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The Standard Costing System At SKF

A Case Study Of A Swedish Manufacturing Company

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ABSTRACT

In recent years, numerous tools such as activity-based costing, the balanced scorecard and target costing have gained prominence in the business community. Nonetheless, traditional management accounting continues to be prevalent in practice. One example is standard costing, which has been used on a wide front during the last century.

The purpose of this study is to examine the use and the relevance of the standard costing system used at the Swedish manufacturing company SKF and to provide recommendations on how the system can be improved.

In sum, the study shows that the standard costing system is widely used and that it is perceived as relevant. However, some areas for improvement of the standard costing system were identified, for example the communication within the organization and the use of the guidelines regarding allocation bases.

Keywords: standard costing system, standard costs, management accounting, manufacturing industry.

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To begin with, we would like to thank Inger Wedberg, responsible for the standard costing system at SKF for giving us the opportunity to write this thesis.

We would also like to thank all the respondents at SKF for giving up their precious time in order to provide us with invaluable input for our research.

Finally, we would like to show our gratitude to our tutor Christian Ax, who has been a great source of knowledge and inspiration. Thank you for your guidance and support.

Gothenburg, 9 December 2002

Beata Morelli & Carl-Joachim Wiberg

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1 INTRODUCTION

1.1 BACKGROUND

In recent years, numerous tools such as activity-based costing, the balanced scorecard and target costing have gained prominence in the business community (Kaplan & Cooper, 1998; Kaplan & Norton, 1996; Ansari et al., 1997). Nonetheless, traditional management accounting practices continue to be prevalent in practice (Brewer, 2000).

One example of traditional management accounting is standard costing, which has been used on a wide front during the last century. A standard is a stipulated norm, something set up and established by authority as a rule for the measure of quantity, weight, extent, value, or quality. Accordingly, standard costs stand for predetermined costs; they are target costs, which should be incurred under well-organized operating conditions. There may be several reasons for using standards, but the most frequent motive is because they facilitate product-costing estimations (Ask & Ax, 1997). The result of a study conducted by Ask and Ax (1997) shows that standards are widespread within the Swedish manufacturing industry: 73 percent of the companies operate a standard costing system. Ask and Ax's study is supported by a study conducted by Puxty and Lyall (1989), which reported that 76 percent of the UK commercial and industrial organisations operate a standard costing system.

Despite its widespread use, standard costing has recently come under attack for not providing the information needed in today's competitive manufacturing environment. In the late 1980s commentators were beginning to predict its demise because of alterations in the business environment (Drury, 1999). The technical development and companies' ability to adapt to the new competitive environment changed people's view of standard costing. Companies now had to adjust to new conditions and concepts of customer orientations and quality. Most criticism of standard costing is directed to cost control and performance

measurement. One example is the use of standards in connection with quality. When the quality of a product increases it tends to lead to less spoilage, cassations and lower costs. It is argued that attempts for a minimum of variances therefore are built-in in the manufacturing philosophy employed.

Despite prevalent criticism there are few signs that the use of standard costing tends to decrease in practice. The survey undertaken by Ask and Ax (1997) reported that 12.6 percent of the companies investigated stated that it was urgent to abandon standards but at the same time 9.9 percent stated the urgency of converting to a standard costing system. This shows that standards are still a burning question.

1.2 Research Issue And Objective Of The Study

This study is limited to one company within one industry; it is a case study of the Swedish manufacturing company SKF, the world-leading producer of ball bearings. SKF uses a standard costing system, which is well established throughout the whole organization, and the standard cost information is available at every level of the company.

Within the SKF Group comprehensive guidelines are issued centrally and should be followed. People responsible for the standard costing system at Group Finance have received signals indicating that the guidelines are not used as intended. There is a suspicion that the standard cost information is used in an unsuitable and incorrect way, for example that external prices are set according to the standard cost and not in accordance with the market.

SKF wants a more restricted use of the standard cost information within the organisation; today Group Finance has little control over the distributed standard cost information. Also, there is no exact knowledge about the opinions regarding the standard costing system within the different divisions and how it is used.

In order to get a better grip of the situation this study will investigate if the guidelines are used, if they are used as intended and also to map out the divisions' opinions about the standard costing system.

The research objectives are concretised in the following:

- To examine the use of the standard costing system within the divisions of SKF and to investigate if the guidelines are used.

- To examine the relevance of the existing standard costing system at SKF.

- To provide recommendations on how the standard costing system can be improved in order to increase its relevance at SKF.

1.3 Disposition Of The Study

The reason for conducting this study, as well as the purpose of it will be described in the first chapter. Also, the background will be discussed in order to give an overview of the subject.

The second chapter is concerned with the methodological considerations related to the study. The aim is to describe the course of action and how the problem is dealt with. Chapter 2 includes the purpose of the research, the complete data collection method, and research evaluation.

In order to get a deeper understanding of the subject, chapter 3 will serve as the theoretical framework for the discussion regarding the standard costing system at SKF. The literature study on the topic will be accounted for in this chapter.

Based on manuals used at the company and instructions given by the supervisor at SKF, chapter 4 will outline SKF's guidelines regarding the standard costing system.

Chapter 5 will analyse the use of the standard costing system within the divisions of SKF to see if the company guidelines are used. The foundation for this is the interviews and the questionnaires conducted at SKF. From the opinions given during the interviews and in the questionnaires the relevance of the existing standard costing system can be understood. Chapter 5 is built on a model (Figure 5.1), explaining how the material from the interviews and the questionnaires are dealt with and how the results are analysed. The model will be further explained at the beginning of chapter 5. Based on the findings in chapter 5, chapter 6 presents conclusions of the situation at SKF.

In the final chapter of this study, chapter 7, recommendations are given on how the standard costing system can be improved in order to increase its relevance at SKF. The recommendations are based on the analysis of the findings presented in chapter 5 and 6 and may be directed towards the guidelines in chapter 4 or towards the use and opinions analysed in chapter 5.

Figure 1.1 gives a figurative overview of the disposition of the study and the same model will start each chapter in order to guide the reader through the study.

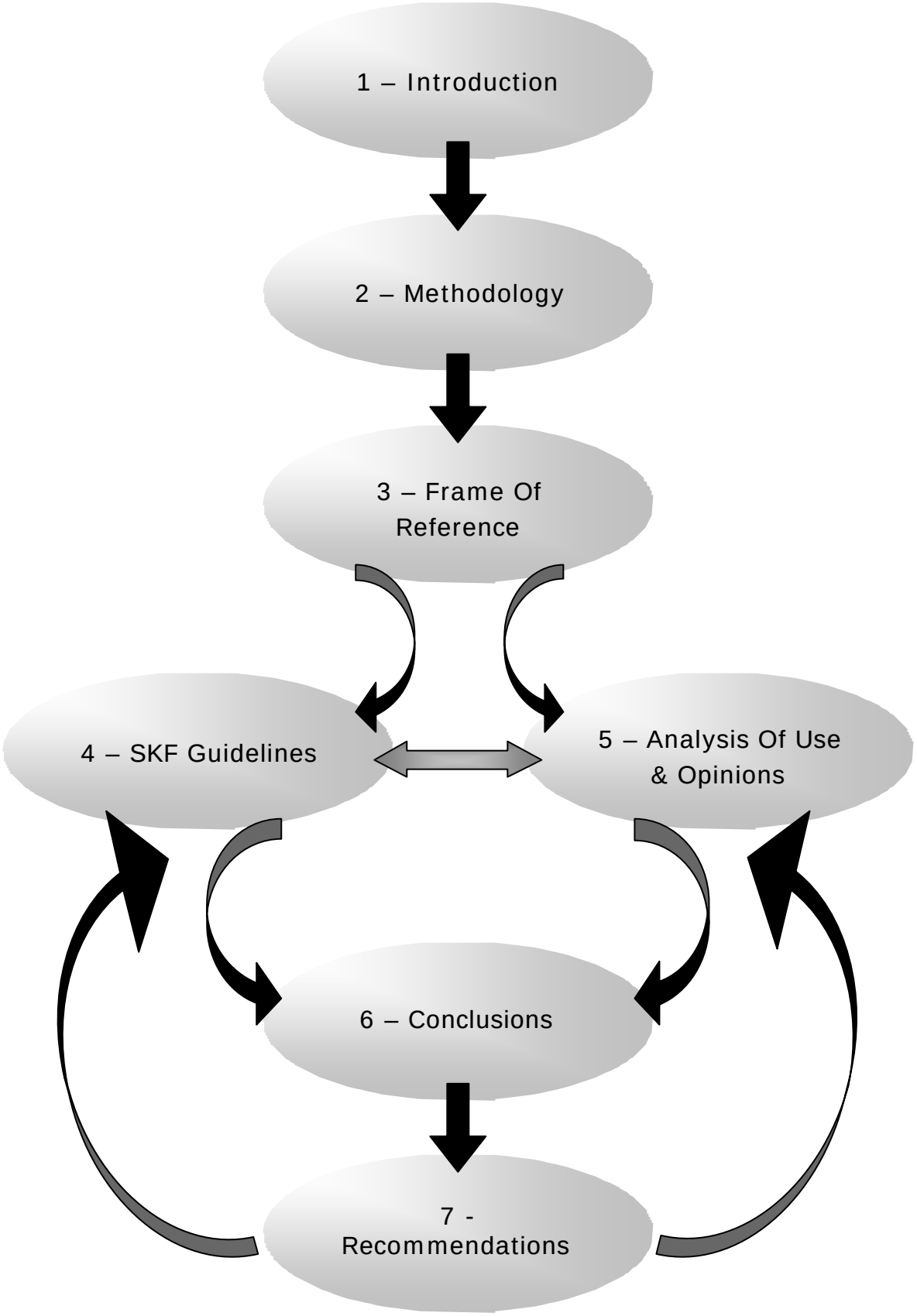


FIGURE 1.1 - DISPOSITION OF THE STUDY

1.4 KEY CONCEPTS

Some concepts will be used repeatedly in this study. In order to make the definitions clear to the reader, the most frequent used and the most important concepts are defined in this section.

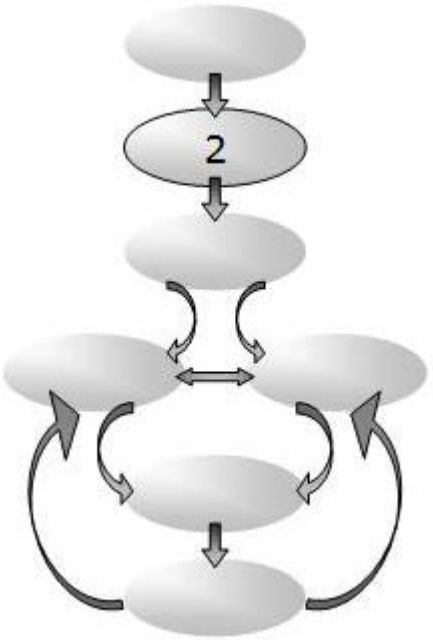
Standard Cost: A standard is a stipulated norm, something set up and established by authority as a rule for the measure of quantity, weight, extent, value, or quality. Accordingly, standard costs stand for predetermined costs; they are target costs, which should be incurred under well-organized operating conditions. At SKF a full standard cost is used, meaning that it should reflect what it costs to manufacture the product as well as all the stages until the product reaches the inventory.

Performance Standard (PS): The PS figure is something unique for the SKF Group. PS is based on the lowest standard cost for each single product within the Group. In practice, if a product is manufactured in more than one factory, it is the cost associated with the product manufactured in the factory with the lowest standard cost, which constitutes the PS figure. The PS figures are frozen since 1999 and are therefore today measures of volume.

Guidelines: In this thesis the word 'guidelines' will refer to the guidelines issued by Group Finance in the shape of both manuals and oral instructions. Manuals used in this study are the Cost Manual and the PS Manual.

2 METHODOLOGY

This chapter works through the methodological considerations related to the study. The chapter includes the purpose of the research, the complete data collection method and research evaluation. The course of action chosen in order to achieve the purpose of this thesis will also be described.



2.1 RESEARCH STRATEGY

There are many different types of research. According to Hussey and Hussey (1997) they can be classified according to:

- The purpose of the research – the reason why you conduct it.
- The logic of the research – whether you are moving from the general to the specific or vice versa.
- The outcome of the research – whether you are trying to solve a particular problem or make a general contribution to knowledge.

There are four different ways to classify the purpose of a study depending on its aim: exploratory, descriptive, explanatory and predictive. Each of the approaches is built on the previous but goes one step further in examining a problem.

Explorative investigations intend to provide basic knowledge and understanding. It is used when there is a lack of previous knowledge about the problem area and when there is a need for a basis in order to be able to specify the task for additional research (Lekvall & Wahlbin, 1993). The aim is to look for patterns, ideas or hypotheses, instead of testing or confirming a hypothesis. This approach is very open and concentrates on gathering a wide range of data and impressions (Hussey & Hussey, 1997).

When a descriptive study is carried out, knowledge about an already well-defined issue is searched for. It aims at describing the characteristics of relevant issues (Lekvall & Wahlbin, 1993). Conducting this study, a descriptive approach was taken, elucidating the usage of the standard costing system at SKF and investigating to which extent the company guidelines are pursued. The situation is clarified in an attempt to describe the characteristics of this important issue. Suggestions on how the standard costing system at SKF can be developed in order to serve its purpose better will also be given.

An explanatory study is an extension of the descriptive, aiming at demonstrating and explaining causal connections i.e. cause and effect (Lekvall & Wahlbin, 1993). The goal is to analyse and explain why or how something is happening. Important is to identify, and if possible, to control the variables in the research activities (Hussey & Hussey, 1997). In this thesis there are no hypotheses to falsify, therefore the explanatory study will not be used. Even if the study will end up in suggestions about the future standard costing system, it will not end up in a prognosis about the investigated phenomenon; hence no predictive approach will be employed.

2.2 Logic Of The Research

There are two different ways of systematically attacking a problem, deduction and induction. Deduction has its starting point in theory and induction in empirical evidence, which is data based on observations or experience.

In this thesis the deductive method is used. The starting point is in theory; the aim is to find general conclusions, which can explain the SKF case. According to Alvesson & Sköldberg (1994) this is what characterizes the deductive method. The risk with this method is that it presupposes that general rules are always valid (Alvesson & Sköldberg, 1994). When carrying out deductive research a conceptual and theoretical framework is developed, this then is tested by empirical observations. The deductive method is moving from the general to the particular (Hussey & Hussey, 1997).

2.3 Data Collection

Information can be divided into two categories, primary and secondary data, depending on the source of the information.

Primary data is collected with the aim of forming a foundation in order to analyse the research conducted. Ways of collecting primary data are observations, interviews and standardized questionnaires. Research studies only consisting of primary data are very unusual. In all investigations, at some point, it is useful to use secondary data in order to save time, at the same time it may also give new angles of approach (Lekvall & Wahlbin, 1993).

Secondary data is information already collected for other purposes. The problem with this kind of data is that the person collecting it may have had another purpose than your research has. Therefore, there is no certainty that the definitions and methods of measurement used can be projected on the own investigation. Another problem may be that the facts written are taken for granted instead of being critically looked into (Lekvall & Wahlbin, 1993).

2.3.1 Literature Review

This study started with collection of secondary data. The secondary data mainly consisted of specialist literature, articles, data collected from the Intranet and internal publications from SKF. Many sources have deeply examined the subject of standard costing. With the purpose of getting a better overview of the material available, this study had no particular starting point for collection of secondary data. Many of the sources of standard costing and costing in general were thoroughly studied to deepen the understanding of the research issue. LIBRIS and GUNDA at Gothenburg University were used to collect theses and academic literature etc. Through external database searches academic journals were collected.

2.3.2 Choice Of Data Collection Method

The primary data of this study basically consist of in-dept interviews with employees working with standard costing at different divisions and different levels within SKF. When the potential findings in the interviews were evaluated it was decided also to cover up the findings with questionnaires. The respondents in this study were mainly employees in controlling positions at the finance side at SKF, but to get broader view respondents from the manufacturing side were chosen as well. Also, employees at sales responsible positions were used to clarify the pricing process at the company.

It is well known that the loss of respondents is high for questionnaires (Lekvall & Wahlbin, 1993), and considering the position of the respondents chosen it was an even higher risk that there would be a large falling off. Therefore, it was of importance that the purpose of the interviews and the following questionnaire was clearly communicated to the respondents before the interviews took place. By giving information about the importance of the study and how SKF could benefit there was a greater probability to get more valid information. To achieve this, the appearance at SKF was well announced in advance. Together with staff from Group Finance, the aim was to prepare the

respondents as much as possible in connection with the interviews and questionnaires. It was of importance to prepare questions that could be applied to all respondents and their positions.

2.3.3 THE INTERVIEWS

An interview can be conducted with structured questions, already put together in advance or unstructured or semi-structured, usually used in in-dept interviews. The advantages with personal interviews is that the interviewer has the possibility to ask a lot of questions, at the same time as the questions can be of a more complicated character since indistinctness can be cleared during the performance of the interview. There are however also disadvantages, especially when the respondent is influenced by the interviewer (Dahmström, 1996). This may be an element of class, sex, race or other bias. Additionally the person being interviewed may have certain expectations about the interview and therefore response in a way they consider 'correct' or 'acceptable.' General problems associated with conducting interviews, is that the process is very time consuming (Hussey & Hussey, 1997).

Another way to perform interviews is over the telephone; the problem is that the answers are never as penetrating and detailed as when conducting an interview personally. Just as with personal interviews the interviewer has the possibility to get answers of higher quality than would be possible otherwise. Important when it comes to telephone interviews is that they have to be limited in time. Also, the questions cannot be too complicated because of the difficulties in catching the respondents' interest when it is not a face-to-face situation. The advantages are that it is fast and cheap and the interviewer has the possibility to clarify the questions.

