

EVALUATION OF THE BALANCED SCORECARD SYSTEM WITHIN A STEEL ORGANISATION IN SOUTH AFRICA

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ABSTRACT

EVALUATION OF THE BALANCED SCORECARD SYSTEM WITHIN A STEEL ORGANISATION

Performance management has become vital in any organisation in order to ensure a competitive advantage for organisations in the ever changing environment. The Balanced Scorecard (BSC) system, used as a performance management and a performance measurement tool, will ensure that organisational goals and strategic targets are achieved if it is implemented and applied effectively. The BSC system is a management tool that can be used to transform strategy into action. The use of the BSC system was seen as a problem as used within ArcelorMittal South Africa (AMSA). This paper includes a literature study on the BSC system as well as an empirical study regarding the application of the BSC system in a steel organisation.

Literature on the BSC advises that the objectives, measurements and targets should be aligned with the organisation's strategy and vision to ensure improved long-term performance. In order to ensure alignment to all levels in the organisation the top level scorecard needs to be cascaded to lower levels to ensure that the right strategic goals are followed. The BSC system has a high number of benefits when implemented and applied effectively.

An empirical study done at ArcelorMittal's Rolling department on people in different divisions, people on different job levels, people in different age groups and people with different years of service, indicated more or less the same average responses on specific BSC related issues. In general, it was concluded that the BSC is not effectively applied within Rolling, mainly because of communication issues, a forced distribution approach by senior management, and compensation linked to performance discrepancies. Although the average ratings on BSC related questions came out on fairly average ratings, the majority of people indicated, that the BSC system is not transparent enough, nor is it applied effectively. Various specific conclusions and recommendations were made in order to identify and improve the progression of the BSC system at Rolling going forward.

Key words: Performance measurement, performance management, scorecard, strategy, cascading.

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ABBREVIATIONS

BSC	= Balanced Scorecard
AMSA	= ArcelorMittal South Africa
PBSC	= Personnel Balanced Scorecard
OBSC	= Organisational Balanced Scorecard
SMART	= Specific, Measurable, Attainable and Time-bound
KPI	= Key Performance Indicator
KPD	= Key Performance Driver
HR	= Human Resources
SBU	= Strategic Business Unit
ROI	= Return on Investment
EVA	= Economic Value Added
IT	= Information Technology
QM	= Quality Management
BU	= Business Unit
E Roles	= Managers, Senior Engineers or Senior Technologists
F Roles	= Engineers and Technologists
G Roles	= Technicians and Superintendents

CHAPTER 1

NATURE AND SCOPE OF THE STUDY

1.1 INTRODUCTION

Ironically, the only constant in today's organisations, is change. Today's organisations need to be both strategically and operationally excellent in order for these to survive and meet tomorrow's challenges. Venter (2004:42) states that the required balance between strategy and operations is achieved by the help of a Balanced Scorecard (BSC). Performance measurement and organisational performance are critical in today's economic conditions in order to create a competitive advantage. These performances can be measured by various systems of which the BSC is one of the most popular. The BSC system was developed by Kaplan and Norton in 1990 (Niven, 2005b:23). The BSC is a performance measurement system that can channel energies, abilities and specific knowledge towards achieving long-term strategic goals. This system can be used to guide current performance and target future performance. The BSC translates strategy into action. It is a comprehensive performance measurement system that helps to shift executives away from their habitual short-term focus. The BSC helps senior management to communicate their vision for change while empowering business divisions and employees to devise new ways of completing day-to-day activities while achieving the organisation's strategic objectives (Leauby & Wentzel, 2002:29). The four category measurements or perspectives used in the BSC include financial performance, customer knowledge, internal business processes, and learning and growth. The BSC has evolved into an all-encompassing strategic and control system (Bible, Kerr & Zanini, 2006:18).

The steel organisation, ArcelorMittal South Africa (AMSA), has been using the BSC system for the past eight years. People's perceptions about the BSC are very negative and they feel that compensation is not done in line with BSC performance. Most people in the organisation are very negative about this system because they do not see the benefits of the system as intended for by management. They are of the opinion that the BSC is not a fair measurement tool and that time is wasted by designing individual BSCs. In order to apply the BSC system effectively, employees need to understand the use of the BSC and its benefits to ensure they meet all customer and shareholder objectives.

The BSC was chosen as a topic and a tool to evaluate the current BSC system as applied in the Rolling department of AMSA, and to identify ways of improvement to gain more benefits for the organisation and its employees. A great deal of time and effort is put into work but if people are not focused on achieving targets that support the strategy of the organisation, there is no alignment between the strategy and what is being measured. In order to improve an organisation's performance, it is always important to know that if you cannot measure something, you cannot manage it, and one needs to manage the system, not the people (Schwartz, 2005:856). According to Kaplan and Norton (as quoted by Bhatia, 2008:137), the effectiveness of the BSC lies in clearly explaining the strategy at each level and linking the strategy to the management system.

