employees since it hadn't paid them a significant bonus for the last ten years. However, the organisation decided to include these three service departments in the new scheme that was developed for this research project mainly to avoid any demoralising effect that could occur from excluding them from this new scheme. The three service department got most of their bonuses (seventy percent) based on the average of the four operational departments and the remaining thirty percent were based on some internal tasks that the employees in these three departments could directly affect. Linking most of the bonuses for these departments to the performance of the operational departments was introduced to ensure that the service departments would support the operational departments to reach their targets. As discussed earlier in chapter six (section 6.7.1), for the purpose of this research project, only those tasks that are under the direct control of employees would be considered. In the case of the three service departments, most of their bonus was paid based on the performance of other departments, which means that it was outside their direct control. Therefore, including the three service departments in the research project was seen to be irrelevant to the aim of this research project.

In light of the expectancy theory, as discussed earlier, employees determine the amount of effort they spend on a task, firstly, based on how they perceive their ability to achieve a particular task and, secondly, based on whether or not spending effort on a given task will result in an appropriate reward. Different to employees in operational departments, the employees in the service departments can't have a clear

view on how to control seventy percent of their bonus which is based on the average achievement of the four operational departments. Those employees in service departments even if they do have a clear view on how to assist the operational departments, they still can't be sure what amount of bonus they can earn since many of the operational tasks are remote from their influence. For example, the stores' teams could have difficulty seeing how they can help to reduce the mechanical downtime on the production lines. On the other hand, the fitters could not help to reduce the downtime that occurs due to the disruption of the production lines caused by the failure of stores' teams to supply the production line with their needs on time. And both stores and engineering teams can hardly affect any downtime caused due to operational reasons (absenteeism, etc.). Similarly the employees who work for the canteen could find it very difficult to affect directly all the operational tasks.

On the other hand, from a TQM perspective, one can argue that a strong internal customer-supplier relationship should exist between the different departments. Such relationship assumes that the service departments would try, with or without an incentive scheme, to satisfy their internal customers (the operational departments). However, as mentioned in chapter seven (section 7.4.2.1), employees from the operational department highlighted that they noticed an improvement in the service and backup they received from the service departments following the implementation of the incentive scheme.

Studying the effect of installing an incentive scheme that pays employees in service departments most of their rewards based on tasks that are not under their direct control could be an area for future study, particularly in a TQM environment.

10.3 Equity theory

As detailed in chapter two (section 2.2.2.2), equity theory assumes that employees know the value of their work and how much it equates to in the environment in which they are living. With this knowledge, employees can compare the effort they spend in their job with the outcome they get in return. In the case where the balance is lost between the effort spent and the reward reached, employees try to restore it to reinsure the equity condition. In his paper "Effects of Inequity in a Pay-for-

Performance" [11], Harder explains the restoration process by saying, " To restore equity, outcomes or inputs can be altered, objectively or psychologically; comparative referents can be changed; or the individual can withdraw from the situation."

Barr and Conlon [12] argue that this comparison between inputs and outputs is very clear in case of work groups or teams. In this case, the other group members are likely to serve as referents. Barr and Conlon explain this situation saying: "group members may feel underpaid when they perform at higher levels than other group members but must share equally in group outcomes." The authors add as well that the low performer group members may feel overpaid. As presented in chapter six (section 6.7.2), the incentive scheme was structured so as to reward employees based on departmental results rather than the results of individuals or teams. An area that could be a subject for future research work, in light of the equity theory, is to study the effect that the incentive scheme has on the individuals and teams within the same departments. Based on the equity theory employees within the same team or within the same department could get a feeling of inequity due to the difference in performance levels between the individuals or teams in the same department. As discussed in chapter four (section 4.1.4), a strong teamwork spirit is one of the main attributes of a TQM environment. Because of the supposed conflict between TQM and financial incentive schemes this study could be of considerable value particularly since the organisation under study has a strong TQM culture. It would be useful to study the restoration process and whether the employees in such an environment experience such a feeling of inequity and if they do experience it, whether they will try to restore it objectively or psychologically as mentioned above. A way of restoring the equity feeling objectively is by adjusting the level of effort spent on a task to equate to the output (reward) earned. This adjustment could be made by increasing or reducing the effort spent on a certain task and as Barr and Conlon [12] explain, the other team members are used as referents in this restoration mechanism. It would be useful also to monitor that potential adjustment in employees' performance in light of the restoration process described by the equity theory and to study the impact of such process on the performance of the team or the department as a whole.

As mentioned earlier, this research project covered only the shop floor employees, some selected key persons working closely with them and the three service

departments (Stores, Canteen and Engineering). On the other hand, all employees in the support departments that work closely with the factory were not included in the incentive scheme. Those other departments were Development, Quality Assurance, Training, Factory Personnel, Technical Accounting and Logistic (Planning & Supply). Another area for future research work that could be studied in light of the equity theory is the effect of excluding such support departments from an incentive scheme that pay their co-workers in the operational departments for a performance that employees in these support departments contribute to considerably. It could be said that employees in the operational departments wouldn't be able to operate or to achieve their tasks without the assistance of these support departments. In light of the equity theory, the impact of excluding the employees in these departments could be shown in the way those employees try to restore their equity feelings whether objectively by altering their efforts or psychologically by withdrawing from the situation. As mentioned above, the restoration process could be done objectively by reducing or increasing the amount of effort the employees spend in a certain task or job in order to re-establish the equity feeling. For example, if employees in the department of development use the employees in the three service departments (Canteen, Stores and Engineering) as referents, the employees in development would experience an inequity feeling. That inequity could be explained by the fact that employees in the Department of Development are not covered by the incentive scheme and thus they are not rewarded. The employees in the Department of Development could argue that they contribute to the results achieved by the operational departments as much as the three service departments. Based on the equity theory the employees in the Department of Development will try to restore this inequity feeling objectively or psychologically. A way of restoring this inequity feeling objectively is by reducing the effort they spend in their job. It is relevant to mention that several employees from the support departments that were not included in the scheme questioned the logic of excluding them. As mentioned earlier, from the organisation's perspective and considering the negative experience it had with the old incentive scheme, the new scheme was tried in a number of departments before being implemented in all departments. Those departments that were covered by the old incentive schemes are the same ones included in the new one. However, as mentioned in the previous chapter (section 9.7), after the first assessment of this pilot trial, the organisation decided to have a second assessment of the scheme after ten months