In order to collect data for this study, both in-dept interviews and telephone interviews have been used. The in-dept interviews have been performed on respondents at SKF in Gothenburg. During a time of approximately 45 minutes the interviews were carried out and the basis for the interview was prepared in advance in an interview guide (see Appendix I). By using a semi-structured

interview guide it was possible to make sure that all individual respondents received the same basic questions. Then it was up to the respondents to develop their answers. By adopting this, the risk that the interviewer might influence the respondent was minimized.

2.3.4 THE QUESTIONNAIRE

By the end of the interviews, the respondents were given a questionnaire and an oral description on how to fill it in. The purpose of the questions was also given. The questionnaire consisted of nine main questions; some of them divided into several part-questions (see Appendix II). The first question was regarding the purposes for using a standard costing system. Seven different options were given as well as a possibility to state additional purposes. Question two to nine treated the situation at SKF and the usefulness of using a standard costing system in different stated situations. To allow a numerical value to be given to an opinion, a Likert scale of six was used. A Likert scale turns the questions into a statement and asks the respondents to indicate their level of agreement by ticking a box (Hussey & Hussey, 1997). At the end, the respondents had the possibility to write down additional opinions about the standard costing system, if they were of the opinion that something had been left out during the interviews or in the questionnaire.

2.3.5 SELECTION OF DIVISIONS

The SKF Group is built upon divisions. There are five divisions within the organisation; Industrial, Automotive, Electrical, Service and Aero and Steel. The many subsidiaries all over the world obey under these divisions. For various reasons this study is limited to only three of the five divisions, namely Industrial, Automotive, and Aero and Steel. The reason for choosing these three divisions for the research is many. Availability is the main one. All three divisions are represented in Gothenburg and the chance to obtain valuable information was considered high. The Industrial and Automotive are also the largest divisions within the SKF Group. The Aero and Steel Division is

interesting because this division is fairly new when it comes to the structure. Consisting of merged parts of the organisation the Aero and Steel division is the latest division within SKF. The fact that SKF has merged different parts into a new division is considered being of interest in this study.

The two divisions left out of this study, the Electrical and the Service, have no or minor operation in Sweden and have for that reason been left out.

2.3.6 CHOICE OF RESPONDENTS

Even if standard costing is widely used in organisations around the world it might be an unknown 'science' to the average employee. The respondents used for interviews and questionnaires, were chosen by us, even if staff at Group Finance came up with suggestions of employees who know more about standard costing than others. The initial intention was to focus on employees at the finance side in the organisation. Typically titles of the respondents in this group were Division Controllers, Business Controllers and Product Division Controllers.

In order to get opinions from people who actually work with the standard cost, set up by the Division Controllers and Product Division Controllers, the factories and the channels were approached. In this group the main targets were Factory Controllers.

Finally, because of the suspected misuse of the standard cost information, Sales Representatives were interviewed in order to be able to see the connection between the standard cost and external customers.

In total, one from Group Finance, two from Aero and Steel, three from Automotive and four from the Industrial Division, were interviewed. Unfortunately one of the respondents did not send in his/her questionnaire.

2.4 RESEARCH EVALUATION

When it comes to academic research credibility is important. It should be possible to demonstrate that the research has been designed in a way that correctly identifies and describes the event to be investigated. There are two aspects concerned with the credibility of the findings of a conducted study – reliability and validity. The question is "will the evidence and my conclusions stand up to closest scrutiny?" (Hussey & Hussey, 1997, p. 57) In a study like this it is difficult to reach a commonly agreed 'truth'; the main concern is to present the research so that it could be perceived as credible to the reader. Another measure of credibility is that if the researcher or somebody else would conduct the same study again and get the same results, the study is considered as of high reliability. High reliability is a prerequisite for high validity. Independent of the type of research, reliability and validity can be improved by carefully observing the basic concepts of the study and how the information is gathered, analysed and interpreted (Merriam, 1994).

Since there is no general 'truth' to the research in this study, the intention has been to reach credibility by showing how it was pursued. The goal has been to do this as openly as possible. By showing the path of the research and describe the ways taken to reach the conclusions it is believed that the credibility of the research is improved. The sources used will be revealed, but with respect to the respondents their names will only appear in the list of references and not in the study.

2.4.1 VALIDITY

Validity explains to which extent the findings represent what is really happening in a situation. Whether the method of measurement really measures what it intends to measure is called face validity. Another form of validity relates to the problem that there are a number of phenomenons that are not directly observable such as: motivation, satisfaction, ambition and anxiety, this is called construct validity (Hussey & Hussey, 1997).

In this research the validity will be affected by how understandingly and effectively the evidence is collected. In order to avoid misunderstandings and misinterpretations it is important to be thorough when defining interview questions and to explain the purpose with the interview. In a study like this it is also important to establish a quality relationship with the company and its employees in order to be able to get the best kind of information and support. For validity purposes it is important to disclose all information about the research process so that the reader can shape her own opinion about how data was collected and how the interpretations were made.

The interview questions and the questionnaires were approved in advance by Inger Wedberg, responsible for the standard costing system at SKF, as well as Christian Ax, Associate Professor at School of Economics and Commercial Law in Gothenburg. This increases the face validity of the study, which means that the immediate experience of the measurement instrument is high and that the findings in this study to a large extent represent what is really happening in the situation.

To ensure that the most appropriate questions were designed a thorough literature study was conducted before the interview questions and the questionnaires were put together. By the time of the interviews, it was clear that the results reflected what the study was aiming at. This is a sign of contemporary validity (Lekvall & Wahlbin, 1993).

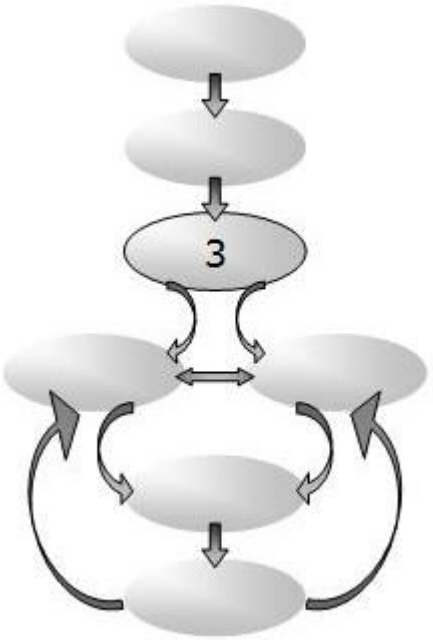
2.4.2 RELIABILITY

Reliability is basically an expression or a measurement tool's capability to withstand random effects, i.e. if the measurement tool will generate the same or similar results on several occasions (Lekvall & Wahlbin, 1993). Even if this research is executed using one company only, it will be hard to replicate. If this study were repeated, using the same theoretical frame of reference, the situation would probably have changed. Since this study is aiming at describing the situation at SKF as of today and not to give any absolute 'truth', which is applicable to different situations, this is not a problem.

The employee opinions given during the interviews might change in future, and also, the employees interviewed might change position within the company and hence change opinions about the subject. However, by using clear and well-structured questions in the interviews, as well in the questionnaire, efforts have been done to ensure reliability. In general, it could be concluded that, the clearer the questions are, the higher the reliability will be (Hussey & Hussey, 1997).

3 FRAME OF REFERENCE

This chapter serves as the theoretical framework for the discussion regarding the standard costing system at SKF. The sources used for this chapter comes from a literature study in the field of standard costing. This thesis deals with standard costing systems related to manufacturing companies; an approach chosen in order to understand the situation at SKF.



3.1 THE NATURE OF A STANDARD COSTING SYSTEM

A standard is a stipulated norm, something set up and established by authority as a rule for the measure of quantity, weight, extent, value, or quality. In the accounting world standards represent either target financial or physical inputs per unit of output (Drury, 1992). For example, standards are set based on predetermined physical inputs of labour, materials and machine hours, which should be consumed when manufacturing a product. Simply stated, a standard cost for a product consists of two things – a price standard and a quantity standard. In general, when it comes to price standards, we talk about price for materials and rate for labour; common quantity standards are quality for material and time for labour. Also, quantity identifies a material or task or activity, and price represents how much it should cost (Anderson & Clancy, 1991).

Accordingly, standard costs stand for predetermined costs; they are target costs, which should be incurred under well-organized operating conditions. It is

important to distinguish standard costs from budget costs. In the accounting literature a budget relates to an entire activity or operation; a standard presents the same information but on a per unit basis (Drury, 1992).

Traditionally standard costing systems are used in order to support the manufacturing industry but it can also be used in all kind of industries. However, this study will focus on standard costing systems related to manufacturing companies.

3.2 The History Of Standard Costing

The typical standard costing system was developed in the early 1900s. According to Drury (1992) it was the scientific management principles recommended by F.W. Taylor and other prominent engineers who provided the basis for the development of a standard costing system. Scientific management engineers developed information about standards in order to establish 'the best way' to use labour and material resources within manufacturing. The standards that the engineers arrived at provided information for planning the flow of work so that the waste of materials and labour was kept to a minimum. One interesting fact is that the engineers did not view standards as a tool to control financial cost at this point in time (Drury, 1992).

One of the first thoughts of using standards as a tool to control costs came from G. Charter Harrison, who designed and installed the first complete standard costing system known to exist. Harrison worked at this point for the Boss Manufacturing Company, Illinois, in USA – makers of work gloves. This was in 1911, but it took him a few years before he published the first set of equations for the analysis of cost variances (Solomons, 1968).

Harrison was, however, not alone on the standard costing scene. In a series of articles in 1908 and 1909 Harrington Emerson advocated the development of an information system specifically directed towards the achievement of efficiency objectives. Emerson stressed that information about standards permit managers to differentiate variances that are due to controllable conditions and

variances that are caused by conditions beyond management's control (Solomons, 1968).

Today standard costing is widely used by manufacturing companies through out the world. A survey undertaken by Ask and Ax (1997) reported that 73 percent of the companies in the Swedish manufacturing industry operated a standard costing system. Noteworthy is that 12.6 percent of the companies investigated stated that it was urgent to abandon standards but at the same time 9.9 percent stated the urgency of converting to a standard costing system.

3.3 An Overview Of A Standard Costing System

Standard costing is most suitable in operations, where activities consist of a series of common or repetitive operations. In manufacturing organisations the processes often are of a repetitive nature and therefore standard costing is relevant in these kinds of organisations. Standard costing procedures can be applied to non-manufacturing activities where operations are of a repetitive nature. However, it cannot be easily applied to activities of a non-repetitive nature, as there is no basis for observing repetitive operations and therefore standards cannot be set. In organisations that produce many different products and the production consist of series of common operations it is possible to apply a standard costing system (Drury, 1992).

In a standard costing system the standard costs for the actual output for a particular period are traced to the managers of responsibility centres who are responsible for the various operations. When it comes to the actual costs for the same period they are also charged to the responsibility centres. The two costs, the standard and the actual, are then compared and the variance between the two is reported (Drury, 1992).

Managers need help in order to analyse where the variances have arisen. Accountants may assist managers in doing this, but it is important they do this together with the responsible managers in order to undertake an appropriate investigation. By doing this together the reason for the variance will easily be

identified. An example of the importance of co-operation in investigation of variances is that the accountant might identify the reason for a direct material variance as being due to excessive usage of a certain material. On the other hand, the responsibility centre manager must investigate this process and identify the reason for the excessive usage.

In the accounting literature there is an argument that there is little point in comparing actual performance with standard performance. The argument is that such comparisons can only be made after an event and the usefulness of the result is questioned. However, Drury (1992) argues that if people know in advance that their performance is going to be measured it is more likely that they will perform better.

3.4 The Purpose Of A Standard Costing System

Information is required in order to run an organisation successfully. The purpose of cost and management accounting is to provide financial information to managers that will help them to plan activities, control the activities for which they are responsible and see the financial implications of any decisions they may take (Hussey & Hussey, 1999). Standard costing systems provide cost data that can be used for many different purposes.

Ask and Ax (1997) have identified several fields of application when it comes to a standard costing system. Their survey came up with the following reasons/purposes why a company may use a standard costing system:

Product Costing	82.4 %
Inventory Valuation	64.8 %
Variance Analysis	56.0 %
Budgeting	45.1 %
Transfer Pricing	31.9 %

Source: Ask & Ax, 1997, p.83.

This study will focus on transfer pricing, product calculations, budgeting, and inventory valuation. The reason for choosing these four fields of application is that they are bound to specific purposes connected to standards (Ask & Ax, 1997, Johansson & Samuelson, 1986). Variance analysis will complete the four since this is a field of application that to a large extent is referred to in the accounting literature.

Drury (1992) gives a broader view of the purposes. He argues that the main purposes for which a standard costing system can be used are:

1. To facilitate in setting budgets and evaluating managerial performance.
2. To act as a control device by stressing those activities which do not match to plan and thus alerting decision-makers to those situations that may be out of control and in need of remedial action.
3. To provide a forecast of future costs that can be used for decision-making purposes.
4. To simplify the task of tracing costs to products for inventory evaluation purposes.
5. To provide a challenging target which individuals are motivated to achieve.

The areas, which this study will focus on – transfer pricing, product calculations, budgeting, inventory valuation, and variance analysis – are integrated in Drury's line of reasoning. In the following paragraphs Drury's view is developed further.

3.4.1 Setting Budgets And Evaluating Performance

The fact that standard costs are a reliable and convenient source of data makes them valuable for budgeting. The data which standard costs give can easily convert budgeted production schedule into physical and monetary requirements for materials, labour and other services. According to Drury (1992) budgets based on standard costs are likely to be more reliable targets then when standard costs are not available. Drury (1992) explains this by arguing that

standard costs are based upon careful studies of material usage requirements, operative methods, labour and machine times and variability of cost with volume. However, this argument is only true when engineering studies (see 3.6 Establishing Cost Standards) are used to establish cost standards.

Standards also provide a foundation for predicting what performance can be expected in the near future. In order to measure performance of any kind it is required to compare actual performance to some baseline measurement. Variance, the name for the difference between a standard and an actual measurement, is a tool for signalling the need for either reward or corrective action. (Bonsack, R. A, 1991)

3.4.2 FEEDBACK CONTROL SYSTEMS

Hussey and Hussey (1999) explain that one of the major purposes of a standard costing system is to act as a control device. It is a device to compare actual and planned results and to identify important deviations for corrective actions. Hussey and Hussey (1999) claim that devices of this kind are known as feedback control systems. Drury (1992) makes the comparison with a thermostat. The process (the room's temperature) is continually monitored by an automatic regulator (the thermostat). Divergences from a predetermined level (the desired temperature) are identified by the automatic regulator. Corrective actions are started if the output is not equal to the predetermined level. This can be compared with the action to turn the heater on if the temperature does not correspond with the predetermined level. The system of control described in Figure 3.1 originates from Drury (1992). He argues that feedback control involves monitoring outcomes achieved against planned output and taking whatever corrective action necessary if a deviation exists.

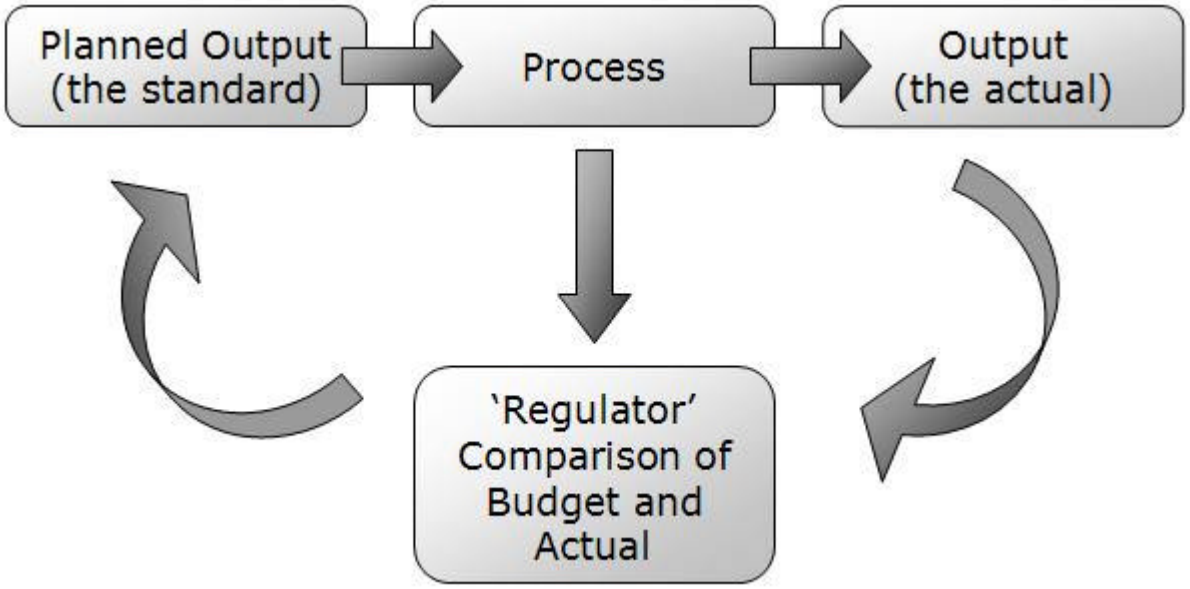


FIGURE 3.1 – A CONTROL SYSTEM

Source: Drury, 1992, p. 15.

3.4.3 DECISION-MAKING PURPOSES

Standard cost for decision-making purposes requires estimates. When it comes to pricing the decisions manager requires estimates of future costs. Drury (1992, p. 17) states, "standard costs represent future costs and thus provide a valuable source of information for decision-making purposes." Drury argues that standard costs are frequently used for pricing decisions. He refers to several surveys of pricing procedures that have reported that product costs play an important role in setting prices. One can have a feeling that this is true when it comes to customized products, which do not have readily available market prices. A firm that can predict its product costs can focus on the most profitable product mix and avoid potential loss-making activities.