1.2 PROBLEM STATEMENT

People at AMSA are of the opinion that the BSC system is not applied effectively and that it is a waste of time. In some cases they feel as if they are being measured against something they cannot really influence or control. People also observe that they are not compensated or promoted according to their performance on their BSCs. This leads to de-motivated employees. The question that came up was whether the implementation of a more effective BSC system with targets aligned with the strategy, would ensure improved performance. The problem existed possibly because of the following:

- Insufficient feedback on performance as measured on BSCs;
- Lack of management involvement in the BSC system;
- Poorly designed personal contents of BSCs;
- BSCs not aligned with the organisation's strategy;
- People that lose focus of the bigger picture if they focus only on what they are measured against; and
- People that do not fully understand the purpose of the BSC.

Identifying and acting on the weak points in the current BSC system will help to ensure that these deviations are addressed in order to have a more effective performance management tool in the BSC going forward. People always say, *"Show me on what you measure me, and I will show you how I perform."* If people are only doing what is on

their BSCs, they will end up doing much less than their normal work. The impact of a well-designed BSC can be evaluated only once it is implemented. The BSC is a very powerful tool that should lead to several benefits if applied correctly. The benefits of an effectively applied BSC are discussed in Chapter 2.

The objective of this investigation was to evaluate the BSC system as applied in the Rolling department of AMSA. This investigation included a literature study on the BSC system in general, an empirical study by means of a survey using a well-structured questionnaire as well as personal interviews to gain the most recent feedback on people's perceptions regarding the BSC system. Information gathered, was used to identify and highlight areas that needed improvement. Good applications of the BSC have also been identified that could be used as a benchmark for other less successful areas. By highlighting problem areas and giving feedback on how the problems could be addressed, if the system is applied correctly, would hopefully help to regain the positive attitude of employees regarding the system. Another focus point for the investigation was to see where and how the organisation or division's strategy was linked to individual BSCs in order to achieve longer term targets and improved performance.

1.3 OBJECTIVES OF THE STUDY

The research objectives were divided into a primary objective and secondary objectives.

1.3.1 Primary objective

The primary objective of this study was to evaluate the effectiveness of the BSC system as applied at the Rolling department at AMSA and to make recommendations to improve the effectiveness of the BSC system.

1.3.2 Secondary objectives

The secondary or specific objectives of this study were the following:

- To verify the benefits of an effective BSC system;
- To identify problems and shortcomings of the BSC system;

- To verify if BSCs aligned with the organisation's strategy, vision and values will ensure that long-term goals are achieved through improved performance;
- To verify the use of a BSC system as a management tool;
- To verify how the BSC system is linked to compensation; and
- Finally, to verify what is needed for an effective BSC system formulation and implementation.

1.4 RESEARCH METHODOLOGY

This research, pertaining to the specific objectives, consists of two phases, namely a literature study on the BSC system and an empirical study done on specific levels of employees in the Rolling department at AMSA.

1.4.1 Literature study

In Phase 1, a complete review is given regarding the BSC system. This review includes historical information on the BSC system as well as detail on how it is used today. The sources that were consulted include the following:

- Books written by Kaplan and Norton, the founders of the BSC system. Several other books and articles on BSCs were also used for research;
- The internet and more recent articles, mainly from 2002 to 2009, were scrutinised in order to ensure that the latest theoretical information was used and applied to improve the effectiveness of the BSC system;
- Examples of organisations where the BSC system has been applied successfully;
- Discussions with people at Human Resources (HR) and senior management to verify whether the BSCs were aligned with the organisation's strategy;
- Focused attention was given to the four perspectives (Financial, Customer, Internal processes and Learning and Growth) as measured in the BSC; and
- The investigation also addressed what was needed to be done in order to ensure that people are mobilised in achieving the long-term targets linked to the strategy.

1.4.2 Empirical study

The empirical study consisted of the research design, participants, measuring instruments and statistical analysis of the data. A well-structured questionnaire was distributed to gather data to evaluate people's knowledge on the BSC, their understanding of the BSC and how effective the BSC system has been applied at AMSA.

1.4.2.1 Research design

The aim of the research design was to ensure that the correct questions were asked, targeted at a specific group of people in order to ensure that the best possible information was gathered regarding the BSC system. Research not designed properly, will lead to a futile exercise where nothing will be gained. The questions used in the empirical study, were mainly aimed at addressing the secondary objectives of the investigation.

The research can be classified as descriptive and explorative. According to Neuman (quoted by Struwig & Stead, 2004:7), exploratory research is research in an area that has not been studied and in which a researcher wants to develop initial ideas on a more focused research problem. This type of research involves gathering a great deal of information from a small sample of people, in this case the Rolling department. Descriptive research attempts to describe something of a given product and the degree to which the use of the product varies, for example, amongst people of different ages, job levels, years of service and work areas. A descriptive study is an attempt to provide a complete and accurate description of the situation (Struwig & Stead, 2004:8). Both these studies are relevant in the research on the BSC because a lot of information was gathered from a small sample of people. The gathered information has been used to describe the situation at AMSA's Rolling department.