following the implementation. The Board of Directors agreed that if the second assessment confirmed the improvement noticed in the first one, all the other support departments (Development, Quality Assurance, Factory HR and Planning) would be included in the incentive scheme.

On the other hand, from a TQM perspective, a strong customer-supplier relationship should be existing between the different departments of the business and thus the employees in the support departments should still be aiming to satisfy their internal customers as much as they can.

Having further research work in the area of equity theory in TQM environment with emphasis on the TQM attribute of customer service could be of considerable value to this area of research.

10.4 Full statistical analysis

As presented in chapter seven a T test analysis was performed on some of the KPIs used in the research project. However, the data set is small particularly as only three data points were obtained after the introduction of the scheme. The T test analysis in this project was to confirm the other qualitative and quantitative analysis presented in chapter seven. Unfortunately the time limitations on the project didn't allow the collection of samples of the performance indicators over a longer period. Performing such a statistical analysis with more data could be the subject the subject of further study.

10.5 Task setting

In light of the expectancy theory discussed earlier, employees would show a low level of motivation and, therefore, will expend low effort if they perceive tasks to be not achievable. During this research project it was recommended that the historical data be used, for most of the tasks, to develop "stretching" but realistic tasks for the employees. In many cases during this project, driven by the desire to achieve quick improvement, different personnel within the organisation were keen to set very

optimistic and challenging tasks. However, the design team (including the researcher) managed to pass the message that continuous step-by-step improvement (which is a TQM approach) is the best way to achieve long term benefits to the business. The results of the research showed an improvement in almost all tasks covered by the scheme. The approach of using historical data to develop realistic tasks proved to deliver good results. It is recommended that the same approach will be followed during the yearly review of the tasks or while setting tasks for other departments to be included in the scheme in the future.

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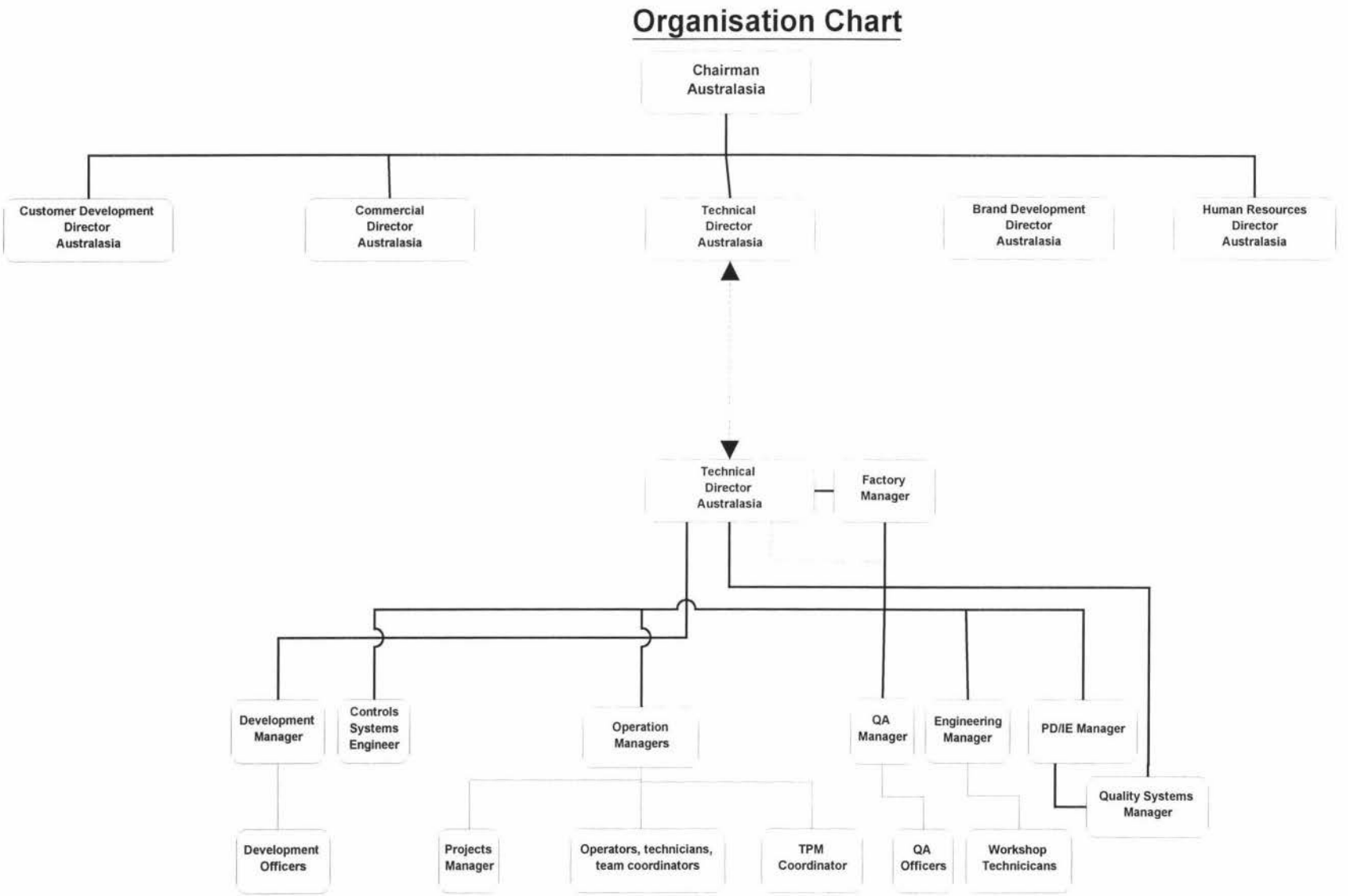
Appendices