As said before standard costs stand for predetermined costs; they are target costs, which should be incurred under well-organized operating conditions and thus do not include any avoidable inefficiencies. Since efficient competitors will seek to eliminate avoidable costs, standard costs provide valuable

information for pricing decisions. It is actually foolish to take for granted that inefficiencies are recoverable within the selling price (Drury, 1992).

3.4.4 INVENTORY VALUATION

Standard costs simplify the task of tracing costs for inventory valuation purposes (Ask & Ax, 1997). Where there is a lack of an implemented standard costing system it is necessary to maintain records of actual costs for each individual item of materials in stock. Actual costs must also be maintained in order to determine the valuation of finished goods and work in progress inventory. A well working standard costing system does not call an organisation to keep store records and product costs at actual costs. Instead, records are maintained at standard costs, conversion to actual cost is made by writing off all variances as a period cost (Drury, 1999). In a standard costing system a considerable amount of data processing time is saved since records can be kept in terms of quantities only.

3.4.5 BEHAVIOURAL ASPECT OF STANDARDS

One purpose of standards is to provide a target, and such a target can have a beneficial effect on motivation. If a standard costing system is poorly implemented it can have a demotivational effect on people. It could be said, in order to fulfil their functions effectively, that standards should allow managers some freedom to fail without fear of recrimination. The practical difficulty with such an approach lies in balancing necessary management freedom against slack performance. It seems to be the case that most organisations find this balancing act nearly impossible to achieve, which coupled with pressure to use scare financial resources effectively, will cause adoption of a ‘strict’ approach to control (Drury, 1996).

It might be a good idea to explain some theories of motivation before discussing further aspects of standards. If the management accounting system aims to encourage behavioural congruence, then it is important to be aware of

the kind of factors, that might influence the extent to which individuals are likely to act in the desired manner.

Although developed some time ago (1943) Maslow's view of motivation as the hierarchical satisfaction of needs remains an important milestone on the subject (Maslow, 1970). Maslow's hierarchy is based on 'prepotency', that is, the lower a particular need in the hierarchy, the more important is its fulfilment. Once a particular set of needs has been fulfilled, it will no longer act as a motivator, with the next set in ascending order providing the motivational stimulus, until the top level of the hierarchy has been reached. After Maslow presented his ideas there have been many refinements of the hierarchy, one worth mentioning is McClelland (McClelland, 1975).

Another aspect of motivation that is not really addressed by the needs hierarchy approach is the cause/causes of job satisfaction and its link to motivation. Herzberg (1967) developed a theory, which differentiated between factors causing positive and factors causing negative attitudes to work. These factors are called Herzberg's 'satisfiers' and 'hygiene' factors. The implications of Herzberg's theory are that improving hygiene factors will only prevent dissatisfaction – for motivation to exist, the 'satisfiers' must be addressed (e.g. by examining the intrinsic nature of the job). Like Maslow's hierarchy of needs, Herzberg's theory has had a fundamental impact on management thinking, with the notion of job enrichment assuming central importance.

Another theory of motivation is the so-called 'expectancy theory' (Drury, 1996). Simply stated, expectancy theory proposes that an individual's actions are a function of his or her expectations about the outcome of these actions, coupled with the amount of effort the individual is prepared to expend in order to achieve this outcome. It could be argued that awareness of expectancy theory may help highlighting those factors, which affect motivation – information that, if available, would clearly be of value to management. Whilst it is difficult to deny the logic of expectancy theory, this very logic may also be the theory's weakness, as it implies that individuals will act in a strictly rational and predictable manner.

Having explained some major theories of motivation, it is now possible to go on with further aspect of standards. A further motivational aspect of standards lies in individual perceptions of their value as targets. 'Strictness' may certainly encourage managers to try and keep expenditure within the standard set, but this may have little to do with effective target setting. One way to assess the effectiveness of standards as targets, is to examine them relative to a manager's aspiration level (Drury, 1996), which is the level of performance that an individual hopes, and will strive, to attain. Research by Hofstede (1970) into the relationship between performance and aspiration levels suggests that worst performance results from an easy target and that best performance occurs relative to a difficult, but still credible target: in other words, a very 'loose' or very 'tight' budget is unlikely to improve performance.

An important implication of this in light of what was said earlier about freedom to fail is that targets, which are likely to improve performance, will be difficult to achieve, so that adverse variances will frequently result in spite of such improvements. But, perceptions of 'difficulty' vary from person to person, and may also vary between different levels within the organisation. However, the questions about behavioural aspects when it comes to targets still remains; are individuals 'motivated' by targets or is performance related to fear of failure and its consequences? Or in other words, to apply Herzberg's terminology, are targets satisfiers or hygiene factors?

3.5 Types Of Standard Costs

The determination of standard costs raises the problem of how demanding the standards should be. Should they represent an ideal of faultless performance or should they represent easily attainable performance? Standards are normally classified into three broad categories:

1. Basic costs standards.
2. Ideal standards.
3. Currently attainable standards.

Basic cost standards represent constant standards, which are left unchanged over long periods. The main advantage of basic standards is that a base is provided for a comparison with actuals through a period of years with the same standard. This kind of standard is useful when you want to compare performance over the years, since efficiency trends can easily be established over time. The disadvantage is that the figure is not up to date, which is the reason for the fact that this system seldom is used in real life.

Ideal standards represent perfect performance. Ideal standard costs are the minimum costs, which are possible under the most efficient operation conditions. This kind of standard is set as a goal, but seldom used in reality, since it does not motivate the employees.

Last, currently attainable standards represent those costs, which should be incurred under efficient operating conditions. They are standards, which are difficult, but not impossible to achieve. Attainable standards are easier to achieve than ideal standards because allowances are made for normal spoilage, machine breakdowns and lost time. Currently attainable standards are not impossible to reach but good manufacturing conditions have to exist in order to succeed.

3.6 Establishing Standard Costs

A predetermined standard cost is incurred under defined working conditions. It is calculated from technical specifications in order to get the quantity of materials, labour and other elements of costs required (Hussey & Hussey, 1999). A survey conducted by Lessner (1989) supports that most traditional standards, such as direct material, direct labour and various overheads are the standards still mostly used. The survey also reports on non-traditional standards used, for example sales overheads, cassation and wastage costs, development and construction costs, and currency.

There are two different approaches when setting standard costs, past historical records and engineering studies. In engineering studies each operation is

studied thoroughly based on careful specifications of material, labour and equipment and controlled observations of the operations. This method aims at finding the best combination of resources, production methods and product quality. Standard costs based on past performance, on the other hand, are widely used in practise but the disadvantage is that past efficiencies may be included (Drury, 1996).

3.7 Critique Against Standard Costing Systems

There are many advantages with standards, for example calculations are easier made, an effective responsibility and performance controls are enabled and they give opportunity to savings. Standard costs are, since the industrial revolution, a major element within the management accounting area. They were developed and used when organizations' manufacturing conditions were stable, long series of standardized products were produced, and labour and material related costs constituted the major costs components, i.e. a business environment radically different from today's.

Ask and Ax have conducted a literature review and according to them academics have, as a consequence of the continuous changes within the manufacturing industry, pointed out that standards in a traditional way have become less important and that new ways of standards should be used instead. Most criticisms of standard costing is related to cost control and performance measurement. (Berliner & Brimson, 1988; Cheatham, 1989; Foster & Horngren, 1988; Howell, 1987; Howell & Soucy, 1988; Johnson, 1988; Kirwan, 1986; Lessner, 1989; McCosh, 1986 and McNair et al, 1988).

According to the literature review, several judgers have stated opinions that it is unnecessary to register and follow up variances in a manufacturing environment where the quality issue is in focus, because this can only result in minimal variances between standard and actual. The quality of the product increases and becomes more even, which tends to lead to less spoilage, cassations and lower costs. Strive for a minimum of variances is therefore built-in in the manufacturing philosophy, which is employed. It is considered more

important to focus on real measurement and how they vary between periods. Drury (1999) points out that standards can be more consistent with a continuous improvement philosophy if variances are used to monitor the trend in performance and giving more emphasis to the rate of change in performance.

Standards can be viewed as a measure, which shall be reached and/or maintained, and therefore they are not consistent with attempts for constant improvement. When the goals have been obtained there is no further incentive for further improvements. When aiming for continuous improvement it is regarded to be more important to register and follow up real measures over time.

Also, price standards may directly struggle against attempts for better quality (Ask & Ax, 1997). If a person is responsible for purchases is it natural to strive for the most advantageous prices to find. It may be easy to bend the rules when it comes to quality demand in order to attain positive variances, but low quality in purchased material may lead to higher costs for example because of more spoilage and cassations. Focus should always be on quality and reliability. It is of great importance not only to focus on low prices in order to obtain positive price variances, this may result in many suppliers and large quantity purchases thus resulting in higher inventories, delivery of lower quality goods or indifference to attaining on-time delivery (Drury, 1992).

The difficulties in the manufacturing process are said to be increased when the number of products are many, product series are short, many manufacturing elements are performed and when many components are included in the products (Ask & Ax, 1997). When difficulties increase, it involves more and more complicated cultivation and interpreting of variances. Furthermore, it can be difficult to tie the variances to particular persons or responsibility areas. Why has the variance come up and who is responsible?

Another fact that has made standard costs, in the traditional way, less important is the fact that the proportion of manufacturing related direct labour costs of the manufacturing cost decreases when the manufacturing conditions get more complicated (Ask & Ax, 1997). In such an environment the staff are working

with supporting activities rather than directly with the activities. A proportion of the labour costs can be regarded as fixed and in some cases as ‘sunk cost’, since they have occurred before the manufacturing process started.

Another issue that arises when the manufacturing conditions become more complex is that the amount of fixed costs increases. This is resulting in fewer opportunities to actually influence total costs, in the short term. Therefore it is less interesting to manage by using traditional thinking on how costs are influenced by volume.

One trend today is that companies produce more products adapted to individual customers, products which therefore become much differentiated, since the traditional input of resources are very diverse in each case. This development results in a demand for a lot of more standards than demanded for uniform products, which makes it questionable if there is any point in using standards. Furthermore, when the product life cycle is short the process of setting and revising standards is very demanding. Another issue regarding the new competitive environment of today is that other factors, besides costs, are growing in importance (Ask & Ax, 1997). One risk is that focus is too much on costs, ignoring other important marketing, management and strategic considerations. Many control devices have been criticised because they fail to report on such issues as quality, reliability, lead times, flexibility in responding to customer requirements and customer satisfaction (Drury, 1992). Traditional kinds of standards should therefore be abandoned or revised to more accurately mirror the strategies of the companies.

As shown above, standards may be very difficult to set, especially during extremely turbulent and dynamic conditions, which is often the case in today’s manufacturing industry. The standards will become out of date and require revision within very short time periods. A consequence of this may be a standard costing system, which is too expensive to maintain, and where the additional record-keeping may become a burden to managers and they lose confidence in the system. The information the system provides should serve for control purposes, therefore it is of great importance that it has strong support

amongst the managers. If the information has no credibility or is not understood, it has no value (Hussey & Hussey, 1999).

3.8 The Future Of Standard Costing

According to Cheatham and Cheatham (1996) many accountants in industry (as well as academia) seem unaware of the fact that a redesigned standard costing system can provide the important information that they need, and that updating their present system is an easier process than adopting a new system. The same authors also point out that the standard costing system coordinates managerial, financial and operations accounting, this makes it a control system while many of its possible replacements only are cost accumulation systems.

Critics against the standard costing systems raise the question whether the system is really useful in the manufacturing system of today. The fact is that it is still a widely used method, due to the fact that it provides cost information for many different purposes in addition to cost control. Many organizations have adapted their variance reporting system to report on those variables particularly important to them, i.e. company specific variables. In companies where an activity-based system is implemented, standard costing is important when it comes to controlling the costs of unit-level activities.

In many cases the criticism is concerned with the fact that overemphasis is on price and efficiency, which would set quality aside. Attention is also paid to the fact that volume variance to measure utilization of capacity ignores overproduction and unnecessary build-ups of inventory. In this situation the fact that variance analysis is not 'locked in' to a particular set of variables is ignored. Used variables can be changed when the need arises. Examples of this will be given below (Cheatham & Cheatham, 1996).

- To implement standards centred on the function of raw material ordering and inventory levels, which give information about the effectiveness of suppliers. Since the goal is to have orders delivered as placed, any variances are undesired.

- Price variances can be combined with a quality variance, which prevents purchasing managers from just focusing on price ignoring quality.

- Raw materials inventory variances indicate an inventory build-up, due to more material purchased than used or an inventory decrease resulted, by reverted conditions. This is in line with a just-in-time philosophy.

Further criticism is concerned with the non-focus of continuous improvement. However, static standards based on engineering studies or historical data are not an essential part in a standard costing system since standards can be adjusted to be dynamic or changing, by any of several methods. Examples of this will be given below (Cheatham & Cheatham, 1996).

- Use last period's results as standards. Important to remember when using this method is that last period has to be representative; otherwise it needs to be revised. It is also possible to use a base period with which comparisons are made.

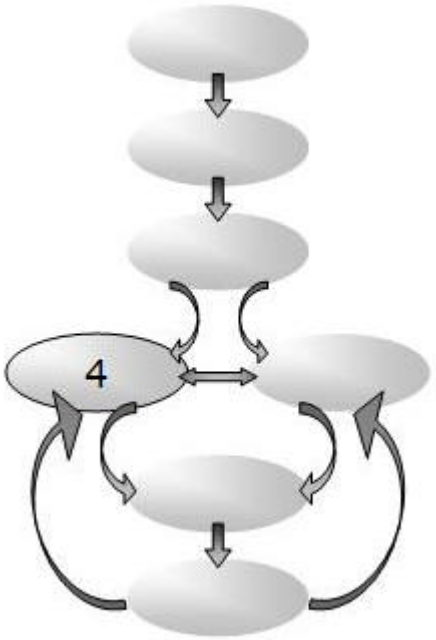
- Benchmarking is a system where outside companies are used as comparison. To compare with competitors or with the leader of the industry provides motivation.

- Another method is to use predetermined cost reductions, which means that the standard cost is reduced for every period by a predetermined amount. This method favours constant improvement.

Finally, the reporting system of the standard costing system has to be revised. In the traditional way internal competition often arises. Instead, cooperation among workers, managers and departments has to be encouraged.

4 SKF GUIDELINES

This chapter will present the company and the three divisions studied in order to get an overview of SKF's core business. The channel concept used by SKF is explained and the Cost Manual, which is used to guide employees throughout the standard costing process, is presented. The sources of this chapter are the guidelines (manuals and oral instructions), additional internal material and the Annual Report 2001.



4.1 SKF – THE COMPANY

Sven Wingquist, a bright young Swedish engineer who built a factory in Gothenburg, producing bearings, founded SKF in 1907. Since its establishment SKF has focused on quality, technical development and marketing, which has led to a growing number of innovations that has created new standards and new products in the industry. Today the company is the leading global supplier of products, solutions and services in the rolling bearing and seals business. The Group's competencies include technical support, maintenance services, condition monitoring and training. SKF also has an increasingly important position in the market for linear motion products, as well as high precision bearings, spindles and spindle services for the machine tool industry, and is an established producer of rolling bearing steel.

The company mission is to enhance and develop global leadership in bearings, seals, related products, systems and services. The aim is to be the best in the industry at: providing customer value, developing the employees and creating

shareholder value. The drivers of SKF are profitability, quality, innovation and speed. Their values are: empowerment, high ethics, openness and teamwork.

SKF has sales companies in 70 countries, supported by 7,000 distributors and dealers. They have production sites on 79 locations all over the world. In 2001 they had a turnover of 43,370 MSEK and 38,091 employees. SKF has about 200,000 products, of which approximately 96,000 are active and in production. As of 2002, SKF consists of five main divisions: industrial-, automotive-, electrical-, service- and aerospace and steel division. As described in the methodology sections, we have only investigated the conditions in three of the divisions, which are the industrial-, the automotive, and the aerospace and steel division. A short presentation of the three will be given below.

4.1.1 THE INDUSTRIAL DIVISION

This division is in the business of product development and produces a wide range of bearings and related products. They develop special products and systems for selected customer applications and are into sales to industrial OEM customers. They are also in operation of business areas for Railways, Linear Motion, Machine Tools and Couplings. This includes product development, production and sales of high-precision bearings, railway bearings, spindles and a wide range of linear products and couplings.

4.1.2 THE AUTOMOTIVE DIVISION

Automotive is in the business of product development, they produce and sell bearings and related products to the global car, light truck, heavy truck, bus and vehicle component industries. They also develop kits for the global vehicle service market and are into sales to the vehicle service market in Europe, Brazil and India.

4.1.3 The Aero And Steel Division

This division is a merger between the former aero division and the former steel division. The aero division is in the business of developing, producing and sales of bearings, seals and components for aircraft engines, gearboxes and airframes. They have services and repair of bearings for the aerospace industry and development, production and sales of forgings and rings. The steel division is into product development, production, and sales of special steels and steel components to the bearing industry and to other industries with demanding applications.

4.2 Production Channel Concept

4.2.1 Channel Structure

Most of SKF's factories are 'channelised', which means that they are organised according to the Production Channel Concept introduced by SKF at the end of 1980s. In the cost manual a production channel is defined as "a 'factory within the factory', with dedicated machines, assortment of people, forming a structured flow of products controlled by the bottleneck operation" (Wedberg, 2002, p. 3). It is characterized by a flow oriented serial production.

Each machine should preferably only be dedicated to one production channel but this is not always possible. There are three different ways to solve the problem of exceptions from the basic channel definition: shared operation, subcontracted operation and extra operation.