The specific design used, was quantitative research where data were collected that could be expressed in numbers. It also included a qualitative design through an interview with Swanepoel (2009), in order to gain more information and to ensure the right interpretation of people's perceptions regarding the BSC. This design was most suited to address the problems because it was flexible and the information obtained,

could be useful in identifying problem areas to be solved for future BSCs. The empirical study was focused on specific sub-headings related to the secondary objectives of the study. Focus was also directed on the alignment with the organisation’s strategy, vision, mission and values. The current strategy, mission, vision and core values of AMSA are indicated in the table below. These statements are the same as applied in the Rolling department at AMSA.

Table 1.1: Strategy, vision, mission and values

Statement	Detail of statement
Strategic goals	<ul style="list-style-type: none"> - <i>“Creating industry leading value for our shareholders”;</i> - <i>“Improving operating capabilities”;</i> - <i>“Building on existing performance culture”;</i> - <i>“Being a reasonable corporate citizen”.</i>
Vision	<ul style="list-style-type: none"> - <i>“To be the preferred supplier of steel solutions for the development of Sub-Saharan Africa”</i>
Mission	<p><i>“We aim to achieve our Vision by:</i></p> <ul style="list-style-type: none"> - <i>producing safe, sustainable steel;</i> - <i>pursuing operational excellence in all business processes;</i> - <i>producing innovative steel solutions for our customers;</i> - <i>caring for our environment and the communities in which we operate;</i> - <i>striving to become a supplier of choice; and</i> - <i>also living the brand values of Sustainability, Quality and Leadership.”</i>
Core Values	<ul style="list-style-type: none"> - <i>Sustainability</i> - <i>Leadership</i> - <i>Quality</i>

(Source: ArcelorMittal South Africa, 2008)

The empirical study refers to some of the above statements in order to verify how the terms and conditions are used in the BSCs of individual employees.

1.4.2.2 Participants

The Rolling department of AMSA has been used to do the empirical study. The people under Rolling include people from Quality Management (QM), Production and Maintenance. This group of people was chosen because they are responsible for producing the final product delivered to customers. They are the people who, together with Marketing, liaise with customers on a weekly and or monthly basis. It is thus very important to evaluate whether these employees are using the BSC the right way in order to improve the performance of the organisation aligned with the strategy. Employees in Rolling are also in daily contact with people working in other divisions such as Planning, Finance and Steelmaking. The sample was selected randomly in order to ensure that several job levels were involved. Respondents included people on three different job levels, ranging from Technicians, Engineers, Technologists, Senior Engineers and Managers (mainly middle management). These employees were selected because they are mainly responsible for doing the work to ensure that targets set by senior management, are met. The entire Rolling department consists of about 1800 employees. The population, on whom the study was conducted, consisted of 251 employees, who are made up by 42 E roles, 53 F roles and 156 G roles.

Firstly, a pilot study was done by distributing questionnaires to only ten people to test the correctness and people's understanding of the questionnaire. The final questionnaires were distributed to 200 randomly selected people on G, F and E roles. Questionnaires were distributed via e-mail as all the people in the target group had access to e-mail and because it was seen as the most effective way to control feedback. Respondents had a choice of returning questionnaires by hand or electronically. Questionnaires were completed completely voluntarily and treated anonymously. The questionnaires consisted of three parts, as seen in Annexure 1.

- **Part A:** General "Yes" or "No" type questions as general basic questions;
- **Part B:** Likert Scale type questions based on and in line with the secondary objectives; and
- **Part C:** Open-ended questions to gain feedback or perceptions on the effectiveness of the BSC system at AMSA.

1.4.2.3 Measuring instrument

The information gathered from the questionnaires was measured by means of a Likert Scale. The scale varied from (1) strongly disagree to (5) strongly agree. Mid-points on the scale were (2) disagree, (3) neutral, (4) agree. The ratings of all respondents were also measured after summarising the information. Typical statistical techniques used to analyse the data, included the following:

- Radar graphs;
- Descriptive statistics; and
- General tables to compare mean values amongst different groups.

The obtained results were interpreted qualitatively and quantitatively in order to evaluate the effectiveness of the BSC system. Results were also compared between different groups of people to verify differences in responses. The higher the average number on the Likert Scale, the more effective the BSC system is perceived to be applied. A higher number also indicated better knowledge of employees regarding the BSC system.

1.4.2.4 Statistical analysis

The statistical techniques used included mainly descriptive statistics. Descriptive statistics were used to identify or highlight the good and or the bad perceptions of employees on the BSC system. The gathered information was compared amongst different departments, age groups, years of service and different job levels. Averages and standard deviations were worked out to draw conclusions.

1.5 LIMITATIONS OF THE STUDY

Given the nature of the investigation, the validity and value of the results are, or may have been, limited by the following:

- The results relate to only one department within AMSA that included employees working in different divisions like Production, Maintenance and Quality Management who might have responded negatively towards each other because of emotional issues;

- Not all people responded to the questionnaires because of their work load, and the fact that it is about the BSC system which is not everyone's favourite system;
- People might not be willing to complete the questionnaire because they might feel wary of being victimised;
- The empirical study was done during a period when no one in the workforce received an annual increase because of the economic situation of the organisation; and
- The morale of the people was low due to the economic crises and the fact that no salary increases were awarded regardless of their performances on BSCs.