Appendix 1: Organisational Chart



Appendix- 2

NSD (Non Soap Detergent)

Area	KPI	Task	
Cost Effectiveness	Materials' Usage compliance- Level1	Min	**14%**
	Materials' Usage compliance- Level2	Min	**21%**
Product & Process	Non-reportable Nonconformance Reports	Max	**0.20%**
Quality	Factory Fault Consumer Complaints	Max	**25**
Safety	Lost Time Accidents		**0**
Compliance	Hazard Identification Cards	Min	**6**
Environment	Type A incidents		**0**
Compliance	Type B incidents	Max	**2**
Manufacturing	Production Vs Plan (variants)	Min	**80.0%**
Management	Production Vs Plan (tonnes)	Min	**90.0%**

Liquids

Area	KPI	Task	
Cost Effectiveness	Usage compliance on monitored materials	Min	**18%**
		Min	**27%**
Product & Process	Non-reportable Nonconformance Reports	Max	**0.20%**
Quality	Factory Fault Consumer Complaints	Max	**6**
Safety	Lost Time Accidents		**0**
Compliance	Hazard Identification Cards	Min	**6**
Environment	Type A incidents		**0**
Compliance	Type B incidents	Max	**2**
Manufacturing	Production Vs Plan (variants)	Min	**80.0%**
Management	Production Vs Plan (tonnes)	Min	**96.0%**

Personal Products

Area	KPI	Task	
Cost Effectiveness	Usage compliance on monitored materials	Min	**9%**
		Min	**14%**
Product & Process	Non-reportable Nonconformance Reports	Max	**0.20%**
Quality	Factory Fault Consumer Complaints	Max	**12**
Safety	Lost Time Accidents		**0**
Compliance	Hazard Identification Cards	Min	**6**
Environment	Type A incidents		**0**
Compliance	Type B incidents	Max	**2**
Manufacturing	Production Vs Plan (variants)	Min	**80.0%**
Management	Production Vs Plan (tonnes)	Min	**81.0%**

Soaps

Area	KPI	Task	
Cost Effectiveness	Usage compliance on monitored materials	Min	**10%**
		Min	**15%**
Product & Process	Non-reportable Nonconformance Reports	Max	**0.20%**
Quality	Factory Fault Consumer Complaints	Max	**8**
Safety	Lost Time Accidents		**0**
Compliance	Hazard Identification Cards	Min	**6**
Environment	Type A incidents		**0**
Compliance	Type B incidents	Max	**2**
Manufacturing	Production Vs Plan (variants)	Min	**80.0%**
Management	Production Vs Plan (tonnes)	Min	**96.0%**

Appendix- 3

Factory Incentive Scheme

Explanatory Document

AF:A\INCENTIVE EXPLAN.DOC 30 AUGUST 1999

How Is the Scheme Structured?

The scheme is based on the five areas that the business wants people in the factory to focus on. They are:

1 Safety
2 Environment
3 Quality
4 Meeting Production Plans
5 Cost Reduction

In each of the five areas there are two tasks for departments to achieve.

Tasks in the five areas are linked to the SIA targets for each department

One task in each of the five areas almost reflects the current level of achievement. In other words, you have five of the ten tasks almost achieved with no extra effort.

The scheme is based on departments' performance rather than the total site or individual teams.

All four production departments (NSD, Soaps, Liquids & PPs) have to cover the same areas. In some cases tasks will be different between departments.

Service departments (Stores, Engineering and Canteen) will get a portion of their incentive payment based on the average incentive payment of all production departments and the other portion is based on their achievements against some internal tasks.

Results are quarterly rather than yearly. This means that each quarter's results are calculated separately. If a department messed it up in one quarter (hopefully this will not happen) from the next quarter all results will be reset to zero and people will start the new quarter fresh.

What are the payment levels?

Apart from zero (if the minimum expected targets are not achieved), there are three levels of payment:
Minimum 4%,
Medium 6%
Maximum 8%

Payments are a percentage of an employee's ordinary weekly pay. Overtime payments and allowances are not included.

How is the incentive payment calculated?

The incentive payment is calculated for each department separately. People in the same department will receive the same percentage of payment (4%, 6% or 8%). Therefore, if your hourly rate is higher you will be paid more. This means that as you move up the skills matrix you have more to gain.

Production Departments

Min Payment $$$$ 4% $$$$
For a department to receive the minimum payment they need to achieve **one task in each of the five areas** plus any other **three** tasks. Remember… one task per area is what you are almost achieving now.

Mid Payment $$$$$$ 6% $$$$$$
For a department to receive the medium payment they need to achieve **one task in each of the five areas** plus any other **four** tasks.

Max Payment $$$$$$$$ 8% $$$$$$$$
For a department to receive the maximum payment they need to achieve **all ten tasks.**

No payment 00000
If a department does not achieve the minimum (one task in each area plus any other three), they will not receive a payment.
If a department does not achieve anything in one area there will be no payment – even if they achieved everything else. All areas are important and the business can not afford to lose totally any of them, therefore at least one task in each of the five areas must be achieved.