If a machine or a process is used by more than one channel and shared by all products in the channels this is defined as shared operation. All costs are then distributed and there shall be no result for the operation.

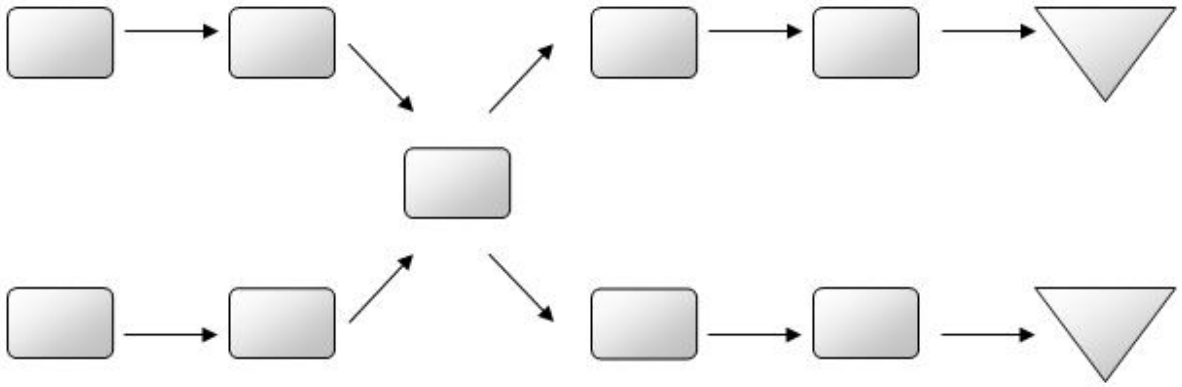


FIGURE 4.1 – A SHARED OPERATION

A subcontracted operation is like the shared operation, with the difference that it is shared only by some of the products in the channels. An operation can also be defined as a subcontracted operation if it is a shared operation but with too many channels sharing it. At the end of the period, a subcontracted operation will have a result equalling the difference between the actual cost and the debited pre-calculated cost.

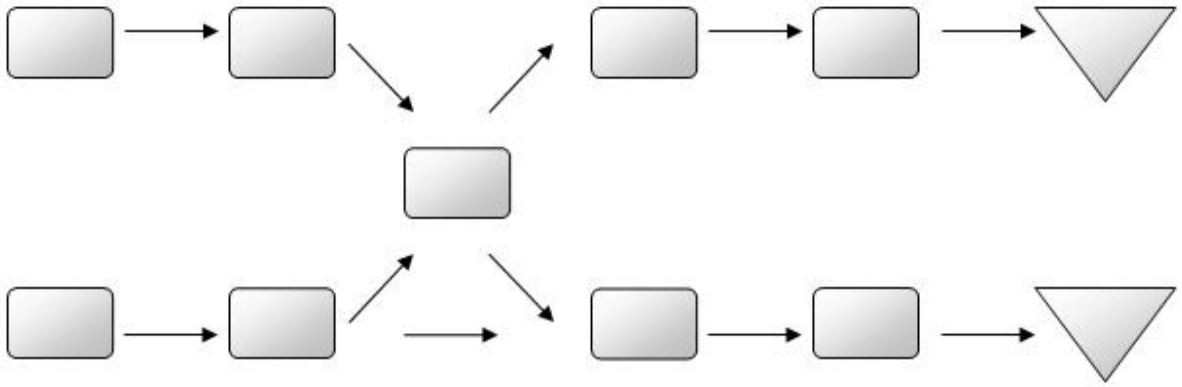


FIGURE 4.2 – A SUBCONTRACTED OPERATION

If an operation in a channel only is used by some of the products belonging to the channel, this is called an extra operation. Only costly operations are treated as extra operations as the complexity increases if too many operations are included in the definition.

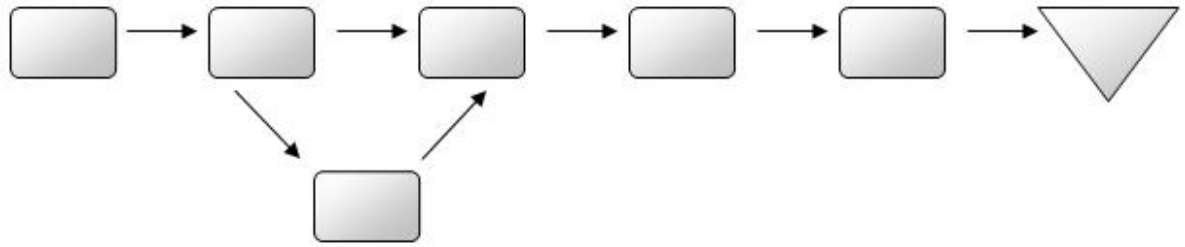


FIGURE 4.3 – AN EXTRA OPERATION

4.2.2 RESPONSIBILITIES

The channel can be seen as described in Figure 4.4

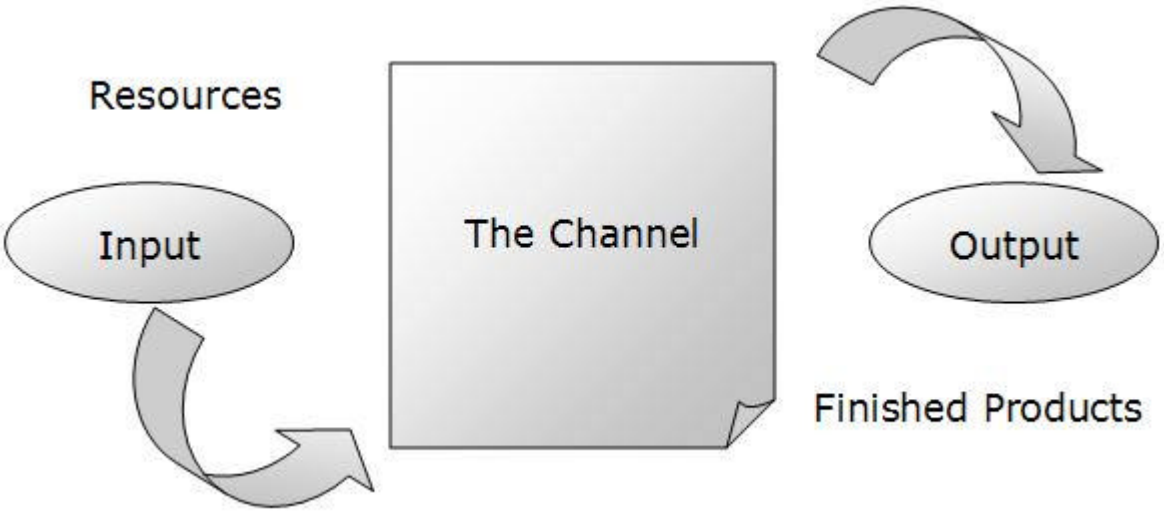


FIGURE 4.4 – THE CHANNEL BOX

Output is measured when the finished pieces are delivered to the final inventory and is evaluated at standard cost, i.e. number of delivered pieces multiplied by the standard cost per piece. Input is measured when it is used. The capacity of a channel, i.e. how much that can be produced, is restricted to the bottleneck capacity, which is the key operation to control and to keep open for production. If the bottleneck is used to full capacity and cannot deliver more pieces, there is no point in issuing a lot of material and to work a lot in other

operations. This will only result in more input while output will remain the same. In order to achieve better results the bottleneck operation must be in focus.

One of the basic principles is a dedicated and clearly defined product assortment for each channel. Long-term stability of the assortment affects the situation in the channel.

The flow-oriented organisation of the channels is important because it focuses everyone's attention on producing finished bearings and achieving the objectives of 'their' channel. Therefore people are a part of a particular channel and should not be moved between the channels. A channel manager is responsible for the channel in all aspects in terms of output, channel costs, channel efficiency, delivery performance and product quality.

4.3 Cost Objects

To be able to allocate/distribute costs to a relevant activity or responsibility, SKF record them as cost objects, divided mainly into three types; responsibility centres (where has the cost occurred?), orders (why has the cost occurred?) and accounts (what type of cost has occurred?).

According to the cost manual there are three purposes of distributing/allocating the costs to responsibility centres instead of keeping them on aggregated level:

- To control in which activity the resource has been consumed
- Cost analysis
- As a step in calculating a standard cost per product

The number of responsibility centres and the level to which they need to be defined varies with the size of the unit, but there must always be a connection between a cost and an organizational unit.

When there is a need to record all costs occurring as a result of undertaking a certain activity, indirect orders are used. They can be named and split up in several groups depending on local needs but as a minimum four categories are distinguished:

- Construction in progress
- Repair and maintenance
- Stock orders
- Orders for costs to be invoiced

Accounts are not mentioned in SKF's cost manual since they are a part of the accounting rules.

4.4 THE COSTS

Costs are built up in a number of stages in a manufacturing process, which results in the total cost. At SKF total-operating costs typically are composed of five items, of which the largest part is production costs.

4.4.1 PRODUCTION COSTS

SKF has a full cost concept, which means that the production cost has to reflect the full cost for performing the production activities including all costs for supporting activities, and interest costs.

Costs are divided into variable and fixed. Variable costs will be the same on item level independent of produced volume but it will change on aggregated level. Fixed costs, on the other hand, will be the same on aggregated level independent of produced volume but it will change on item level. In channel costing all costs have to be categorized into variable or fixed costs in order to improve the result analysis as a tool for control.

4.5 Cost Distribution And Allocation Principles

SKF is applying two different methods for dealing with costs:

- Cost distribution: implies that there is a direct link between the cost and the activities, a cost driver can be used.
- Cost allocation: used to share common costs between responsibility centres without a direct link, no clear cost driver is identified. An allocation base is therefore used.

4.5.1 Cost Distribution

Cost distribution implies that there is a direct link between the cost and the activities in a responsibility centre. In this case a cost driver can be used. The basic principle is to keep all costs on the level from which they are controlled. It is of great importance to set up logical cost drivers in order to allow a large portion of the cost to be directly related and distributed to each channel. If the channel manager can influence the costs by reducing the activities behind the cost distribution, it shall be considered as a channel cost. Costs, that are not logically related to the channel should also not be distributed to the channel. Instead, they should be allocated with the forecasted amounts using a simple base.

When distributing costs or charges from common responsibility centres to channel responsibility centres, a base called cost driver is used. The characteristics of the cost drivers shall be “measurable, possible to influence for the channel manager and understandable for the people in the channel” (Wedberg 2002, p.37). All cost drivers are, at least indirectly, linked to the products.

4.5.2 COST ALLOCATION

In this case there are no clearly identifiable cost drivers. Therefore an allocation base is used. The intention is to allocate as much as possible of the cost for used resources to the channels. Some costs are not logically related to the channel or it is difficult to find a cost driver. These costs are allocated to the channel in order to ultimately distribute all manufacturing costs to the products. The allocation of the non-channel related costs is built on simplicity. Factory costs should not be allocated to different operations, but instead to the channel carrying them.

4.6 THE STANDARD COST

According to the internal Cost Manual standard cost calculation is "a technique of allocating the total production cost in a fair way between individual products, considering the annual forecasted volume of production of each product" (Wedberg, 2001, p.43). In this concept all planned production costs for all cost elements are distributed/allocated to the product. SKF defines the 'full production cost' as all cost elements "from raw material until a product is shipped to local finished goods stock or local factory shipping terminal" (Wedberg, 2001, p.43).

The model and method of calculating full standard cost at SKF is similar to the method described in the accounting literature. The difference is in most cases only of marginal nature and most often it is a matter of definition. At SKF the standard cost per piece is a pre-calculated, and the best estimate, of the production cost per item for the coming year. It shall be seen as a committment that the product can be produced at the pre-calculated production cost.

There are about 96,000 active products in the system at SKF. A standard cost shall be calculated on the entire product line if they have a forecasted production for the coming year. When it comes to products with no planned production the previous years standard cost shall be used until there is a

demand for this product. The standard cost is then calculated for the present period.

4.7 The Performance Standard

The concept of Performance Standard (PS) is something unique for the SKF Group. The PS concept was introduced 30 years ago as a consequence of the expansion of the SKF Group's and the manufacturing conditions that followed. The system used at SKF was and is still developed for a standard costing system and the change in the manufacturing process with several factories manufacturing identical products called for a new way of looking at the standard cost. SKF decided to adopt the PS concept. A PS for a product is a constructed standard cost and should show the manufacturing cost from an SKF Group point of view. The PS figure is based on the lowest standard cost for each single product within the SKF Group. In practice, if a product is manufactured in more than one factory, it is the cost associated with the product manufactured in the factory with the lowest standard cost that constitutes the PS. Today it is rare that an SKF product is manufactured in more than one factory – 95 percent of all active products are manufactured in only one factory.

One of the main purposes with the PS concept is for it to be a cost information source. With this cost information SKF are able to conduct product- and customer profitability analysis. The PS is also used for volume and performance measurements, stock evaluation, and material flow transaction within the SKF Group. Another important purpose with PS is the fact that it serves as a basis for transfer pricing and profit contribution calculations. The PS figures are frozen since 1999, therefore it is considered as a measure of volume.

4.7.1 TRANSFER PRICING AND PS REPLACEMENT

As mention before, PS has served as a basis for transfer pricing at SKF for a long time. However, during recent years SKF has moved away from this and continued the development towards a more value-based pricing in the market. In order to support that development projects have been started to improve the transfer pricing process. The plan is that standard costs shall replace PS for all purposes except for volume measurements on the sales side. The project called 'AgreeIP' aims at agreeing principles and setting guidelines for internal price negotiations as well as finding alternatives to PS in price and volume measurement. Project 'ExitPS' is a follow up of the previous project. Here the intention is to execute the replacement of the PS element in SKF's common system. The replacement of PS will go beyond the scope of the study. 'ExitPS' will be the last step in the review of the internal price process and has December 2003 for preliminary deadline.

4.8 THE STANDARD COST CALCULATION MODEL AT SKF

As explained earlier, the purpose of the standard cost calculation process is to arrive at a 'fair' cost per product by distributing/allocating total forecasted cost to a total forecasted production volume. In a manufacturing company the amount of products that are manufactured has an impact on the forecasted costs and these total costs should be distributed/allocated to each product.

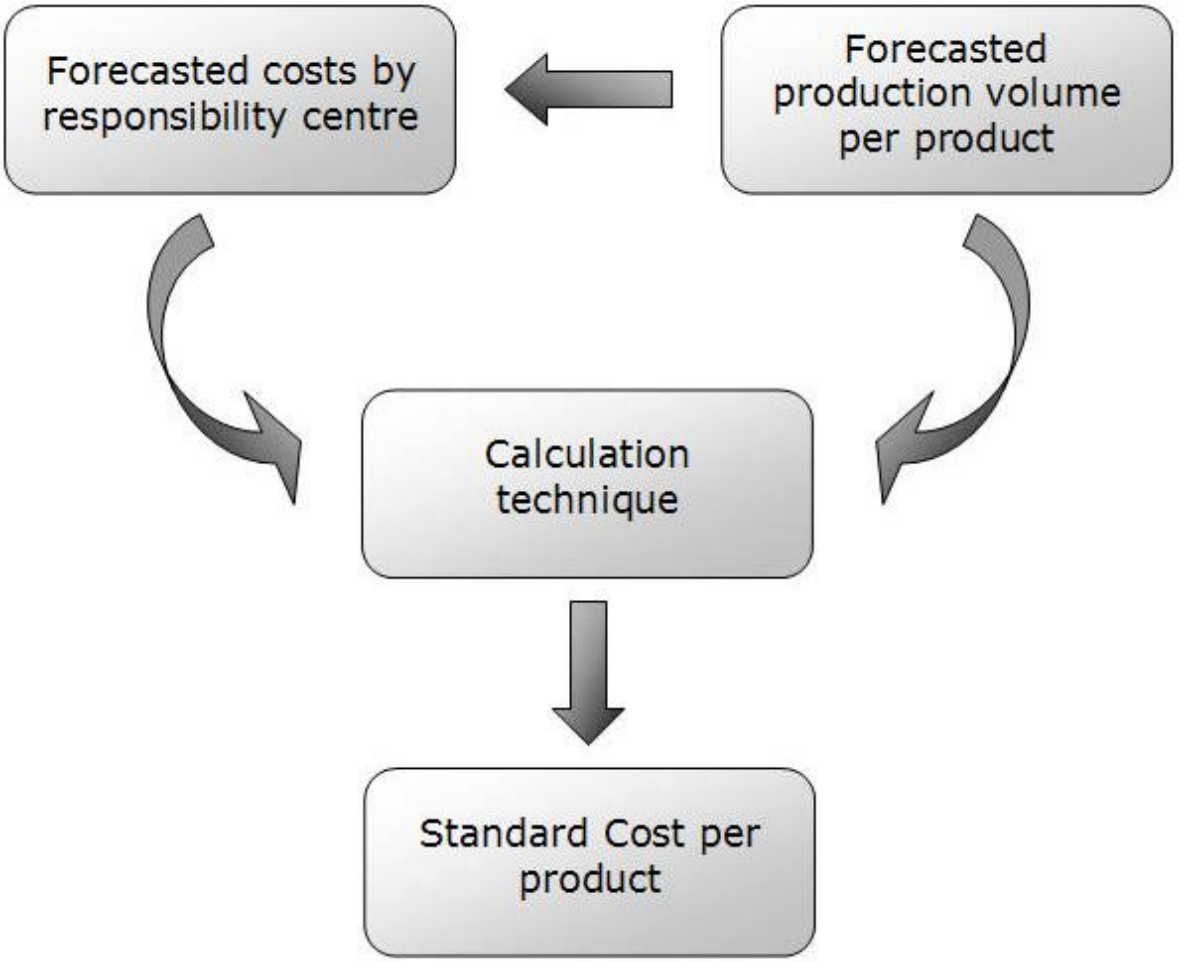


FIGURE 4.5 – STANDARD COST CALCULATION MODEL

Figure 4.6 shows an overview of the standard cost calculation at SKF. At SKF the calculation is divided into two main sections:

- Making forecasts
- Assigning forecasted costs to each product

4.8.1 MAKING FORECASTS

The standard cost calculation requires that a number of cost forecasts and volume forecast are prepared. The normal procedure is that this is done annually. Also, the calculation is highly dependent on a number of product registers and that they are continuously maintained. At SKF the cost forecasts are always made per cost element and for each channel, shared operation, extra operation and sub-contracted operation as well as for each service centre and common responsibility centre. SKF divides cost forecasts into three:

- Material cost forecast
- External sub-contracting cost forecast
- Value-added cost forecast

In the Cost Manual (Wedberg, 2001) the principal elements of the standard cost calculation process are specified and the three cost forecasts are included in the principal elements.