1.6 CHAPTER DIVISION

The chapters in this mini-dissertation are presented as follows.

Chapter 1 contains an introduction to the investigation, the problem statement, objectives, research methodology and the limitations of the study.

Chapter 2 is a concise literature study regarding the basic concepts of the BSC system, the benefits of a BSC system, problems with the BSC system, alignment of the BSC with the strategy, the BSC as a management tool, an indication on how to link the BSC to compensation as well as what is needed to ensure an effectively implemented and formulated BSC system.

Chapter 3 deals with the empirical study that was done in order to test employees' perceptions about the BSC system and how it has been applied at AMSA's Rolling department.

Chapter 4 deals with the conclusions and recommendations that were made based on the literature study as well as on the results of the empirical study.

1.7 CHAPTER SUMMARY

This chapter served as an introduction to the study on BSC systems as applied generally and what was investigated at AMSA's Rolling department in Vanderbijlpark to evaluate the BSC system. The problem statement and the objectives of the investigation were listed to explain what had been investigated. The primary objective of

this study was to evaluate the BSC system as applied in Rolling at AMSA and to make recommendations to improve the effectiveness of the BSC system. It also included the study limitations as well as the research methodology used to analyse data gathered from the empirical study. The statistical methods used, were also briefly discussed.

The next chapter involves a concise literature study on the BSC system as developed since 1990. It highlights the work done by Kaplan and Norton since 1996 to 2009 as well as examples of what is needed to ensure that the BSC system could be applied successfully in various industries. Focus is given to highlight the importance of aligning the organisation's strategies with the BSC to ensure that the right objectives are measured and managed to achieve long-term targets and improved performance.

CHAPTER 2: LITERATURE STUDY

2.1 INTRODUCTION

Today's organisations need to be both strategically and operationally excellent to survive and to meet tomorrow's challenges. Venter (2004:42) states, that the required balance between strategy and operations is achieved by the help of a Balanced Scorecard (BSC). The BSC retains financial measurement as a critical measurement of a business's performance, but it also highlights a more general and integrated set of measurements. These measurements in the BSC link current customer, internal process, employee, and system performance to long-term financial success. According to Kaplan and Norton (1996:21), on measurement matters, if you can't measure it, you can't manage it.

According to Spitzer (2007:91), Kaplan and Norton developed the BSC to make the organisational strategy more executable through the use of performance management. The basic idea of the scorecard is to describe the essential ingredients of business success. A BSC is really nothing more than a set of organisational measures balanced between multiple perspectives, including both financial and non-financial measures.

Objectives of a BSC are to align all members of an organisation around the common goals and strategies, to link initiatives to the strategy, making prioritising easier, providing feedback to the people on key issues which they can have an impact on, and it is an essential decision-making tool for everyone in the organisation (Anon., 2009a). Research (Garrison, Noreen & Brewer, 2007:448; DeBrusk & Crabtree, 2006:46; Niven, 2002:36) indicated many examples of organisations where the BSC system has been applied effectively to ensure good performance management and improvements on operating performance. It has been estimated that about 50% of all Fortune 1000 organisations has implemented a BSC system. Unfortunately not all organisations that used the BSC system always performed better. The main reasons for BSC failures include breakdowns in communication and the difficulty in translating the strategy into action.

This study highlights some of the benefits of the BSC problems in using the BSC, alignment of the BSC with the organisation's strategy, lessons learned in implementing

and formulating the BSC, the use of the BSC as a management tool and how the BSC must be linked to employee compensation.

2.2 DEFINITION OF A BALANCED SCORECARD (BSC)

The BSC is a multidimensional performance measurement system. The BSC can be defined differently by different people but they all focus more or less on the same end results. Some examples of BSC definitions are indicated below.

“The BSC includes financial measures that tell the results of actions already taken place and it complements the financial measures with operational measures on customer satisfaction, internal processes and the organisation’s innovation and improvement activities – operational measures are drivers of future financial performance” (Kaplan & Norton as quoted by Kotze, 2009:120).