Task Setting

The main source of most of the tasks in this incentive scheme is the Strategy Into Action targets. In the SIA process the business sets the tasks that each department or sector needs to achieve to ensure the business as a whole achieves its targets. The business sees the incentive scheme as a tool to help departments achieve their goals by making sure that all teams efforts are linked to the department goals.

Are the tasks fixed or changeable?

The tasks are linked to the yearly plan of the business. Therefore they are set by the beginning of each year and should stay fixed until the end of the year.

Any Exceptions?

If, during the course of the year, a major change occurs to the business plan which alters the business or department requirements the Technical Director may change the measures. An example of such a major change is the installation of a new production line; this would have a great influence on the departments' ability to achieve their tasks.

Materials Usage

This measure is about using and monitoring the consistency in formulations i.e. using and reporting the correct amount of raw and packaging materials.

What does "Formulation Consistency" mean?

Formulation consistency simply means using the right amount of each item while producing our products. For each raw or packaging item used on site Development set a certain theoretical usage rate. This usage rate allows for a certain percentage of waste due to the fact that some materials are lost during changeovers, handling etc. The percentage of waste is called the scrap factor. This percentage differs from one item to the other based on the nature of the item (powder, liquid, etc.), on the handling of this item (bags, drums, etc.) and finally based on the process and the conditions that this item is used in.

In the case of raw materials, for an item to comply (the right amount of this material was used), its usage should not exceed the theoretical usage plus the stated scrap factor and should not be less than the theoretical usage minus the scrap factor.

Hold on... What is wrong with using less than the theoretical minus the scrap factor? Doesn't this mean that we are saving more money for the company?

You are right that we could save more money for the company but being cost efficient is only one ingredient in the recipe of success. Quality is another ingredient and as important as being cost efficient. If we overdo it while trying to save, we will end up by compromising quality.
E.g. If you under use perfume, you might be saving the company lots of dollars but... our consumers will, sooner or later, see the difference. If we are lucky, they will call and complain and if we aren't they will just buy a competitors product.

If this is the case, why do we accept having the theoretical usage minus the scrap factor? Isn't it better to have the theoretical usage as a minimum?

The reason is simple. In some areas having good control over moisture levels could result in under using on all raw materials (an example is NSD and Soaps). This is encouraged as long as it is reasonable. What is reasonable? That brings us back to the theoretical usage minus the scrap factor. This is what the business considers acceptable savings without compromising on quality.

Is there any difference between raw and packaging materials in terms of compliance?

There is only one difference. In the case of packaging materials you cannot under use. So with packaging items all we need to do is not over use beyond the scrap percentage that Development allows.

Can we have an example of a raw material?

Assume Soaps need to produce X cases of Lux. Assume that to produce this quantity, the theoretical usage of a certain perfume is 100 kg and the scrap factor (waste allowance) is 3%.
In this case, if by the end of the run we find out that the total amount of perfume used was 103 kg, that means we are OK because we have used the theoretical quantity (100 kg) and the allowed scrap quantity (3kg).
Likewise if the total usage was 102 kg or 101 kg or 100 kg or 99 or 98 or 97? Remember, that's the minimum. So - to consider this item complying we should use 100 kg +/- 3 kg. In other words, theoretical usage +/- scrap factor.

Can we have an example of a packaging material?

Assume NSD needs to produce 100 cartons of Surf. Obviously to produce this quantity, they need a theoretical quantity of 100 cartons. Development gives 2% as a scrap factor on cartons to allow for changeovers and the other things we mentioned earlier. That means that if we use 102 cartons for this run of Surf, we are doing fine. If we managed to use only 101 or even 100 cartons for the run, good work! You might have noticed that we couldn't apply the rule of theoretical usage +/- the scrap factor in the case of packaging materials. If you see a way to pack 100 cartons of Surf using less than one 100 cartons, please let us know!

How are the materials monitored on site?

BPCS
BPCS is the structure or the frame that the business uses to monitor all materials and products on site. All main transactions are entered into BPCS. Examples of these transactions are, incoming materials from suppliers, usage of materials, work in progress, products to be reworked and finished products going off site.

Who uses BPCS?
Several departments use BPCS including Logistics (planning, buying etc.) Production, Stores, Development and others.

How does BPCS monitor the materials' usage?
In a simplified way BPCS is works as follows:
For each item on site Development specifies into BPCS the theoretical usage and the allowed wastage (scrap factor).
When suppliers send raw or packaging materials, Stores enter into BPCS the quantities that will show on BPCS as stock on hand.
When someone from production (particularly manufacturing) needs a quantity of any item or items, he/she will enter the quantity used (accountants call this transaction "back flushing").
After the products are produced, people in distribution enter in BPCS the quantity of products produced. In there is a quality issue with any of the products QA puts the suspected quantity on hold and enter the quantity on hold in BPCS.

BPCS can tell if we have used the right quantity or not by recording how much material we received from suppliers, how much was used, how many finished products were produced, how much rework we have and how much is on hold because of quality issues (if any).

Can we have an example?
Monitoring carton usage of Comfort 900 ml……
The scrap factor for this item is 2%.
Assume we received 200 cartons from the supplier. Stores will enter this quantity in BPCS and it will show as 200 units on hand.
Assume that the plan is to produce 100 units of this product.
After producing this quantity, a quality issue was detected with 20 units out of the 100 produced. QA then put these 20 units on hold and gave the go ahead for the remaining quantity to be sent to the market.
While Linfox actually ships the 80 units, distribution enters in BPCS that 80 units of Comfort 900 ml were sent to Linfox.