- Production volume and trend forecasts
- Available capacity calculation
- Material cost forecast
- External sub-contracting cost forecast
- Value added cost forecast
- Routing
- Bill of material

Even if information in some of the seven elements above is a prerequisite for creation of others the work with preparing these elements to a large extent proceeds in parallels. An example of this can be the volume forecast and the available capacity calculation. These two will have impact on the value-added cost forecast and therefore these two should be prepared at an early stage.

4.8.2 Assigning Cost To Each Products

The cost shall be distributed/allocated to product level when the forecasts have been prepared. This process can be split into two parts:

- Directly related costs; include material costs, external subcontracting costs, and tooling costs
- Distributed costs; include the fixed and variable value added costs in a channel, the set-up costs and the extra operation and sub-contracted operation costs

4.9 Forecasting Principles At SKF

The forecasting principles at SKF are illustrated in Figure 4.6.

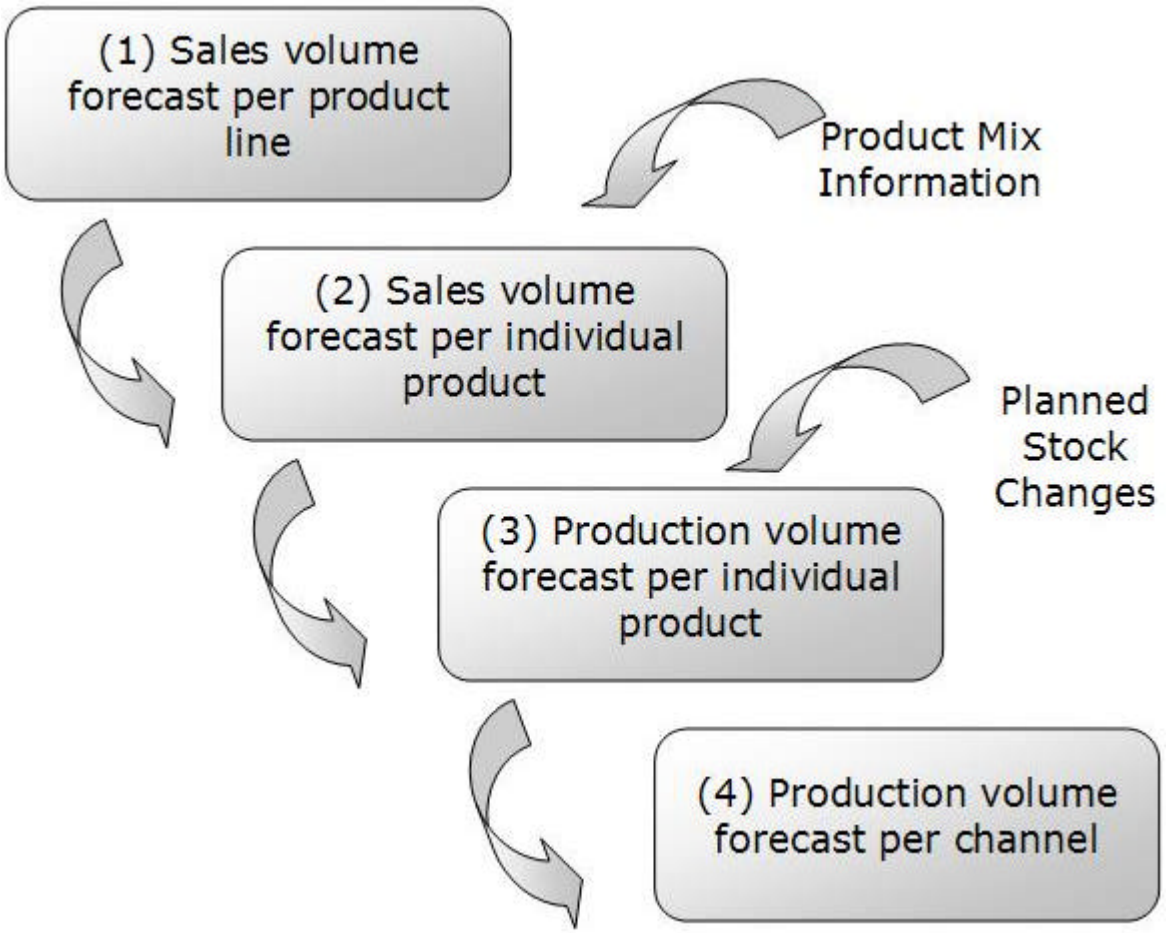


Figure 4.6 – Forecasting Principles At SKF

The forecast of how much to produce the coming period is equal to the forecast of how much one can expect to sell. This sales volume forecast is expressed in a PS figure per product line.

The initial sales volume forecast can be broken down to a PS and quantity forecast per product by applying statistical information on the product mix within each product line. It is the order book that serves as the source for this statistical information.

After this information is broken down, the forecasted sales per product have to be converted into deliveries to finished goods stock, by considering planned stock changes and excluding purchased products. This gives SKF the total production volume forecast per individual product.

The final step includes breaking down this into a production volume per channel. This is done by considering the optimal loading and the homogenous assortment in the production channels. This can of course be a rather complicated process in order to arrive at a satisfactory result from the loading point of view.

SKF distinguishes between two types of sales forecasts: top-down and bottom-up. Top-down is made in PS per product line and involves an analysis of sales in aggregated level and expected developments of macro-economic factors. The top-down analysis is the input or the quarterly capacity bookings of the factories. This is made on a rolling quarterly basis for a forecasting perspective of 4-6 quarters.

4.10 FURTHER GUIDELINES

Besides the manuals, further guidelines regarding how the standard costs shall be used within SKF, were given by Group Finance. The standard cost information is to be used within the following areas:

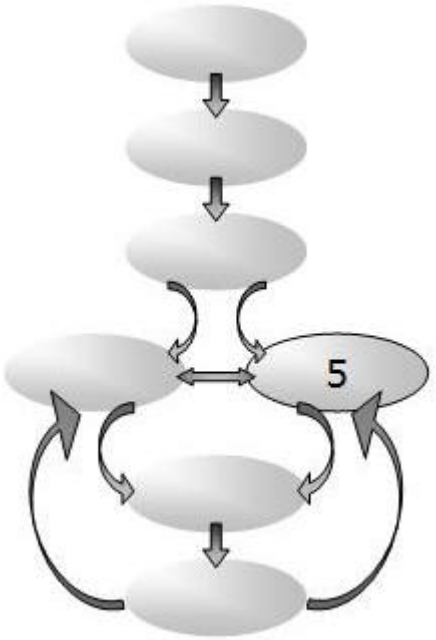
- Product Costing
- Inventory Valuation
- Variance Analysis
- Budgeting

Benchmarking is also regarded as a purpose of standard costing, but this is more a general purpose. Also, the management has issued guidelines regarding the transfer pricing, which in 2003 is not supposed to be based on the standard

costs. Already today the external pricing process should not be based on the standard cost information.

5 ANALYSIS OF USE & OPINIONS

The interviews and the questionnaires conducted at SKF serve as a basis for this chapter. The use of and the opinions about the standard costing system and the guidelines will be dealt with. In order to be able to understand the use of the standard costing system as well as the guidelines, a model for the interviews has been set up. The model will give a structure to the empirical findings so that the research objectives in this thesis can be met.



5.1 INTRODUCTION

In chapter one, 1.5 Key Concepts, SKF's guidelines for the standard costing system are broken down into two – the two manuals and the oral instructions given by Group Finance. This chapter will analyse the two together with the opinions given by the respondents. Figure 5.1 shows the model set up as a guide in order to support the empirical findings. At the first stage, questions are given regarding the guidelines and from the answers it can be seen if the guidelines are used or not, or if they are only used partly. Depending on the answer given, the next move is either step two or step three. Stage two investigates if the guidelines are used as intended and can only come into consideration if the answer is that the guidelines are used to the full extent or partly. By comparing the guidelines with the actual behaviour it can be seen if the guidelines are used as intended. Opinions regarding the guidelines and the standard costing system collected in stage one and two will be gathered into stage three.

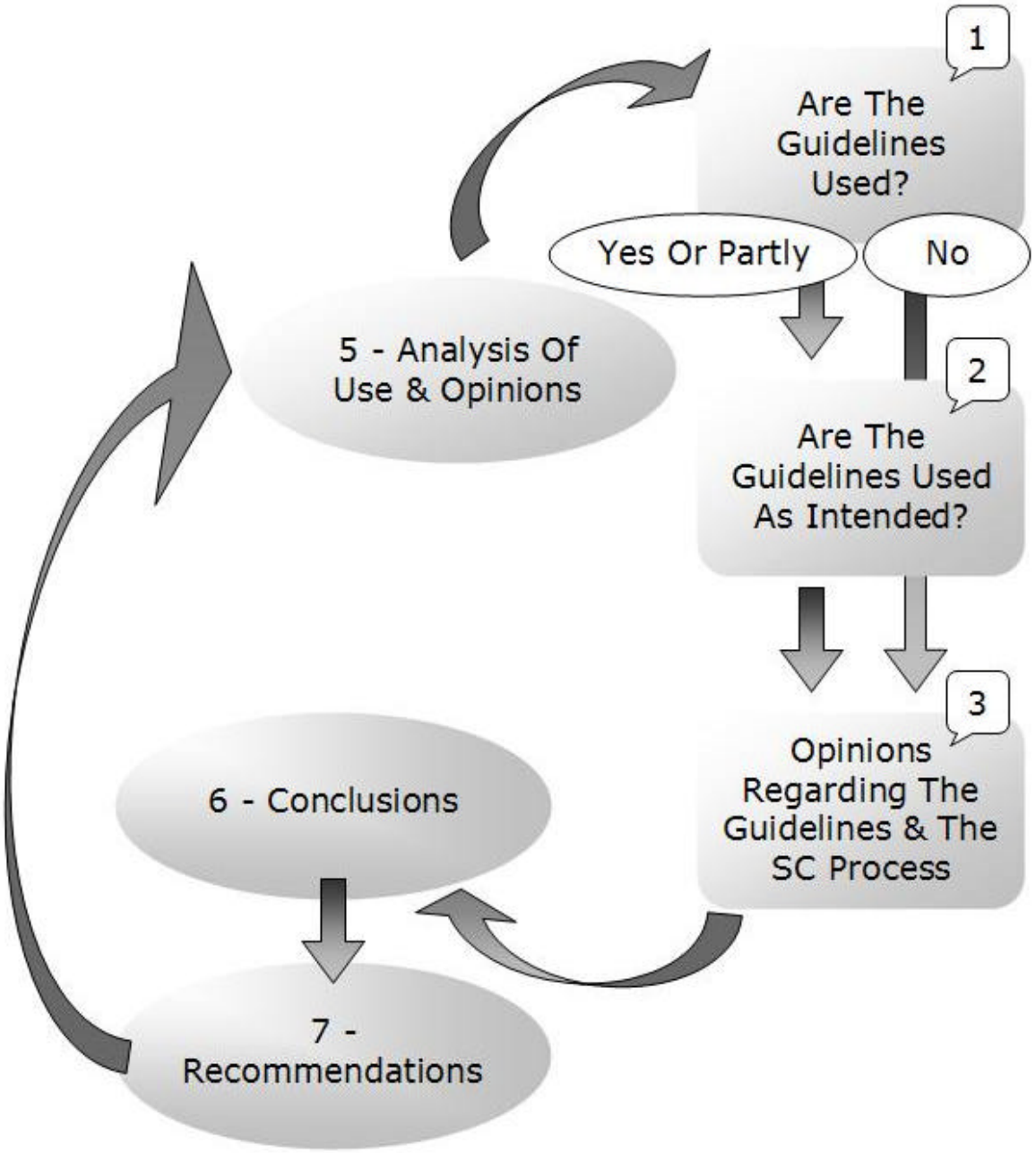


FIGURE 5.1 – MODEL OVER THE ANALYSIS APPROACH

Stage two in the model will be redundant in situations where the answers in stage one indicate that the guidelines are not used. Instead, in these situations opinions from stage one are gathered directly into stage three.

Additional questions, not directly related to the use of the guidelines, were also asked in order to get a better overview of the use of the standard costing system at SKF. These questions will be accounted for in stage three as well.

5.2 Employees Definition Of Standard Costing

In order to see if the guidelines are read and used the respondents were asked to define the concept of standard costing. This question is relevant since the answers indicate if the respondents are working in the same direction or not. Also, it gives an indication if Group Finance has succeeded in communicating their message.

The definition of standard cost in the Cost Manual says that standard cost is "a technique of allocating total production cost in a fair way between individual products" (Wedberg, 2002 p. 43). None of the respondents use exactly that definition when they refer to standard costs. Only one of the respondents referred to the Cost Manual issued. He/She argues that the definition is clearly stated in the manual and that there should be no problems to use it.

Similarities can be seen in the answers, even if the answers collected are just as many as the number of respondents. All respondents refer to a pre-calculated value on the full cost of the products – "standard costs should be as close as possible to what it actually costs to manufacture a product."

All respondents argue that personal judgement naturally occurs at some point in a standard costing process. The respondents in this study are aware of this and consider that the standard cost figure should be as close as possible to the real costs for that particular product. None of the respondents think it is possible to have an exact standard cost calculated.

It can be concluded that there are several definitions circulating in the organisation. The fact that the respondents were chosen from different levels of the organisation might have influenced the definitions. Respondents connected to the manufacturing side tend to define standard cost more as a measuring tool than the finance side do. The argument is that it is something that the channel or the factory can use to measure their performance, both internal in the channel or factory and external against other channels and factories. Standard

costs are used as a form of benchmarking against other factories and to some extent against competitors.

The Cost Manual is complicated and this may influence the fact that the definitions of standard costs at SKF diverge. The people who work with the Cost Manual have space for personal judgements and these judgements do not result in homogeneous ways of working with standard costing.

5.3 The Type Of Standard Used

The guidelines state that currently attainable standard cost should be used within SKF. The respondents were asked if the guidelines were used when it comes to the stated type of standard at SKF. The question is relevant for the same reason as stated when it came to the definition dealt with above. If there are situations where other types of standards are used it is difficult for the organisation to work towards common goals.

All respondents gave a common answer to the question regarding the type of standard. The standard cost for existing products is calculated every year for every single product. At SKF a currently attainable standard cost is used. They are standards, which are difficult, but not impossible to achieve.

According to the model in Figure 5.1, the next step is to examine if the guidelines are used as intended. From the interviews it was stated that if a clear mistake is spotted a recalculation is done even if the guidelines imply that the standard costs should be fixed during one year. However, this is very seldom done according to the respondents. It may happen that new products are entered into the system and then a new standard cost is calculated on these particular products. There are examples where standard costs have to be calculated every week because of the inflow of both new and modified products.

It can be concluded that the guidelines for the type of standard are not used to their full extent. Several respondents suspect that when calculating standard costs it is done by the same old routine. It may be that some employees

calculate the standard cost the way they always have. Hence, to adapt to new guidelines, modifications of the calculation are done in order to get an attainable standard. Also, some of the respondents indicated that when new standards are calculated it is not done from scratch. “Most often the same conditions from the previous autumn are taken into consideration and the same overheads are used. It is more a technical calculation update,” one the respondents says.

5.3.1 SETTING STANDARDS

When it comes to the question about setting standards it is possible to distinguish finance peoples’ view from manufacturing peoples’ view. People from the finance side argue that when new standards are set it is normal procedure to do a full standard cost change. This is done by investigating the operation flows; purchase prices and material usage are deeply examined. According to the guidelines everything should be reviewed and a full cost should be calculated. These are the guidelines. However, people from the manufacturing side say that the normal procedure is to modify historical data. Material changes, labour, and productivity etc. are taken into consideration. One of the respondents from the finance side says that it may vary but it should not be based on historical data plus a percentage. Instead, it is supposed that all the costs believed to occur next year are taken into consideration. The same respondent stressed the importance of updating the technical information as well.

Another respondent looked at it from two different sides. Firstly, the total cost for a channel is calculated. Secondly, total cost is distributed down to the products. The distribution down to product level is based on the operation register including cycle times etc. This controls the relationship between the products.

Calculations of total costs for each channel are prepared on a yearly basis. A business plan is set up, which partly can be compared to a budget. For example when it comes to the over-head budget it are partly based on historical data.

Activities known to occur during the coming year is then added. For example, if it is known that the intention is to go for a general price reduction against the suppliers with one percent, the same percentages must be reduced on material as well. The respondent says, “items such as depreciation and potential investment also has to be taken into consideration when talking about the cost side.” The argument is that working with historical data and do minor adjustments is the easiest approach.

It can be concluded that the guidelines regarding setting standards are not used as intended. People on operational level have their view on how things should work. The reason why the guidelines are overlooked may vary but one major factor is the time aspect. There is simply no time for using the guidelines issued centrally.