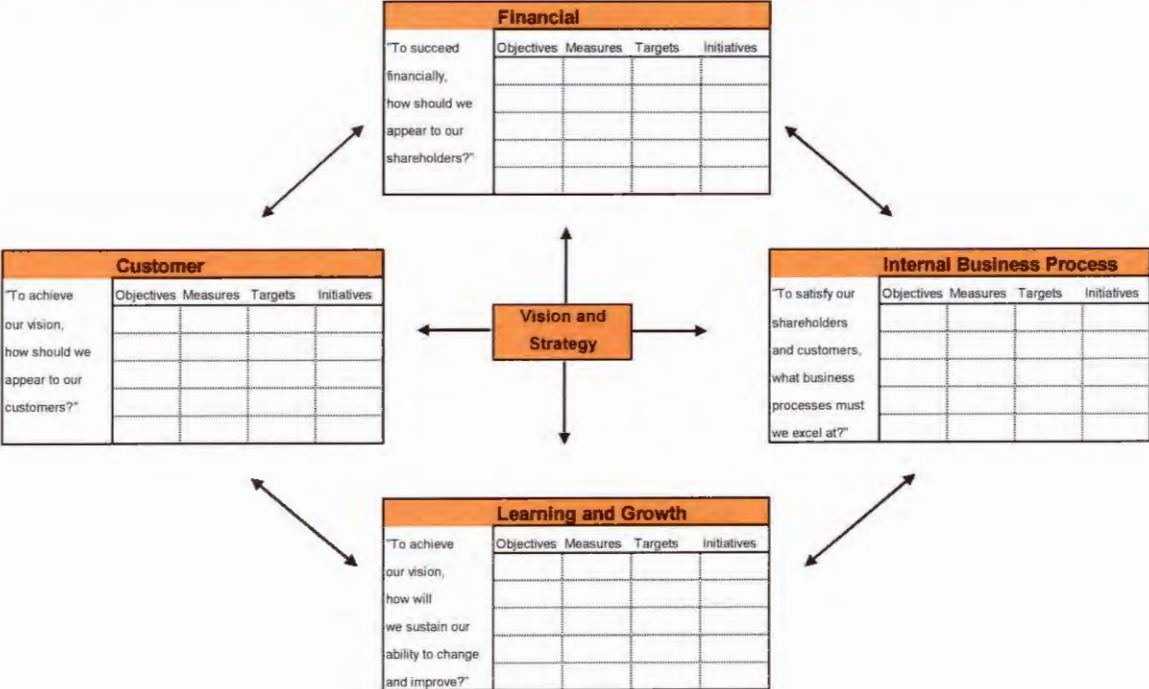
“The BSC is a system of financial and non-financial measures that reflect a balance between leading and lagging indicators of performance and between outcome measures and measures that drive performance” (DeBrusk & Crabtree, 2006:44).

“The BSC is a communication, information and learning system. Building a BSC helps managers to link today’s actions with the achievement of today’s priorities. It encourages accountability, and today we define accountability by results” (Pam Syfert as quoted by Garrison et al., 2007:449).

Effective measurement must be an integral part of the management process. The BSC provides executives with a comprehensive framework that translates an organisation’s strategic objectives into a coherent set of performance measures. The BSC functions as the cornerstone of an organisation’s current and future success (Kaplan & Norton, 2005:1). The BSC is a strategic planning and management system used extensively to align business activities to the vision and strategy of the organisation. It improves internal and external communications and monitors the organisation’s performance against strategic goals. It is not just a measurement system, and can be used to translate vision and strategy into action. The BSC suggests that an organisation is viewed from the following four performance perspectives: financial, customer, internal business, and learning and growth. The name BSC reflects the balance between long-

and short-term objectives, between financial and non-financial measures, between lagging and leading indicators, and between external and internal performance perspectives (Hough, Thompson, Strickland & Gamble, 2008:R21). The BSC approach provides a clear description as to what organisations should measure in order to balance the four performance perspectives. By using the BSC, top management must be able to translate its strategy into performance measures that employees can understand and influence. Refer to Figure 2.1 to view how the performance perspectives are used in a BSC system. Each perspective is interpreted against objectives, measures, targets and initiatives linked to the vision and strategy of the organisation. The perspectives are inter-related and linked in order to create value for the shareholder.

Figure 2.1: Translating vision and strategy: Four perspectives of a BSC



(Source: Kaplan & Norton, 2007:153)

In BSC language, the vision, mission and strategy are broken up into different perspectives or views, as seen through the eyes of business owners, customers, other shareholders, managers and employees (Venter, 2004:42). According to Hough *et al.* (2008:195), the objectives, measures, targets and initiatives should be used as follows in order to interpret each perspective:

- **Objectives:** These are specific actions that should be optimally executed to implement the strategy.
- **Measures:** These are the ways to establish progress in the achievement of objectives.
- **Targets:** These are the exact performance levels expected for each objective.
- **Initiatives:** These are the programmes, activities, projects or actions that should be implemented to meet or exceed performance targets.

Looking at each perspective separately, it is important to develop the right metrics, data collections and analyses in order to ensure they are inter-related and linked to the vision and strategy of the organisation.

Financial perspective

This perspective is the ultimate objective for profit maximizing as it is evident it looks at how the organisation's strategy affects the bottom line. According to Kaplan and Norton (1996:62), every measure selected for a BSC, should be part of a link of cause-and-effect relationship, ending in financial objectives, which represent a strategic theme for the business unit. This is the strategy for growth, profitability and risk viewed from the perspective of the shareholder. The measures typically include operating income, return on investment (ROI), economic value-added (EVA), and operating cash flows (DeBrusk & Crabtree, 2006:45). The question to be asked as a performance measure under the financial perspective is: *"Has our financial performance improved?"* (Garrison et al., 2007:450).