Then there is a cycle count. This is simply counting the available quantity of a certain items on site, and adjusting the stock in BPCS to reflect what is really there.
In our example, the cycle count is to see how many cartons of Comfort 900 ml are on site. That includes unused cartons in stores, units on hold and quantity to be reworked etc.
Several people are involved in a cycle count from stores, production, production monitoring and planning.
Assume that the cycle count shows that we have 90 unused cartons in stores and the 20 packed carton on hold by QA.

Now back to our example and remember that we have received 200 units of Comfort 900 ml cartons. 100 were packed but 20 are on hold for quality issues and only 80 were sent to Linfox. Remember the theoretical usage and the 2% scrap factor we mentioned earlier? This means that to produce the planned 100 Comfort units, we are allowed to use up to 100 + 2% (scrap factor) = 102 cartons.

BPCS will have an overall look at the whole site and makes the following calculation:
200 units came on site, 100 were packed (80 were OK and 20 on hold). So theoretically we should still have 100 cartons left in stores but since we allow for a 2% scrap factor (2 extra cartons for the 100 planned ones), it would still be OK if we find only 98 in stores.
But the cycle count showed only 90 left on stock. This means that we had an over usage of 8 cartons (98-90) which means that this item didn't comply with the waste level specified by the Development.

Percentage of Materials Complying

The percentage of materials complying is simply the percentage of the number of materials complying over the total number of materials monitored.
Of all material used by each department, only between 50-70 are included in the scheme. The materials chosen are the most significant for the business in value and for the impact on quality.

Example
If a total of 50 items are included for a department and 20 of these items comply, the compliance percentage is 20/50 *100 = 40%.

If the first target for the department is 35% and the second target 50%, it means that the department achieved only the first target in the Materials Usage. For the department to get both targets achieved, the percentage of materials compliance must be above 50%.

What to do to reach our targets?

Easy… just use the right quantity of each item, reduce waste and try to be as efficient as possible.

But that's not all…
As we are using BPCS to monitor materials' usage, the results will be as accurate as BPCS is. If inaccurate data is entered into BPCS obviously it will effect all figures. Inaccurate data could be entered by Stores, Production, Distribution, Development or Planning

But we thought we are monitoring our ability to use the right amount of materials. BPCS problems are influenced by others - why should we worry about them?
Good question and there are several good answers:

1 BPCS is the only system on site that can monitor materials' usage.
2 There has been a huge investment of effort and money on this system to make life easier when planning, ordering materials, following available stocks and knowing what quantities of good or bad products are available on site. It is the responsibility of many areas (including factory teams) to make sure BPCS is accurate so it can be used with full confidence.
3 The company provides training (and will provide more modules in the future) explaining how BPCS works and how to make sure we deal with it in the most appropriate way.
4 The whole business will benefit from improving this area. All parties (management, stores, planning, development etc.) need to work together to make sure we improve the reliability of this system.
5 Achieving the first five targets should be straight forward – because these targets are based on each department's actual performance over the last nine months. So departments need to continue what they have been doing to maintain this standard!

Where do we find results and monitor our progress?

Production Monitoring will prepare a report called: *Monthly Monitoring Sheet*. This report is prepared for each area and shows current results – it will help you to focus on improving the weak points in your department's performance.

How can I get this report?
A hard copy will be sent to each Production Manager, TSOs and PSOs each month.
A hard copy will be available on a scheme notice board in each department – updated monthly.
An electronic copy will be available on the shared drive under Y/WOR/Incentives – this will also be updated monthly.

How is the incentive payment calculated?

The official quarterly result is calculated as follows:

1 The sum of all monitored materials is calculated for the three months.
2 The sum of all materials complying is calculated for the three months.
3 The percentage of compliance is calculated as the number of materials complying over the total number of materials monitored.
4 The percentage achieved is compared with the two target levels for each area and thus it will be clear whether the department has achieved success in this area.

What do we do if we find some odd figures?

The Materials Monthly Monitoring report (MMM) will normally be ready within five working days after the end of Unilever calendar month.
Before publishing the report, copies will be distributed to all Production Managers, TSOs and PSOs. If odd figures are highlighted people from Production, Stores and Production Monitoring will work together to find an explanation. This may include recounting some items, reviewing receipts, etc.
Once things are clarified, factory management and technical accounting will approve the monthly report, and then the report will be published.

What if we miss on some items because of another department's mistakes?

This is possible - although we are confident that the likelihood of this will decrease in time. In these circumstances, and where it is not possible to fix the numbers in BPCS, the materials subject to this condition may be excluded from the Incentive Scheme for this period.

REMEMBER... If your department has one bad month, you still have two more months to go before the end of the quarter. If your department has two bad months you still have one month to go but be careful....

Consumer Satisfaction

Maintaining consumer satisfaction is essential to ensure we remain competitive. To guarantee consumer satisfaction there are two measures to focus on:

1 The number of Factory Fault Consumer Complaints received during each quarter for each department.
2 The percentage of NCRs raised by people outside the production departments.

1 Factory Faults Consumers' Complaints (FFCC)

The task is to not exceed the maximum number of FFCC set in the SIA targets for each department during each quarter.
The business has a database where all consumers' complaints are collected. These complaints include any of the products produced at Petone whether they are sold in NZ or Australia.
Complaints on this database are then filtered. Those that concern us are only those caused because of a factory fault (FFCC).
The filtering process excludes all complaints caused by other parties after the products have left our site (Linfox, retailers, etc). Also excluded are any complaints that were the result of problems caused by the factory, but were out of the department's field of responsibility. E.g. Where out of specification material was supplied, which departmental staff were not required to routinely check.