5.4 The Principle Purpose Of The Standard Costing System

The next question was about the principle purpose why SKF use a standard costing system. This question is under the category ‘additional questions’ asked in order to get a better overview of the standard costing system at SKF. Hence, the model in Figure 5.1 could not be used, only individual opinions are collected.

All respondents seem to have similar opinions when it comes to the principle purpose. According to the respondents, a standard costing system can make it possible to see the costs connected to a single product. It is also seen as a way to control the cost development in the manufacturing process. One respondent pointed out that, since SKF has so many active products it would be impossible not to have a standard costing system in operation. Another common answer is that a standard costing system gives benchmarking possibilities. One Division Controller mentioned that one of the main purposes with a standard costing system was to be able to compare what the units have said they are going to achieve, with the actual outcome. ”It is a good tool to measure the productivity

during the year," the Division Controller said. It was also added that this does not only apply to the costs, but also to how the hours are used. If you have expensive machines it is crucial to use them right. "It is important that you look at both Cost Level and Machine Utilization". Cost Level for example, is an index that control the variance against actual. In practice this index shall be around 100 over a particular period. "Here it can be seen how important volumes are when talking about standard cost. At a lower volume it is possible to be over 100 in Cost Level and at higher volumes it is possible to end up below index. Volumes have a great impact on standard costs."

Most respondents argued that benchmarking is, if not the foremost, perhaps the second most important purpose. "A standard costing system is a quick instrument for benchmarking when you sit in one factory and want to compare yourselves with others."

Conclusions drawn from asking about the principle purpose may be equivocal. However, it gives an understanding of how employees actually think. It seems like all respondents connect standard costing with benchmarking purposes but the most frequent purpose mentioned by the respondents was to conduct variance analyses.

5.5 Discussion Around The Given Purposes

Having asked about the principle purpose why SKF use a standard costing system the respondents were given the purposes stated under 4.10 Further Guidelines. The questionnaire given to the respondents also had a section related to the purposes of a standard costing system. In the questionnaire the respondents gave different pictures of why standard costs are used at SKF; the only reason stated by everyone was that it makes it possible to conduct variance analyses. Reasons such as work savings and transfer pricing were only stated by 20 percent of the respondents. Figure 5.2 shows a graph over the respondents' answers to the question regarding the purposes for SKF to use standard costs.

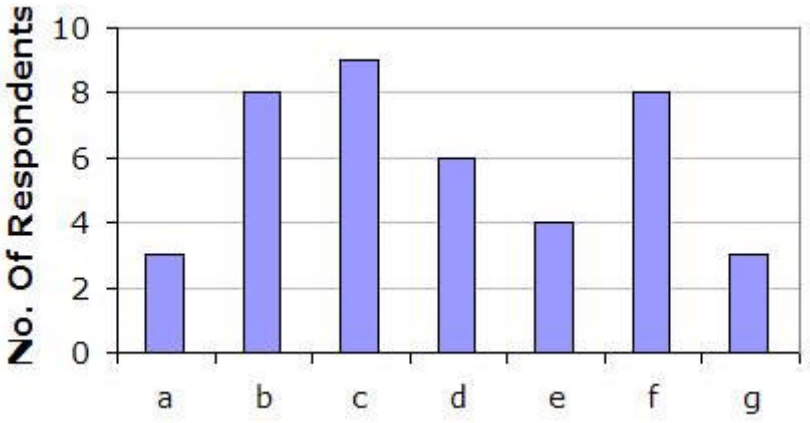


FIGURE 5.2 – PURPOSES TO USE STANDARD COSTS AT SKF

The given purposes in the figure above were:

a) Work savings
b) Homogeneous calculations
c) Variance analysis
d) Product costing
e) Budgeting
f) Inventory valuation
g) Transfer pricing

Additional purposes given by the respondents include input for price setting and profitability analysis. 33 percent of the respondents claimed that standard costs make it possible to do benchmarking activities.

Section 5.4 The Principle Purpose Of The Standard Costing System, gives a hint that benchmarking is an important purpose. However, it can be concluded that only 33 percent, according to additional reasons stated by the respondents, considered it to be a strong reason for using standard costs. It is difficult to see why those two answers do not harmonize more. One important factor may be that in the questionnaire there was more time to think about the answer and seven alternatives were given.

In order to get a deeper discussion of the given purposes in 4.10 Further Guidelines, the question if the guidelines are used were asked. The following five sections deal with each of the purposes stated in 4.10 Further Guidelines and this will be based on the model described in Figure 5.1.

The following questions were asked under each section regarding product costing, budgeting, inventory valuation, and variance analysis. Since there are restrictions on how to use standard cost information in pricing, this area is also included in the four.

- Are the guidelines used?
- Are the guidelines used as intended?
- Does a standard costing system fulfil its purpose?
- What is the foremost advantage/disadvantage?

5.5.1 PRICING

Under 4.10 Further Guidelines it could be seen that restrictions have been issued regarding pricing. Since restrictions have been issued it is interesting to see what the respondents think about pricing based on standard cost information.

The guidelines say that, in transfer pricing, the standard cost today is the base for semi-manufactured products sold between units belonging to the same company within the SKF Group. Other transfer pricing is based on PS. In the future, transfer pricing will not be based on standard cost or PS, instead everything will be based on a market-adapted pricelist. The sales companies have to be willing to pay the factories based on what they think they can get on the market and the factories shall sell to a level on which they can achieve good profitability. The point is that the selling companies shall not be able to know about the exact manufacturing cost, instead the prices will be negotiated. The point is also not to focus on cost plus, but to charge on the basis of what is delivered and on the value given to the customer. In future, transfer pricing shall be bound to the market.

According to the guidelines external pricing should be based on market conditions and not on standard costs. While visiting SKF Svensk Försäljning, a sales company within the SKF Group, it was indicated that the old PS figure was used in pricing. By adding a mark-up to the gross price, based on the PS figure, the sales representatives arrive at the final price towards customers. However, the sales representatives stressed that it is always the sales person who takes the final decision regarding the final price. The respondent at the sales company could point to situations where products might have been sold to a price lower than the manufacturing cost. Situations like this arise when old, not updated, PS figures are used and when customers have advantageous discounts.

It can be seen from the interviews that the guidelines only are used partly. The opinions among the respondents are diverging when it comes to the question about using standard costs in pricing. Some of the respondents believe that it is near impossible not to use standard cost as a base when it comes to pricing while others are very positive towards a new system.

Some respondents have a positive attitude to the new system with market-based prices. They point out the risk of setting incorrect prices when using a cost plus system. There is a risk of selling the products below market price. SKF wants to profile the company as a high quality brand. “This can be compared to the clothing industry, where you can find everything in the range from H&M to Gucci. If SKF is Gucci and they would sell to the price it costs them to manufacture the products they would sell too cheap.” “Without changing the pricing system you miss the point in the process of changeover, which SKF is going through right now where they try to be a more market oriented company, delivering customer value.”

Up to now the transfer prices have been set with a mark-up based on a certain market, country or product. One example is an intersection marginal of 20 percent, which then serves as a base for maybe 300 product numbers that all get a rise of 20 percent. This will be the problem area if the new system with market prices is implemented, some of the respondents pointed out. If a market price is to be set one has to go to each product, which will lead to transfer

pricing of maybe 30,000-40,000 products instead of 500. Some respondents regard the new system as very time and resource consuming and not cost-effective enough. The quality of the prices is also questioned; with more products and many people involved in the price-setting process there is a risk of setting an incorrect price. The respondents also see difficulties in implementing the new pricing system since PS is a very well known and used concept, introduced 30 years ago. It might be difficult to change attitudes and ways of thinking.

One of the respondents on operational level pointed out that the mark-up used today should be negotiable but that this is not working very well since the selling companies tend to be much better negotiators. It is considered as a very time consuming process dealing with 'monopoly' money.

The conclusion is that the greatest advantage with a system based on standard cost, mentioned by almost all the respondents is simplicity and that there is no need for internal discussions. Some of the respondents even consider it necessary to have standard cost as a base for pricing in order to have something to relate to. One disadvantage with the existing system is that a new PS is calculated for new products. This might lead to strange mix-effects. Also, many of the respondents agree that the focus shall be on supporting value-based pricing with as high prices as possible externally but to operate a simpler system internally.

5.5.2 PRODUCT COSTING

From the respondents' comments regarding if the guidelines are used when it comes to product costing, it can be seen that they are used only partly.

Overall the respondents are favourably disposed to standard costs in the context of product costing. Some of them do not see any disadvantages. The concept is apprehended as simple and focused on flows. And it is used a lot. One of the advantages mentioned is that you get a conception of how much it costs to manufacture different products. Even if the prices no longer are supposed to be

based on the standard cost, profitability calculations still have to be made in order to see how profitable it is to sell the products on the market. In order to do this it is important to have the product cost as a base.

SKF has tried some other concepts such as Activity Based Costing and Value Based Costing but the respondents claim that the traditional way with standard costing stand up to the competition of new systems well, since the new systems often are very complicated to carry out. It has also been pointed out that, if not implemented to the full extent, new systems may be difficult to operate.

Not all the respondents are without objections. Some of the respondents pointed out that the process is quite circumstantial and time consuming, and there is a suspicion that employees cheat through the process, not using the guidelines. One suggestion given on how to solve this problem was to reduce the demand of carrying out the process every year to every third year. This would probably lead to a figure more thoroughly calculated. An extension of this suggestion was to do the variable costs every second year and the fixed costs every third year.

If the units do not use the guidelines, for whatever reason, they tend to do a model of their own. In some cases this can be an advantage and in some cases it can be regarded as a disadvantage, according to one of the respondents. “Many units are working with very complicated and theoretical models. Finally they will find themselves in a situation where there are too many parameters to maintain and therefore the quality becomes poor.”

Another objection is that a very large share of the total costs is fixed, not directly related to the output of the channel and that it is too focused on lines, not on batches. The most important thing is considered to be to put as much of the costs as possible down to a level as low as possible in the factories. The allocation bases are also mentioned and the fact that the system would work better if the same kind of allocation bases were used in all factories. Today the factories have created bases of their own which makes it difficult to do benchmarks.

It can be concluded that the guidelines allow much freedom for the units. The lack of uniform guidelines gives divided policies within the organisation. Different allocation bases are used and there will be a point where it will be difficult to interpret the original guidelines.

5.5.3 BUDGETING

Another question is if the guidelines are used in respect of budgeting. At SKF the budgeting work is a process, which follows the business plan; in the business plan a budget is set up which serves as a base for the standard cost.

From the respondents answers it can be seen that the guidelines are used as intended. Historically the budgeting work started in April-May and the standard cost was supposed to be calculated before August. After that the inventory factories calculated their standard cost before October. The input and the prognosis were changed over time. The time plan has changed and the work is now carried out simultaneously. The respondents believe that this is an improvement in the administration.

One of the respondents looks at the standard cost as a measure of reference in the context of budgeting. “Since you no longer look at separate articles the cost model is considered to serve its purpose well.”

From the interviews it can be concluded that the guidelines are used to a large extent. The respondents are satisfied with standard costs as a tool used in budgeting even if they do not seem to regard it as an important part of the budgeting process.

5.5.4 INVENTORY VALUATION

The guidelines are used when it comes to inventory valuation. The present system allows that both standard cost and PS are used in inventory valuation. Sometimes it can diverge by 30 percent between them, which does not make

them comparable. The respondents believe that standard costs better reflect the real costs in the factory than PS. Inventory in the factory is valued at standard cost. Finished goods stock and central warehouse as well as components sold to another legal unit are valued at PS, not changed since 1999. This is not regarded as a big problem among the respondents since the inflation has been very low during these years. The advantage of having a static value to compare with over the years is pointed out. It is important not to have standard cost changes that hide the absolute change but at the same time, a non-changeable base may as well hide real changes that occur over the years.

The respondents regard standard cost as a useful tool for inventory valuation, some of them does only see advantages and no other option. At the same time the importance of calculating variances in order look at real costs, is pointed out by some of the respondents.

5.5.5 VARIANCE ANALYSIS

To the question if the guidelines are used when it comes to variance analysis the respondents gave a uniform answer. Variance analysis is used but is carried out a bit differently depending on the level in the organisation. The next question was if the guidelines are used as intended.

The management carries out follow-ups on Cost Level and Value Added Index for each channel every month. If, for example Cost Level is 108 and they are budgeted to 105 an investigation is started in order too see what went wrong. Firstly material is looked at, and how the prices have developed in relation to the volumes. It is brought up how important it is not only to follow up by the end of the year, but to have some kind of speedometer meanwhile as well. Many different parameters are looked at but it is the final result that is important.

The opinions about variance analysis separate the respondents. In many cases it is regarded to serve its purpose well to connect a variance to a standard cost. Some of the respondents are exclusively positive because it is easy to see what

has happened and to investigate the different parameters. With this information as a base it is easier to ask the unities relevant questions and to set them off in the right direction. What is regarded as most difficult is to mix fixed and variable costs. If the volume is lower than expected, this automatically will lead to variances, because of all the fixed costs bound to the standard cost.

Most of the respondents agree that it seems a bit like a waste of time to spend a lot of time calculating standard costs and then not follow up the results. One of the respondents claimed that variance analysis is a perquisite for a standard costing system. Another of the respondents is not completely satisfied; he/she claims that with the current system it is only possible to see the variances but not to see where they come from. He/She also mentions that most of the time there is not enough time to carry out these analyses in a proper way. A second respondent said that not many people do a variance analysis. From the answers the conclusion can be drawn that variance analysis is more used on management level than on operational level.

It may be considered as unnecessary to register and follow up variances in a manufacturing environment where quality is in focus, since this would result in minimum variances between standards and outcome anyway. The quality of the product is increasing and becomes more smoothed, which in turn will lead to less spoilage, less cassations and less rework etc. All of the respondents stated that a minimum of variances is built-in into the manufacturing philosophy of SKF. As much as 40 percent declared that it is built-in in all respects, while the rest were of the opinion that there was still room for improvement.

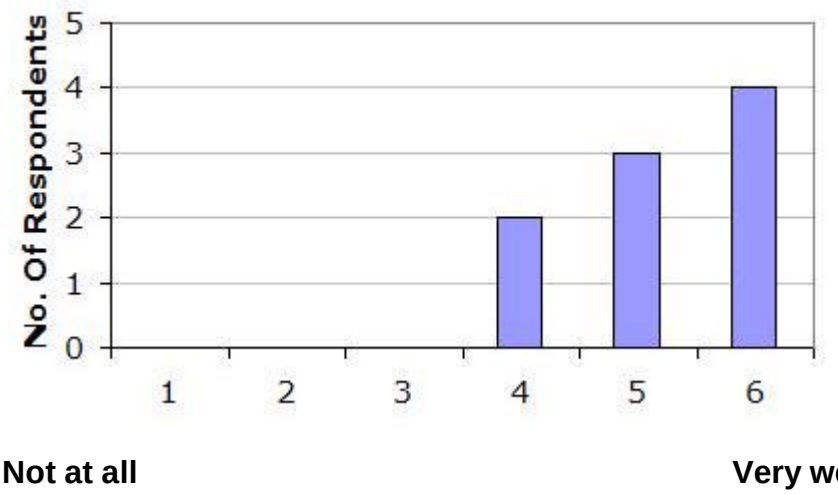


FIGURE 5.3 – TO WHICH EXTENT MINIMUM OF VARIANCES IS BUILT-IN IN THE MANUFACTURING PHILOSOPHY APPLIED

The majority of the respondents were of the opinion that it is less adapted to its purpose to focus on real measures than to register and follow up variances and how they vary between periods under the condition that a minimum of variances is built-in in the manufacturing philosophy. Noteworthy is that only 22 percent answered that it was more adapted to its purpose to focus on actual performance.

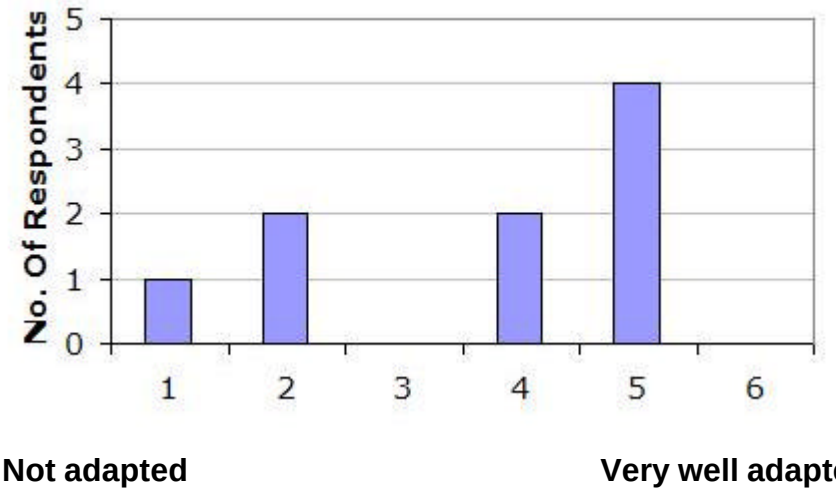


FIGURE 5.4 – REGISTER AND FOLLOW UP VARIANCES VS. REAL MEASURES

To summarize, it is argued that real measures sometimes can be too 'raw' or are left out and therefore some type of standard is needed to improve the analysis. However, real measures and variances do not have to be either or. As one respondent claimed, "If you do not have a basis it is possible to end up in endless discussions about what actually counts". The conclusion is that both actuals and variances are needed; they complement each other. It can be stressed that variance analysis has to be present since it gives an early indication of trends.

5.6 The Cost Manual And The PS Manual

5.6.1 The Extent To Which The Manuals Are Used

In order to further investigate to which extent the guidelines are used, the respondents were asked to state to which degree they think the manual are read and used by the people calculating standard costs. As an additional question they were asked if there are situations at their divisions where the instructions in the cost manual not are applicable.