Customer perspective

According to this perspective, it is important that managers translate their mission and strategy statements into specific market- and or customer-based objectives. This is the strategy for creating value and differentiation from the perspective of the customer. Strategy is based on a differentiated value proposition. Typical measures include customer satisfaction, customer retention, customer acquisition, customer profitability, sales growth and market share (DeBrusk & Crabtree, 2006:45; Kaplan & Norton, 2004:38). The question to be asked as a performance measure is: *"Do customers recognise that we are delivering more value?"* (Garrison et al., 2007:450)

Internal business process perspective

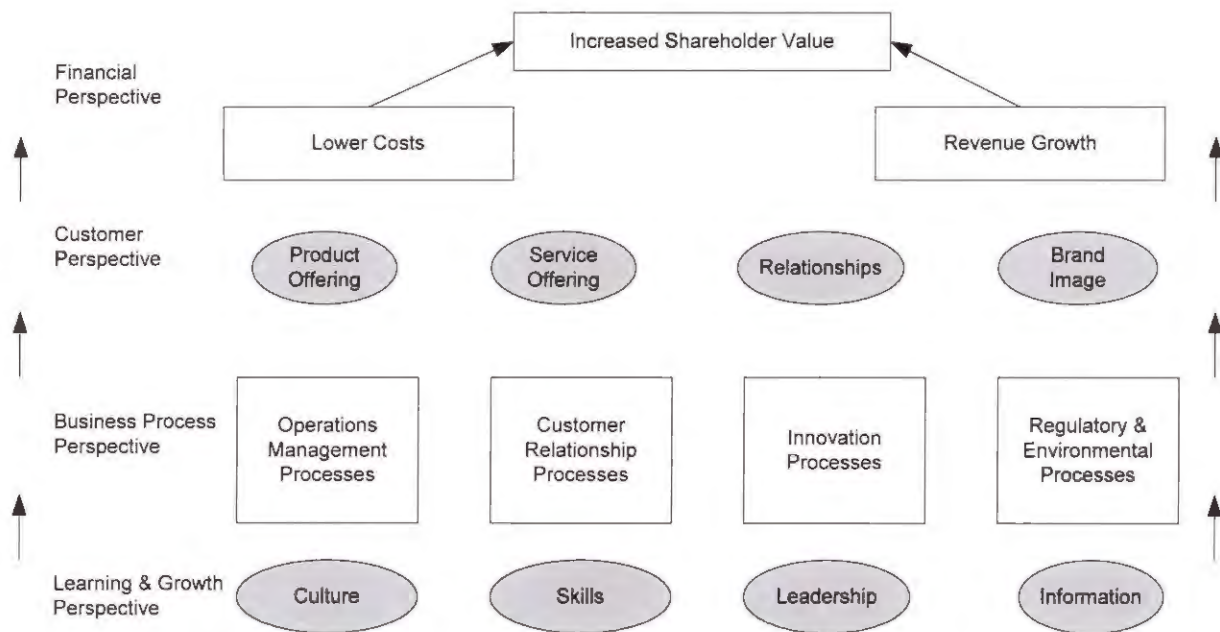
Under this perspective the objectives and measures are normally derived from explicit strategies to meet shareholders' and targeted customer expectations. Typical measures include operating efficiency and effectiveness such as labour productivity, machine utilisation, process cycle time, quality and on-time delivery (DeBrusk & Crabtree, 2006:45). The question to be asked as a performance measure is: "*Have we improved key business processes so that we can deliver more value to customers?*" (Garrison et al., 2007:450)

Learning and growth perspective

This perspective describes the organisation's intangible assets and its role in strategy (Kaplan & Norton, 2004:49). The objectives under this perspective provide the infrastructure to enable the ambitious objectives in the other three perspectives as mentioned above. These objectives are the drivers for achieving excellent outcomes in the business process, the customer and the financial perspectives. This is the strategy for continuous improvement and creating value. Learning and growth is measured in terms of employee skill levels, training hours and employee turnover (DeBrusk & Crabtree, 2006:45). The question to be asked as a performance measure is: "*Are we maintaining our ability to change and improve?*" (Garrison et al., 2007:450)

In the BSC approach, the focus must always be on continuous improvement. Organisations that do not improve continually will eventually lose out to their competitors that do (Garrison et al., 2007:450). According to Davies (2009), the BSC is based on the premise that we understand and measure the true drivers of financial success. As illustrated in Figure 2.2 the BSC identifies three perspectives of the corporate body that must be examined that, in turn, deliver the final dimension of the BSC, namely financial success. The figure below must be seen as a process of value creation. The bottom three perspectives (Learning and growth, Internal process and Customer) are linked together to deliver financial success.

Figure 2.2: The BSC framework



(Source: Davies, 2009)