What does this mean?
For some of the items we use there are certain checks that people working on lines are expected to perform.
Where these procedures were not followed the department is accountable for allowing defective products through (even if the problem was caused by a supplier).

Who does the filtering of complaints?

Consumer advisory is responsible for filtering complaints based on agreed definitions.

Where do we find the results and monitor our progress?

Monthly results will be displayed for each department on their notice board. This will show how many FFCCs each department had for the previous month.
The original copy of this report will be available on the shared drive.
Production Managers have access to the Consumer Advisory database and they can brief you on the details of each FFCC if needed.

What if there are some odd complaints on the results' sheet?
If it is unclear whether or not a complaint is to be included the Technical Administrator or factory management can access the database to check the details and then assess the situation together with Consumer Advisory.

One point to clarify - there is a time delay between producing a defective product and receiving the subsequent consumer complaint. On average, the time delay is between 3 and 6 weeks, but it is possible to receive complaints a year after the product was manufactured.

REMEMBER: Every defective product that leaves the site today will effect your departmental results one day...

2 The percentage of NCRs raised by people outside the department.

Firstly, what is an NCR and why do we need to focus on them?

1 NCR stands for Non Conformance Report. It could be about a defective product, a defective raw or packaging material or even a non-conforming practice. An example of non-conformance practice is when, by mistake, manufacturing over produce a certain product. Then, as no packaging materials are available, the product ends up being stored in bags or barrels. This is obviously not good practice from a production or quality point of view.

2 We need to focus on NCRs so that:
- We don't pass on defective products to our customers or consumers.
- We can record defects and incidents so we can learn from them and minimise the chances of repeating these mistakes.

Why are the NCRs from people outside our department?
To prevent defective products from reaching our customers and consumers, and to learn from past mistakes we need to encourage reporting of NCRs from within the department. This means that defective products or processes can be identified, isolated and fixed quickly. This gives the department ownership for the quality of their products, and will hopefully mean that they don't wait for someone outside the department to inspect quality for them.

How are NCR results calculated?
Two conditions, if they occur together, may cause the department to lose part of their incentive payment because of NCRs:
1 If the department did not detect the defective product, then someone from another department found the non-conformance (e.g. Stores, QA, Lab, retailers etc.).
2 If the department was accountable for the NCR. For example, where an operator used a wrong material or did not correctly adjust a machine.

The quantity of reworked products, as a result of NCRs that meet the two conditions above, are added throughout the three months of each quarter. This quantity as a percentage of total good production in the quarter is the measure used.

Who decides if the NCRs were under the department's control?
Regardless of whose mistake it is the department should focus on solving the problem and ensuring it doesn't reoccur. If someone outside the department reports a non-conformance QA will assess it and will decide where accountability for it lies. If it is not clear it will be addressed at the weekly meeting between the QA Manager and the Operations Managers. You need to make sure that your Operations Manager is aware of the circumstances surrounding the NCR.

For example
Department X has produced 10,000 cases in a certain period. Assume 300 cases were assessed to be NCRs.
Assume 100 cases were reported by the department, 50 of the remaining 200 cases were out of the departments' control (supplier issues etc.) then the department will be penalised only for 150 cases and the result will be 150 / (10,000-150)= 1.5%.

Where do we find the results and monitor our progress?

The NCRs results for each department, as a percentage of good production during the month, will be available in the monthly results sheet - this will be displayed on the incentive scheme's notice board in each department.
On the same report the results for the quarter to date will also be shown. This will be available on the shared drive as well.
More details on each NCR (when were they produced, what was the problem etc). To find these details you need to go to the original NCR database. This is owned and updated by QA department. A copy of the database will be available on the shared drive for you to explore. Your Operations Manager, the Scheme Technical Administrator or the QA team can also provide the same details.

Environment

Type A incidents

These are incidents that resulted in prosecution of the company.

Type B incidents

These are incidents that go outside the company's boundaries but do not result in prosecution.

Where do we find the results and monitor our progress?

A summary of the results for each department will be available on the monthly results report displayed on the department notice board.
A quarter to date summary will be available on the same report, and on the shared drive. For more details about your departments record you can refer to the

Environment Report prepared by the Packaging Development Manager. A copy of this report is available from your Operations Manager or the Scheme Technical Administrator.

Safety

Lost Time Accidents (LTAs)

Safety in the workplace has the highest priority issue for Lever Rexona. Considerable amounts of resource and time are used to maintain and improve safety performance on site. One of the main measures used by Unilever at the corporate level is the number of LTAs that occur on each site.

An LTA is a work incident resulting in an injury that causes the person to lose a full shift, beyond the shift that the accident occurred.

Is it a site wide or a departmental measure?

The measure is on departmental basis. It applies to all employees in the department as well as the physical area of the department
This means the area that belongs to each department. If an LTA occurs and it is the department staffs' responsibility, the department will lose a point whether or not the injured person was a member of this department.

What if the LTA involves people from more than one department?

The best way to answer this question is using an example:
Someone from department A was walking through department B when he slipped over an oil spillage. Because no one from department B had cleaned up the spill, people in this department are held accountable for the LTA.

Valid START Cards

The reason behind having START cards as a measure is to promote a proactive behaviour. To have a safe workplace as many hazards as possible should be identified. A START card is simply a way to identify existing hazards in your department so actions can be taken to eliminate as many of these hazards as possible.

What does "valid" mean?
A valid START card is one that adds value by highlighting a real hazard. A non-valid START card is a card that addresses a very minor issue that is very unlikely to cause any danger.

Who decides which cards are valid?
The START cards will continue to be collected via the Occupational Health Nurse. He will decide which ones are valid. If the validity of a START card is not clear the Safety Committee will make a decision on it at their monthly meeting.