Many respondents claimed that one major problem is that the manual is not always followed and in many cases not even read: "there are as many ways to calculate standard costs, as there are Controllers." Another major issue is that some people calculate advantageous results; the allocation bases are used incorrectly. In order to protect the production from being moved to other factories with lower standard costs, it is likely that the factories calculate favourable results, according to some respondents. One respondent pointed out the importance of using the same system; it is completely impossible to interpret the figures, especially when it comes to benchmarking, with different systems. There are examples where half of the cost is allocated. This shows the importance of a correct use of the allocation bases. Some respondents pointed out that it is considered easier to use short cuts than to use the guidelines in some cases and that there is a problem with people that have worked with

standard costing systems for a very long time: these people calculate standard costs the way they always have, it is not easy to make them change.

There is an opinion among some of the respondents that there is a disadvantage that the manual is written in English. Even if the SKF Group have English as the Group language it is actually not many that have English as a native language. Also, many people use old manuals, up to ten years old in some cases. Very few people print out the manual from the Intranet. The older generation might have more difficulties to comprehend the possibility a database on Intranet gives. There is a resistance here, some respondents claim: to quote one respondent, "it is presupposed that everyone reads the information since it is part of his or her work. But as long as no one claims that they are not doing their work they will try with old methods as long as they can."

One example of where the manual is used to a very small extent is in Ovako Steel, a part of the Aero and Steel Division. They use a different manual. As a base they have the same manual but some things diverge. They have done things a bit different, for example, interest calculated for costing purposes is not calculated with. The reason for this is that they have currently changed business system and therefore all changes are slowed down. In order to keep on track they have kept the old cost principles, from 1999 in principle.

Conclusions, which can be drawn from the answers, are that the manual is read to a small extent at the divisions and that many employees are calculating the standard costs in the way they always have. It is also clear that the instructions regarding the allocation bases are not defined well enough and as a consequence some factories use this in order to calculate advantageous results.

5.6.2 Actions Taken To Make People Follow The Guidelines

Since the interviews showed that the work with the standard costing system is carried out differently in different parts of the organisation, the respondents at

finance level were asked which actions that are taken in order to get the factories to work according to the guidelines.

The answers showed that the three different divisions, investigated in this study, have chosen to work with the problem in different ways. The normal procedure is reviews at the units. ”Many people probably do not realize that many of the problems that they have, very well can be connected to the standard costs.”

The Industrial Division carries out running report reviews over the year. They travel to the different units, especially to the new units or units that diverge much from the business plan. The exact way to do the reporting is presented. By doing this they believe that the understanding between management and factories is increased. If there are reasons to suspect that the variance is of an unnatural nature, a standard cost review is carried out. This is only done if something seems to be completely wrong. They state that everyone is expected to work according to the manual and that they therefore have tried not to get everyone into the same fold. One of the respondents said that it probably is possible to refine the standard costs but the question is how exact it has to be. “Everything requires work and it depends on where you want to put your efforts. If it is correct up to 95 percent, maybe one should be satisfied with that.”

The Automotive Division is trying to change the behaviour as a continuing process. Generally the guidelines in the manual are easy to use in all parts of the organisation but it is written by people who know what a channel is. If you do not have channels or know what is meant by one it is more difficult to interpret what is in the manual. The Automotive Division pushes for the channel concept and to work according to the manual as much as possible. They are many people trying to get the units in this direction What is considered as most important is that all costs are included in the standard cost, in order to get the total volume correct. Therefore, the Automotive Division has created a system of their own with fixed bases. This system forces each channel to use the same allocation bases. However, one problem is that the system is

created in Microsoft Access, a system that few people are able to work with and understand.

To sum up, it can be said that the management in the different divisions are tackling the problem in different ways. There are also different opinions about how exact the calculation has to be. The Automotive Division is the one that has gone furthest in their efforts to make the standard cost information comparable.

5.6.3 Overall Opinions About The Cost Manual

In order to get the result in step three of the model, Figure 5.1, as close to reality as possible, the respondents were asked about their opinion regarding the Cost Manual.

Most of the respondents stated that the manual is quite easy to follow and that it is relatively general, most of the activities can be fitted into it. Therefore, there are requirements about sections that could be clearer. It is about practical issues, how exactly one should carry out the calculations and more concrete instructions on what should be excluded and included in the calculations. One difficulty mentioned is when it comes to calculating fixed hours. SKF does not have a static assortment – it is constantly changing. Therefore it is considered difficult to find trend prognoses, which can be used to find the fixed hours. It can vary pretty much from year to year. The units are supposed to use a five-year standard cost volume, which might be difficult to find, one respondent pointed out.

The manual allows space for different interpretations. This is what the Automotive Division has been working with, in order to work through interpretations and in order to standardize them again. A lot has happened since the cost manual was written and it is of great importance that the manual is reflecting changes and that they are applicable in the new world that we have, the respondents say. “The calculation in itself is not standardized therefore it is just a standard ‘halfway’.”

Many of the respondents pointed out the fact that the manual is written only from a channel concept perspective. This creates difficulties in units where batch operations are in use. If there are no channels it is difficult to adopt the concept of bottlenecks. The factories are at very different stages. “It is more or less fitted for different operations; it does not fit us as a hand in the glove.”

Clear is that the respondents want more detailed instructions on how to deal with different situations. In many cases the manual is not applicable and there is a lack of guidelines. The manual is written from a channel perspective but many parts of the organisation have not reached that far yet. The respondents are of the opinion that difficulties are created when rules applicable at a channel organisation have to be transformed in order to fit into other situations.

5.7 Adjustments To New Conditions

In order to map out the manufacturing conditions at SKF and the usefulness of operating a standard costing system given these conditions, the questionnaire contained parts dealing with the issue. The answers will be accounted for in two parts concerning quality and customer adapted solutions. These sections are not fitted into step one and two of the model but are necessary in order to carry out a relevant analysis.

5.7.1 Quality

At the SKF Intranet the importance of quality is clearly pointed out – Aim for total quality in everything we do.

The follow up system for quality at SKF is separated from the standard costing system but there are some standards for quality as well, just a few parameters measuring quality in the reports. “Standard costing has nothing to do with quality,” one of the respondents claimed.

As described in the theoretical framework it is natural for a person responsible for purchases to strive for as advantageous prices as possible. In a situation like that it might be easy to jeopardize with quality requirements in order to achieve positive variances but, low quality of purchased material might lead to higher costs for waste, cassations and rework. Of the respondents only 11 percent believed that this was a risk while the others were fully convinced that no conflict between standards and quality exists at SKF.

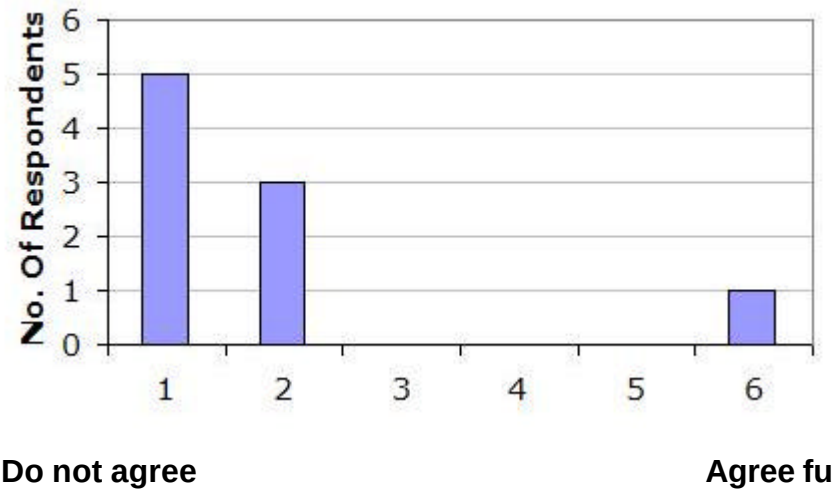


FIGURE 5.5 – CONFLICT BETWEEN STANDARDS AND QUALITY

The respondents were also asked if they considered it as a risk that no further incitements to further improvements exist after the goals have been reached. The answers varied over the scale but the majority of the respondents considered the risk as low. One respondent said that it all depends on how you work with standards. All divisions studied, work with 'continuously improvements', but standards are only used as a reference, and not as a 'goal'. Improvements are usually measured by actual performance.

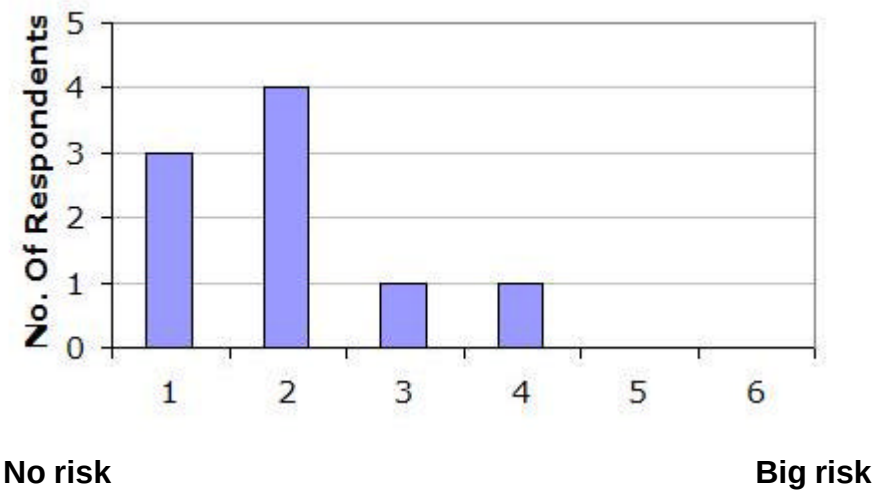


FIGURE 5.6 – RISK THAT NO FURTHER INCITEMENTS EXIST TO FURTHER IMPROVEMENTS

The answers show that the company has a program for continuous improvement but that it is not an integral part of the standard costing system. The respondents also believed that the work with standards is not in conflict with the company's aim for high quality.

5.7.2 CUSTOMER-ADAPTED PRODUCTS

The respondents were asked to which extent SKF work with customer-adapted solutions and how they considered it to affect the standard costing system.

SKF sells more and more services and customer-adapted products, one sign of this is that 89 percent of the respondents stated that their product lifecycle has shortened during the last decade. However, according to the respondents, the system is not changed in order to support this. The system is built in a way so that a new standard cost has to be calculated, even if there is just a minor change. The respondents pointed out the issue, which is that if only one or two bearings are manufactured, the cost will be very high. In line with the system a standard cost, which sends a PS, has to be calculated and reported. Some of the respondents are of the opinion that this is slowing down new products and/or

solutions going into the system. The systems are adjusted to large volumes. In the sense of services it is very complex. One respondent does not consider it to pay off to calculate standard costs when it has to be done on every occasion.

Another respondent, however, considers it necessary to calculate standards even if it is just about one or two products, but there is a lack of guidelines on how to treat these kinds of occurrences. "We have to learn how to handle it and to create fictive operations and cost rates." There is also no real system supporting service nor other 'soft' values of the products. One of the respondents described it as if they are grouping their way.

All of the divisions examined are working with customer-adapted solutions and clear was that it was considered complicated to interpret variances during these conditions.

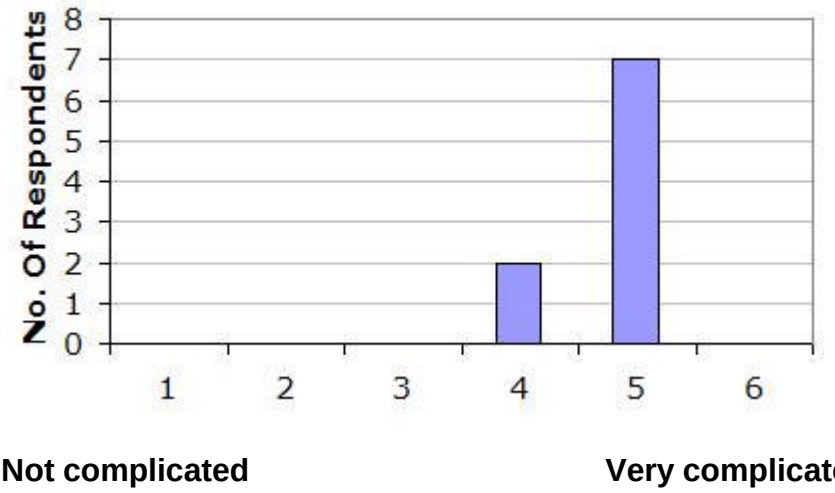


FIGURE 5.7 – THE DEGREE OF DIFFICULTY TO INTERPRET VARIANCES WORKING WITH CUSTOMER-ADAPTED SOLUTIONS

Most of the respondents were of the opinion that the benefits outweigh the cost for developing standards, even if the trend goes towards customized solutions.

To conclude, the trend is towards a production with customized products. This makes it more difficult to work with standards but the respondents agree that

the benefits still outweigh the costs. Among the respondents there is a demand for a system more supportive of 'soft' values (such as service etc.) and guidelines regarding the new situations arising.

5.7.3 THE RESPONDENTS' SUGGESTIONS

During the interviews there was room for the respondents to come up with suggestions on solutions for the problems they mentioned. In this part these suggestions will be accounted for. However, this part is not included in the model but the section is regarded as informative for our employer. All opinions expressed are the respondents'.

One suggestion given was that there are room for simplifications on the product side. It is considered to be good but complicated and there is little at the service side today, a system has to be built up there. The aim should be to get the information out to as many as possible, in order to make people aware of how they are supposed to work. "Today people do not aim at doing a standard cost that is as good as possible but at doing it as fast and smoothly as possible." The respondent considers it to be important to communicate the benefits with the system. As long as there are objections in the organisation the purpose is not 100 percent. ABC has been tried in two different places, which can be interpreted as a sign that the standard cost is not regarded as complete. It then has to be investigated if standard costs are used in a proper way. If they are, but the results still are not satisfying, ex post calculations do not turn out as expected, there is a need for something else, the respondent argues. As long as there are people wanting something else the system is not best, but it can still be good.

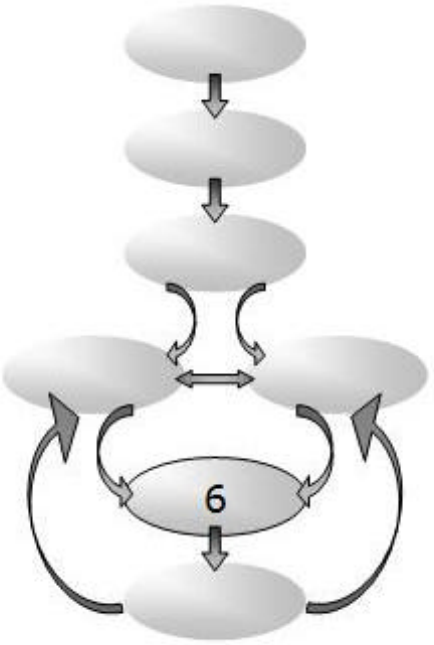
Another suggestion given by respondents is that new products and new solutions must be integrated with the system in an easier way. Maybe there is possible to find a 'VIP lane' or a 'standard cost light', one respondent suggested. For the products produced in long bathes maybe one should try to find simpler calculations.

Ovako Steel wants a totally different system. They advocate a model with a genuine manufacturing cost and then another dimension with distribution costs, where storage and transportation is included. Thirdly, they advocate a dimension with customer costs. This system, the respondent claims, makes it easier to get a full cost calculation, both from the product's and from the customer's point of view. In the extension profitability analyses are easier carried out. According to the respondent it is wrong to make it routine to put everything on the product, as is done in the cost manual.

According to the respondents on operational level, the system handling the product register, the computerized system, is unwieldy. It is time consuming to update and every update might have impact on other systems as well. Critique against it is that a lot of new measuring tools are integrated in it while old data is not removed. The lists for the channels are supposed to be updated but this is not accomplished as it should since the system is not supporting it well enough. The risk is that a lot of time is spent on analyses, but if the base data is not good enough the analyses will not turn out correct either. This is to a large extent depending on the channel manager, channel technician and the production manager. Everything is depending on quality and the system is of a very complex character, supporting not only the standard costing process but also purchase and logistics. Very few people know about the whole picture, one respondent pointed out. There is also a great amount of old products left in the system, which results in difficulties when taking out lists to work with. One request among the respondents is a system where it is possible to select the lists in a better way and a system where it is possible to take out Excel files to work with. Another suggestion is a system where it is possible to update a whole material family.

6 CONCLUSIONS

In chapter five the use and opinions regarding the standard costing system at SKF were analysed. This chapter provides comments regarding the standard costing system in a broader perspective and concludes the results of this thesis. The aspects considered as most important are brought up.



6.1 INTRODUCTION

Overall, the standard costing system is very well established throughout the organisation. Everyone is familiar with the system and it has been accepted as a satisfying system. Employees can recognise the concept from other companies. This is of course an advantage of the system – its simplicity and the possibility for employees to recognise it. At the same time this can be a disadvantage since it easily happens that no attempts to improve the system are made. With no further attempts to improve an existing system it tends to 'disappear' and its main purpose may become different from what it used to be.

The research objectives in this study are to examine the use and the relevance of the standard costing system used at SKF. Both the research objectives will be tied up in this chapter. The third research objective, to provide recommendations on how the standard costing system at SKF can be improved in order to increase its relevance will be dealt with in chapter 7.

6.2 The Purpose Of The Standard Costing System

From the research conducted in this study it can be seen that the divisions over all use the guidelines issued. In total, it is relevant to operate a standard costing system; the research has showed that the employees are satisfied with the system over all. When it comes to budgeting and inventory valuation it can be concluded that standard costs are used to a satisfying extent. Standard costs are useful in both these areas and there is no other option according to the respondents.