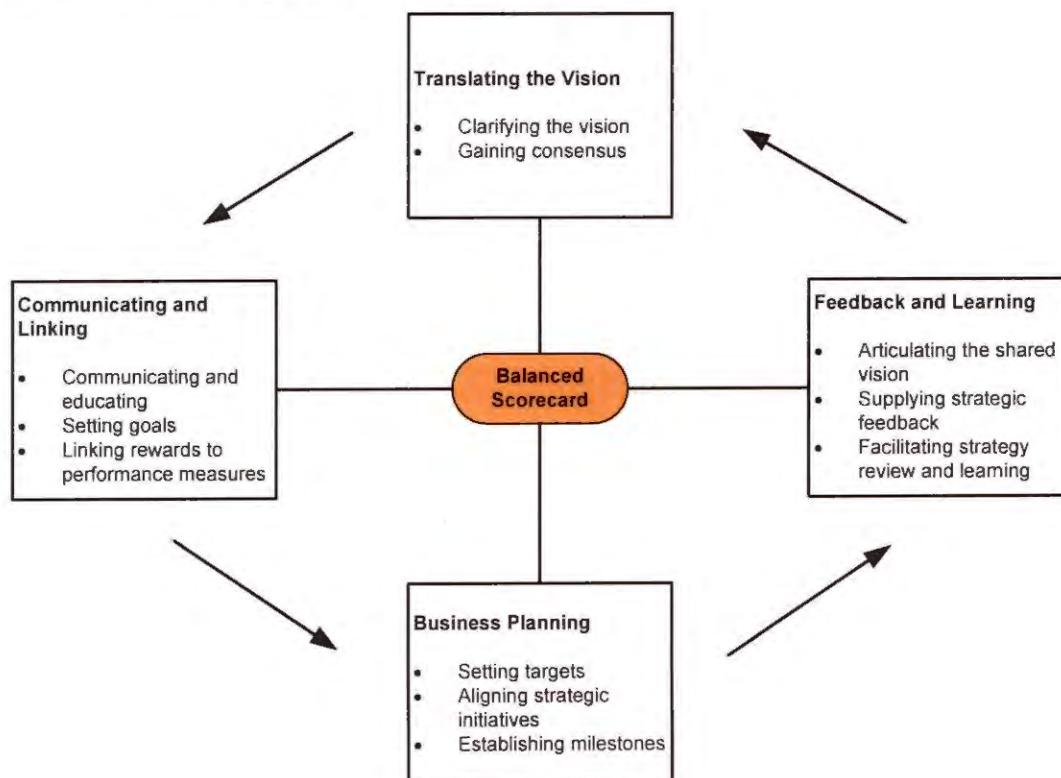
Attainment of financial objectives is driven by other dimensions and perspectives in the organisation. Financial measures are lag indicators that report the results of past actions. On the other side, non-financial measures or key success drivers such as customer satisfaction are leading indicators of future performance. Viewing Figure 2.2 from the bottom upwards, one can see that it starts from the learning and growth perspective. Culture, skills, leadership and information that are aligned with the organisation's strategy, will create effective and efficient business processes. Effective and efficient product delivery, customer relationships, innovation, regulatory and environmental processes ensure that the organisation's offerings meet and exceed customers' needs. The products, services, relationships and brand are the components of the organisation's offerings to its customers, as shown next to customer perspective. To conclude the process, one can see that the bottom three perspectives need to be in place and linked together to eventually ensure financial success.

If objectives and measurements are created in each dimension or perspective that is aligned with the strategy, a good performance measurement and assessment system will be built. The one perspective must drive the next one. The concept of the BSC is thus seen as a concept that is characterised by the following:

- **Holistic.** All the critical areas in an organisation that can produce financial outcomes are assessed.
- **Forward looking.** It is important that the right issues are addressed from the bottom upwards. For instance, if there is a failure to meet skills acquisition targets, it will then be a leading indicator for future failure in processes, customer satisfaction and ultimately, profits.
- **Easy to communicate.** It is an easy and simple way to communicate what is planned by the organisation to meet its financial objectives.
- **Based on measuring the following four key dimensions or perspectives.** Learning and growth, business processes, customer offerings and financial perspectives are key issues needing to be measured to achieve the financial objectives.

The BSC system also gives managers the chance to introduce four new management processes that contribute separately or in combination to the linking of long-term strategic objectives with short-term actions. The four processes are: translating the vision, communication and linking, business planning, and feedback and learning. Figure 2.3 provides an illustration of the four processes.

Figure 2.3: Managing strategy: Four processes



(Source: Kaplan & Norton, 2007:155)

The four new processes are subsequently discussed. Translating the vision is the first new process which helps managers to build a consensus around the organisation's vision and strategy. It is thus important that the statements in the vision and strategy are expressed as forming an integrated set of objectives and measures. These statements must be agreed upon by all senior executives and must describe the long-term drivers for success. Lofty vision and strategy statements do not translate easily into action.

Communicating and linking ensure that managers communicate their strategy up and down the organisation and link it to individual and departmental objectives. In this process the BSC ensures that all objectives are aligned and all levels understand the organisation's long-term strategies. The personal BSC (PBSC) helps to communicate corporate objectives and unit objectives to the people and the teams performing the work (Kaplan & Norton, 2007:154).