How are the results calculated?
Each department needs to produce a certain number of valid START cards in each quarter. All teams are expected to contribute to this activity, but it is an internal decision for the department to determine who does what.

Where do we find the results and monitor our progress?

A summary of the results for each area will be available on the monthly results' report displayed on the incentive scheme notice board in each department. A quarter to date summary will be available on the same report. A copy of this report will be available on the shared drive.

Production Plan

This area measures each department's ability to meet the demands of our customers and consumers. In other words, the business is measuring how reliable our factories and our people are.

SKUs +/- 10% of plan

The first measure has been used on the Petone site for a number of years. It is the percentage of SKUs that each department manages to produce within +/- 10% of plan. For example the 1999 goal is 80% of SKUs all within +/- 10% of plan.

Who calculates the results and how are they calculated?

Our colleagues in Planning have a database where they store the plans for each area and the levels of achievement against these plans. The database is updated weekly and focuses on the YTD results for each department. As far as the Incentive Scheme is concerned, we focus on quarterly results and we follow up the results on monthly basis.

An example:
Assume Soaps had a plan to produce 100 cases of Lux during a certain period. For success in the SKU measure the production should be any value between 90 and 110 cases (+/- 10% of plan).
If the department had 10 different SKUs to produce during a certain period, the same rules of +/- 10% applies on all the SKUs and the number of SKUs within the +/- 10% range will be calculated.
If the task for this department was 80% or more of the SKUs to be within the +/- 10% of plan, to reach this target, 8 or more of the 10 SKUs should fulfil the +/- 10% condition.

An example of the quarterly results' calculation:
Assume the aim is to have 80% of the SKUs within +/- 10% of plan and assume the following results:

January: 5 out of the 10 planned SKUs were within +/- 10% of plan (5/10 =50% of the plan was achieved)
February: 18 of the 20 planned SKUs were within +/- 10% of plan (18/20 =90% of the plan was achieved)
March: 17 of the 20 planned SKUs were within +/- 10% of plan (17/20 =85% of the plan was achieved)
Quarter 1: Total number of SKUs produced within +/- 10% of plan: 5+ 18+ 17 = 40
Total number of SKUs planned for the first quarter: 10+ 20 + 20 =50
Results = 40/50 = 80%
The task has been achieved!

Production Versus Plan (total tonnes)

Production output versus planned output is a measure that compares the total planned tonnage in a given period with the quantity actually produced. The plan is reviewed monthly and adapted to market needs. The first concern with this measure is that it promotes producing as much product as possible, which could have a negative impact on quality. The second concern is that under producing one variant could be offset by over producing another one and although the end result is not being able to deliver the needed quantity of specific items to the market, the measure overall will show a good result.

How is the result for this task calculated?

The total actual production volumes produced are compared with the total planned volumes for the quarter. The target will be a percentage of adherence to the plan that production departments are expecting to achieve.

Example
If the total volumes agreed to be produced by a certain department, for a certain quarter, is 1,000 tonnes and the actual volumes produced were 950 tonnes, that means that this department achieved 95% of plan. If the task was 95% of plan to be achieved, thus the task was achieved for this quarter.

Where do we find the results and monitor our progress?

A summary of the results of each area will be available in the Monthly Results Report. A quarter to date figure will be available on the same report. The report will be published on the department's notice boards. A copy of the same report will be available on the shared drive.
For more details on a departments performance in this area (e.g. why has the plan not been met?) refer to the SKUs database which Planning has. This can be accessed on the shared drive or from your Operations Manager or planner.

Service Departments

As mentioned earlier, service departments will receive a portion of their incentive payment based on the average incentive payment of all four production departments. The remaining portion is based on their level of achievement against some internal goals.
The rationale behind this arrangement is to ensure that the service department will support the production department in achieving their goals. The internal goals are included to ensure that service departments focus on some key targets which are important to the business.
In the following sections the tasks for each of the service departments will be outlined:

Engineering

There are four internal tasks for the Engineering department:
1. No delayed or overspent CP Work Orders
2. Achieve a certain agreed percentage of finished work orders
3. Safety
4. Environment

1 No delayed or overspent CP Work Orders

The target is to have no delayed or overspend CP Work Orders during each quarter. These CP Work Orders are the issued by the Drawing Office.

CP stands for Capital Proposal. A CP Work Order is a work order associated with a certain CP. Each CP Work Order should have a clear dollar value, scope, time frame and room for any potential mitigating factors.
This information should be documented and agreed between the Engineering Manager and a representative from the Support Services team.

What if a CP Work Order is delayed or over budget because of an external reason?
If this happens the Engineering Manager will assess the situation. The Support Services team will need to show how the over budget situation was linked to the external reasons.
Situations like this should be documented, and a copy of all documents should be kept with the Schemes Technical Administrator.

2 Achieve the agreed percentage of finished Work Orders on time.

The difference between a CP Work Order (number 1) and a Work Order in this task is that the CP Work Order (number 1) has a dollar value. The Work Order is a normal job that anyone on site asks the SS team to carry out for them, for example changing a bulb in an office, or repairing a major leak in a holding tank. Any job like this should be completed on time. However, Engineering Support Officers/Managers prioritise those jobs based on their level of urgency and the available resources.

The task for SS team is to have a certain minimum percentage of the work orders (assigned to their operation supervisors within the SST) finished on time. A monthly report will be run on Trident and will be available to the team to follow up their performance. By the end of each quarter the final result will be calculated.

3 Safety

This area is the same as the safety goal for the production departments (zero LTAs and the agreed number of valid START cards) with the addition of an agreed number of Body Part Inspections performed by the team - evidence of this needs to be copied to the Engineering Manager.
For success in this area the SS team needs to achieve all three tasks.