However, there are indications that some parts of the system are not used to a satisfying extent. In areas such as product costing and variance analysis, the standard costing system is not supportive enough. From the study it can be concluded that the system is circumstantial in some cases and hence time-consuming. As a consequence, some units have developed systems of their own. Going back to the guidelines, it can be concluded that they are loose which decreases the relevance of the standard costing system. The guidelines allow much freedom and opportunities to use different allocation bases. The variance analysis is regarded, by some respondents, as crucial in a standard costing system while other respondents claim that they do not have time enough to conduct variance analyses. One reason for the fact that variance analysis is used differently among the users may be the fact that a minimum of variances to some extent is built-in into the manufacturing philosophy. The relevance of conducting variance analyses under these conditions has to be questioned, especially considering how time-consuming it is.

6.2.1 PRICING

The guidelines regarding pricing are under reconstruction. The 'AgreeIP' and the 'ExitPS' projects aim at agreeing on new principles for transfer pricing negotiations as well as finding alternatives to PS in pricing. Because of the plans regarding a change in the transfer pricing system as well as the change already carried out regarding external pricing, this issue will be treated separately.

According to the guidelines, external pricing should not be based on PS but visiting the Sales Department it is obvious that it does, at least at some stage of the pricing process. The Sales Representatives do not change the way they calculate prices towards the end customer as long as the information is in their computers. Also, changing the way external prices are arrived at will take time. But to continue with a cost plus system is not in line with SKF's attempt to be a brand of 'Gucci' character.

As of December 2003, PS will no longer be the base for transfer pricing. In order to make this work there is a need to get more support from all parts of the organisation and to anchor the decision. The situation of today shows that there are a lot of different opinions in the organisation. The necessity for changing the transfer pricing system is not communicated well enough. The relevance of using PS as a base for transfer pricing is undermined by the fact that the figures in some cases are frozen and in some cases continuously updated. One problem of market based transfer prices is that it is very time-consuming and that the sales organisations often are better negotiators than the factories.

6.3 THE MANUALS

When it comes to the use of manuals, it is obvious that they are not frequently read. Many respondents in this study refer to the fact that the standard cost is a tool for the controllers, but the controllers do not read the manual frequently either. Not one of the respondents has stated that they have read the Cost

Manual recently. It seems like the Business Plan concept used in the organisation is more widely used.

The respondents consider the manual to be too complicated in some cases. There is a resistance in the organisation to follow the guidelines in the manual to full extent. Many employees calculate the standard cost the way they always have. In some cases there are even signs that allocation bases are used differently in order to calculate advantageous results. The reason for this seems to be the fear that the production might be moved to another factory if the standard cost is too high.

Standard costs are used within SKF as benchmarks. In order to use figures as benchmarks they have to be calculated in the same way. The study shows that the divisions calculate standard costs in different ways. Even within the divisions, the factories use different allocation bases since the manuals are not detailed enough.

One reason for the fact that the different controllers calculate standard costs in different ways is that the Cost Manual does not serve as support in many cases. The Cost Manual is focused on flows and the channel concept; the controllers operating under other conditions have to make up own ways of calculating in order to make the rules applicable to their conditions. At the same time the use of allocation bases is not defined strictly enough, which results in the situation where different allocation bases, in some cases, are used for wrong reasons. The importance of having a manual can be questioned when the guidelines are not used.

6.4 THE OPERATIONAL SYSTEM

One obstacle in the standard costing system is the maintenance issue. The system is very time-consuming to update. When clear mistakes are spotted it is a major procedure to make corrections in the system. As a result the quality of the input in the standard costing system might be low in many cases. There is simply disbelief against the figures in the system. If input is of low quality, so

will the output. In an organisation like SKF, where the standard cost is an integral part of the business system it is regarded as important to have an accurate standard cost. If not, all possible miscalculations may lead to faults in other parts of the business system. Also, the interviews carried out in this study show that a lot of work is spent on analyses and follow-ups. In order for them to be correct the basic data has to be acceptable. The standard costing system is considered to be an important part of the business system. In order to get the input information of the system as accurate as possible it is important to have an operating system easy to update.

6.5 Further Conclusions

One further conclusion of this study is that there is a noticeable communication problem at SKF. Recently a Standard Cost Board has been set up, which indicates that improvements in communication will occur. As of today, the purpose of the standard costing system at SKF is not clearly communicated to every part of the organisation. The standard cost is regarded to be the controlers' tool and not everybody realises the importance of a correct and comparable figure. With incorrect figures the use of it will become very limited.

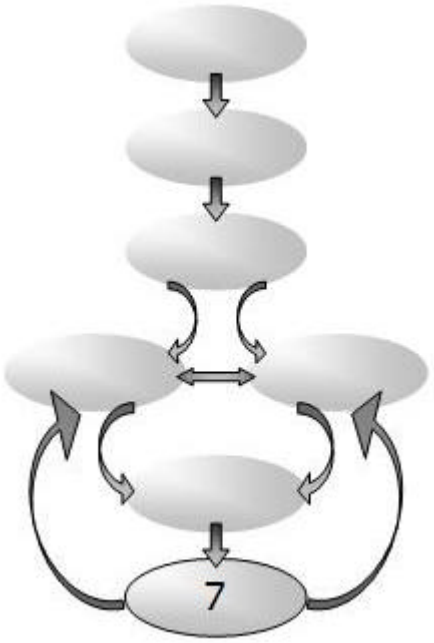
SKF's production is in many ways customized and focused on quality. The system does not support services and production of few and customized products. In this sense the standard cost is only 'half way', also pointed out by one of the respondents. In line with the system it is necessary to calculate a standard cost for each type of product produced.

6.6 SUMMARY

The purpose of this study was partly to examine the use and the relevance of the standard costing system used at SKF. In sum, the study shows that the standard costing system is widely used and that the system is perceived as relevant. However, some areas for improvement of the standard costing system were identified. These areas have to be reviewed and enhanced, not until then can all users benefit from the standard costing system to a full extent.

7 RECOMMENDATIONS

Based on the findings in previous chapters, this final chapter provides recommendations on how the standard costing system can be improved in order to increase its relevance at SKF.



7.1 THE GUIDELINES

Reading the manuals it is difficult to understand what is really described in many of the sections. The respondents gave similar comments. A manual should be a book that is conveniently handled – an instruction on how to deal with a situation. But, the Cost Manual is too complicated to be easily handled. It is difficult to sort out important guidelines from general information. Also, many of the conceptions are described using different words, which makes it difficult for the users to know what is actually meant. One clear example is 5.0 Cost Distribution & Allocation Principles in the Cost Manual, where the word 'distribution' is used in two different senses on the same page.

Other shortcomings of the Cost Manual are that there are misspellings and a lot of different Swedish words directly translated into English, instead of into correct English. Examples of this are allocation key, which should be named allocation base, and cost carriers, which should be cost objects instead. Different use of conceptions in combination with an incorrect use of English

makes it difficult for the users, especially the foreign users, to sort out confusions without addressing direct questions in situations of obscurity.

To increase the relevance of the existing standard costing system it is recommended to give more exact instructions on how to calculate in different situations, less options is probably a part of the solution Also, let an extra person go through the manual thoroughly, and make corrections both in structure and in choice of words. In order to have a handbook or manual that is conveniently handled it is of importance that the language is correct. Also, all definitions, which the Cost Manual is built upon, must be clarified. Today, the Cost Manual can be interpreted differently because of different definitions used for the same purpose.

In the Cost Manual all conceptions must be standardized. It is recommended that more extensive rules are issued on how to act in different situations, even if the factories are not “channelized”, in all aspects. There is also a lack of guidelines regarding ‘soft’ values, i.e. service etc. This ought to be corrected since the standard cost is supposed to reflect the full cost of the product, and SKF is increasing its share of customized products.

Overall, it is recommended to work for a more homogeneous use of the allocation bases. One suggestion is to evaluate the new system developed at the Automotive Division. If it turns out well, it should be implemented and used in all divisions. It is vital that such an implementation is carried out in co-operation over the divisions and that it is well anchored throughout the organisation. Otherwise, some parts of the organisation will be concealed and significant opinions and suggestions might be lost.

7.2 Communication Of The Guidelines

Group Finance has to communicate the importance of a correctly operated standard costing system to every level of the organisation. The study shows that many people do not realize that many of the problems they have, very well may be connected to the standard cost. It is of great importance to try to bridge over

the mental boundaries between the divisions in order to create an open communication. With the aim of making all employees work in the same direction this is probably necessary. The message of how important it is that standard costs are calculated in a homogenous way in the organisation has to be clearly communicated. Well-communicated guidelines will lead to high quality standard cost information, which in turn means that the decision making process becomes more accurate and more useful.

It is also important to communicate that variances can be of both favourable and unfavourable nature and to inform about its implications. Even if there is no indication that managers have been 'hanged' at SKF when variances are unfavourable, standards should identify above average performance for the purpose of rewarding it. It is therefore important to communicate that above average performance does not necessarily mean high 'favourable' variances. If variances are consistently large, favourable or unfavourable, it can be an indication the standard costs have been set incorrectly.

7.3 Suggestions For Future Research

While conducting this study we found many interesting areas to investigate further. In this section suggestions for future research will be given in order to encourage future researchers to make enquiries on the subject.

Future research could focus on the usefulness of standard costing systems in high-tech companies and on the relevance of the critique levelled against standard costing in today's business environment.

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APPENDIX I

INTERVIEW QUESTIONS – TRANSLATED FROM SWEDISH

1. How would you define Standard cost?

2. What kind of standards is used within your division?

In the literature three types of standards are mentioned:

- Basic costs standards
Normal disturbances are accounted for- such as reparations, defect material etc. It is as possible to get positive as negative variances.

- Ideal standards
Perfect manufacturing conditions and maximum performance are prerequisite.

- Currently attainable standards
Is kept over the years, without changes.

3. Which method is used in order to set the standards at your division?

- Past historical records
- Engineering studies
- A combination of the two
- Comparisons, how do others within the company do (similar production)?

4. What do you consider as the most important purpose of the SKF standard costing system?

Five frequent purposes mentioned in the literature are:

4a. Transfer pricing
- How do you consider a standard costing system is fulfilling its purpose regarding internal pricing?
- How is standard costs used within internal pricing?
- What do you regard as the most prominent advantage/ disadvantage?

4b. Product calculation
- How do you consider a standard costing system is fulfilling its purpose regarding product calculation?
- How is standard costs used within product calculation?
- What do you regard as the most prominent advantage/ disadvantage?

4c. Budgeting
- How do you consider a standard costing system is fulfilling its purpose regarding budgeting
- How is standard costs used within budgeting?
- What do you regard as the most prominent advantage/ disadvantage?

4d. Stock valuation
- How do you consider a standard costing system is fulfilling its purpose regarding stock valuation?
- How is standard costs used within stock valuation?
- What do you regard as the most prominent advantage/ disadvantage?

4e. Variance analysis
- How do you consider a standard costing system is fulfilling its purpose regarding variance analysis?
- How is standard costs used within variance analysis?
- What do you regard as the most prominent advantage/ disadvantage?

5. According to Cost Manual 2002/ Standard Cost Calculation, standard costs are used for performance measurement. Please describe how the process is carried out within this division and what actually is measured.

6. The guiding lined described in the manual can/must be difficult to follow. Are there situations where you have to deviate from these guiding lines because of special conditions within Your division. If that is the case, how do you handle these kinds of situations? Are you consistent?

7. How often are the standard costs revised?

8. One of the driving forces is quality (‘Aim for total quality in everything we do’), what do you do in order to make standards in line with SKF’s high quality goals?

9. How has the just-in-time philosophy and total solutions for individual customers affected SKF’s work with standards?

10. How are standard costs completed in order to reflect strategic and non-financial goals (wastage/cassation, lead-time, working time, adjustment time, stock level etc)?

11. Regarding the standard costing system as a whole, do you have anything you would like to add? Is it something, which you are particularly satisfied/dissatisfied with?

APPENDIX II

QUESTIONNAIRE – TRANSLATION FROM SWEDISH

School of Economics
and Commercial Law
GÖTEBORG UNIVERSITY

Graduate Business School
Accounting and Finance

QUESTIONNAIRE

Master Thesis: Standard Costing System at SKF

Please send back as soon as possible by internal mail to:

Group Finance
Group Accounting and Reporting
HK 3-13
Att: Morelli/Wiberg
C/o Inger Wedberg

Name: _____

Position: _____

Our notes:

1.

State the reason/reasons for why you use standard costs. (More than one alternative can be ticked)

They imply work related savings ☐

They make the calculations more homogeneous ☐

Variance analysis ☐

Product costing ☐

Budgeting ☐

Inventory valuation ☐

Transfer pricing ☐

Other reasons: _____

_____

_____

2.

According to some critics in the literature, it is unnecessary to register and follow up variances in a manufacturing environment where quality is in focus, since this would result in minimum variances between standards and outcome anyway. The quality of the product is increasing and becomes more smoothed, which in turn will lead to less spoilage, less cassations and less rework etc.

How well do you consider the following statement to correspond with the situation at your division?

Striving for a minimum of variances is built-in in the manufacturing philosophy applied.

	1	2	3	4	5	6	
Not at all	☐	☐	☐	☐	☐	☐	Very well

How well adapted to its purpose is it to register and follow up variances instead of focusing on actuals and how they vary between periods?

	1	2	3	4	5	6	
Not adapted to its purpose	☐	☐	☐	☐	☐	☐	Very well adapted to its purpose

Write a short motivation to your answer:

_____

_____

_____

3.

For a person responsible for purchases it is natural to strive for as advantageous prices as possible. In a situation like that it might be easy to temporise with quality requirements in order to achieve positive variances, but low quality of purchased material might lead to higher costs for waste, cassations and rework.

What is your opinion about the possibility that price standards might be in conflict with SKF's striving for total quality?

	1	2	3	4	5	6	
Do not agree	☐	☐	☐	☐	☐	☐	Agree fully

4.

Standards can be considered as a goal, which should be reached and/or maintained. Is there a risk, when the goal finally is reached, that no additional incentives for further improvement is left?

	1	2	3	4	5	6	
No risk	☐	☐	☐	☐	☐	☐	Major risk

Write a short motivation to your answer:

_____

_____

_____

5.

SKF is developing products, systems and services in order to be able to offer the customers optimal solutions. Every other day SKF registers a new patent. The complexity in a manufacturing system like that might be considered to increase when there is a large amount of products, batch sizes is short, many manufacturing moments is necessary and when many components are integrated in the products.

What is your opinion about the work of cultivating and interpreting variances in a manufacturing environment like this?

	1	2	3	4	5	6	
Not complicated	☐	☐	☐	☐	☐	☐	Very complicated

Write shortly about what is more, respectively less complicated regarding cultivation and interpreting of variances in a manufacturing environment like this.

6.

According to some critics the share of manufacture related direct labour costs of total manufacture cost decreases the more complicated the manufacturing conditions are. The employees are to a larger extent working with supporting activities rather than directly with the product. This in turn results in that a larger share of the costs is considered as fixed.

Approximately, how large share of the labour costs within your division can be considered as fixed?

	1	2	3	4	5	6	
A very small share	☐	☐	☐	☐	☐	☐	A large share

To how large extent do you consider these conditions to speak against the work with labour standards at SKF?

	1	2	3	4	5	6	
Not at all	☐	☐	☐	☐	☐	☐	To a large extent

7.

During the last 90 years SKF technically has been the leading company of its line of business, from the first self adjusting spherical ball bearing 1907, to CARB® and now further to Explorer. The more complicated the manufacturing conditions get, the higher the share of fixed costs will be. This in turn will decrease the possibility of influencing the costs in the short run.

Approximately, how large share of the costs of your division is depending on manufactured volume?

	1	2	3	4	5	6	
Very small share	☐	☐	☐	☐	☐	☐	Very large share

How relevant is it to strive for control devices according to the traditional thinking about how costs are depending on volume?

	1	2	3	4	5	6	
Not relevant at all	☐	☐	☐	☐	☐	☐	Very relevant

How appropriate is it to put greater weight on the underlying factors, which in the longer run determines the costs, so called drivers (cost- resource and activity drivers)?

	1	2	3	4	5	6	
Not at all appropriate	☐	☐	☐	☐	☐	☐	Very appropriate

8.

SKF is offering customers optimal solutions, a clear tendency of customisation. This will result in more differentiated and customized products.

Approximately, to how large extent is your division working with customized product solutions?

	1	2	3	4	5	6	
To a very small extent	☐	☐	☐	☐	☐	☐	To a very large extent

Has the length of the life cycle of your products shortened during the last decade?

Yes	No
☐	☐

If yes, to which extent?

	1	2	3	4	5	6	
To a very small extent	☐	☐	☐	☐	☐	☐	To a very large extent

To how large extent do the benefits outweigh the costs for developing standards in an environment where the trend goes towards customized solutions?

	1	2	3	4	5	6	
To a very small extent	☐	☐	☐	☐	☐	☐	To a very large extent

9.

SKF has been the price leader in its area, but competition like quality, short manufacturing cycles, fast deliveries and fast adjustments of machinery has grown in importance. It is no longer only the price that counts.

Approximately, to how large extent has your division completed the old standard costing system with the purpose of supporting the new strategic direction of the company?

	1	2	3	4	5	6	
To a very small extent	☐	☐	☐	☐	☐	☐	To a very large extent

Please give examples of such changes:

_____

_____

_____

How well do you consider it to serve its purpose to work with variance analysis during such a development?

	1	2	3	4	5	6	
Does not serve the purpose at all	☐	☐	☐	☐	☐	☐	Serves the purpose very well

10.

Do you have additional standpoints regarding the standard costing system at SKF? We would be grateful to hear your opinion. (If you need more space, use the back of the page)

Thank you for answering this questionnaire!