4 Environment

This area is the same as the environment goal for the production departments (zero type A incidents and no more than 2 type B incidents for each quarter).
For success in this area the SS team needs to achieve both tasks.

How will the incentive payment be calculated?

The maximum quarterly payment is 8% of ordinary pay. This payment has two components; the first is 70% based on the average of the payment for the four production departments. The remaining 30% will be based on the internal tasks as detailed above.

For example:
For the quarter the results for the four production departments were 4%, 0%, 6% and 8%.
If the SS team achieved 3 of the 4 internal tasks the incentive payment will be calculated as follows:
The first component
(70% of the incentive payment based on the average results of production departments)
(4 + 0 + 6 + 8)/ 4 * .70 = 3.15% of ordinary pay
The second component
(30% of the incentive payment based on the achievements of the internal goals)
(3 / 4) * .3* 8% = 1.8% of ordinary pay
Total incentive payment for the quarter
3.15% (first component) + 1.8% (second component) = 4.95% of ordinary pay

More than half of the internal goals should be achieved

To earn the second component of the incentive payment the SS team needs to achieve more than half of the internal goals. This means that if only one or two of the internal goals are achieved, there will be no payment for the 30% component of the incentive payment – although the 70% component may still be paid of the production departments have achieved their goals.

Stores

Customer Satisfaction

The Stores department needs to satisfy their internal customers – therefore the goal is to have maximum of one complaint per production department per quarter.

Line Disruptions

Production departments need Stores to deliver the needed raw and packaging materials to them on time. A customer complaint is when any of the production lines are disrupted because of a shortage of raw or packaging materials, which was caused by stores (i.e. not caused by a supplier).

What if a line disruption complaint is disputable?

In this situation Stores can ask for the complaint to be investigated. This will mean the Stores Manager and the relevant Operations Manager will assess the complaint and make a decision.

BPCS Accuracy

The Stores department has a great influence on the level of accuracy in BPCS. Counting the different materials used by production departments is a critical job to ensure BPCS's accuracy. This task is to count a certain percentage of used materials for each production department on a monthly basis.

For example:

Assume Powders used 100 different items (packaging and raw materials) during a month.

The target for Stores could be to count at least 75% of these items during the month. Once these are counted it enables Production Monitoring to confirm the results in BPCS and investigate any discrepancies that may appear.

Safety

This area is the same as the safety goals for the production departments (zero LTAs and the agreed number of valid START cards for each quarter).

For success in this area the Stores department needs to achieve both of these tasks.

Environment

This area is the same as the environmental goals for the production departments (zero type A incidents and no more than 2 type B incidents for each quarter).

For success in this area the Stores department needs to achieve both tasks.

How will the incentive payment be calculated?

The maximum quarterly payment is 8% of ordinary pay. This payment has two components; the first is 70% based on the average of the payment for the four production departments. The remaining 30% will be based on the internal tasks as detailed above.

For example:

If in a certain quarter the results for the four production departments were 4%, 0%, 6% and 8%. If the Stores team achieved 4 of the 4 internal tasks the incentive payment will be calculated as follows:

The first component

(70% of the incentive payment based on the average results of production departments)

(4 + 0 + 6 + 8)/ 4 * .70 = 3.15% of ordinary pay

The second component

(30% of the incentive payment based on the achievements of the internal goals)

(4 / 4) * .3* 8% = 2.4% of ordinary pay

Total incentive payment for Stores for the quarter

First component 3.15% + Second component 2.4% = 6.95% of ordinary pay

More than half of the internal goals should be achieved

To earn the second component of the incentive payment the Stores department needs to achieve more than half of the internal goals. This means that if only one or two of the internal goals are achieved, there will be no payment for the 30% component of the incentive payment – although the 70% component may still be paid of the production departments have achieved their goals.

Canteen

Customer Satisfaction

The task is to carry out a customer survey each quarter. The survey will ask for a rating on various aspects of the Canteen Production, a predetermined average score must be achieved for success in this measure.

Budget

The task is to meet a set level of income for the quarter, after taking certain operating costs into account.

Hygiene

The task is to achieve a set level of compliance for each of the monthly hygiene checks carried out by the Site Medical Centre.

Safety

The task is to achieve no LTA's and submit an agreed number of START cards for each quarter.

How the incentive payment will be calculated?

The maximum payment is 8% of ordinary pay. This payment has two components; the first is 50% based on the average of the payment for the four production departments. The remaining 50% will be based on the four internal tasks as detailed above.

The Canteen has a smaller component of their payment based on the achievements of the production departments (50% instead of 70%). This is because it is recognised that the Canteen has other customers apart from the factory, and that the direct impact of the Canteen on production departments is less than for other support teams.

For example:

If in a certain quarter the results for the four production departments were 6%, 6%, 6% and 0%. If the Canteen achieved 3 of their 4 internal tasks the incentive payment for the quarter will be calculated as follows:

The first component

(50% of the incentive payment based on the average results of production departments)

(6 + 6 + 6 + 0) / 4 * .50 = 3.0% of ordinary pay

The second component

(50% of the incentive payment based on the achievements of the internal goals)

(3 / 4) * .5* 8% = 3.0% of ordinary pay

Total incentive payment for the Canteen for this quarter

3.0% (first component) + 3.0% (second component) = 6.0% of ordinary pay

More than half of the internal goals should be achieved

To earn the second component of the incentive payment the Canteen team needs to achieve more than half of their internal goals. This means that if only one or two of the internal goals are achieved, there will be no payment for the 50% component of the incentive payment based on internal goals – although the second 50% component may still be paid if the production departments have achieved their goals.