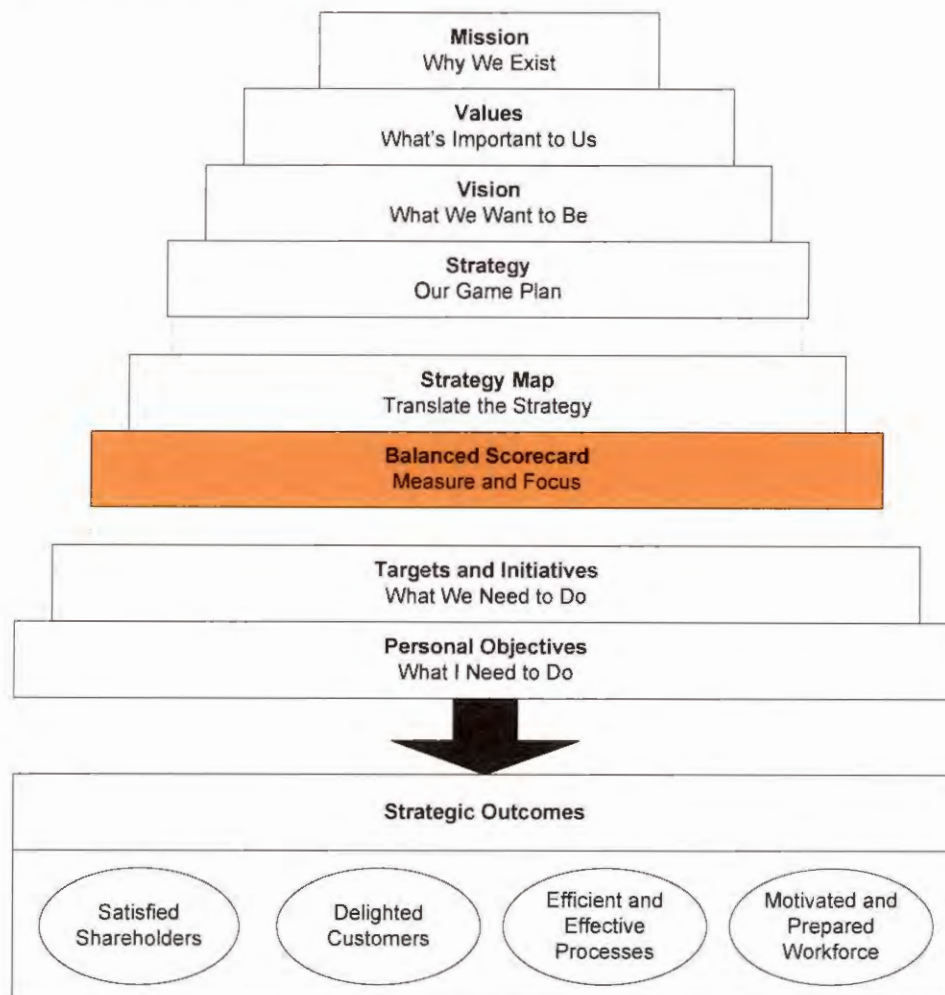
Business planning enables organisations to integrate their business and financial plans. Building a BSC enables an organisation to link its financial budgets with its strategic goals. Proper planning is very important to set the right targets, aligning all the strategic initiatives, ensuring that the available resources are used and ensuring that milestones can be established.

Feedback and learning constitutes the fourth process which gives the organisation the capacity for what is called strategic learning. The scorecard enables organisations to modify strategies to reflect real-time learning. By building the BSC, senior executives have started a process of change that has gone beyond the original idea of simply broadening the organisation's performance measures (Kaplan & Norton, 2007:152).

According to Kaplan and Norton (2004:33), the BSC is seen as a step in a continuum that describes what value is and how it is created. The continuum is illustrated in Figure 2.4. Figure 2.4 illustrates a framework that has been found to be effective in practice. It begins with the mission of an organisation that provides the starting point that defines why an organisation exists. Normally the mission and the core values that support it, remain fairly stable over time. The vision paints a picture of the future that clarifies the direction and it helps employees to understand why and how they should support the

organisation. The vision also sets the organisation in motion from the stability of the mission and values to the dynamics of strategy.

Figure 2.4: The BSC as a step in a continuum



(Source: Kaplan & Norton, 2004:33)

The strategy is developed over time to meet the changing conditions posed by external and internal capabilities. Mission and vision statements are made operational when organisations define a strategy of how the mission and vision will be achieved. Strategic maps and BSCs can be developed for any strategy. A strategy map provides a visual presentation of the strategy. It also provides the visual framework for integrating the organisation's objectives in the four perspectives of a BSC. According to Porter (as quoted by Kaplan and Norton, 2004:35), strategy is about selecting the set of activities in which an organisation will excel to create a sustainable difference in the marketplace. Differentiation will arise from both the choice of activities and how they are performed. The BSC translates the objectives of the strategic map into measures and targets. Management needs to identify the strategic initiatives needed to achieve the targets

because the execution of strategy is managed through the execution of initiatives. The action plans need to be aligned around strategic themes and it need to be viewed as an integrated bundle of investments. Eventually, if all the first processes are in place, the strategic outcomes like satisfied shareholders, delighted customers, efficient and effective processes, and a motivated and prepared workforce, will be achieved (Kaplan & Norton, 2004:32-55).

Efficient business processes and satisfied customers combine to produce growth, lower costs and better use of the organisation's capital which will eventually ensure increased shareholder value (Davies, 2009). Kaplan and Norton (1996:31) state, that a properly constructed BSC should tell the story of the business unit's strategy; in this case, the strategy of the Rolling department. The BSC should identify and make explicit the sequence of hypotheses about the cause-and-effect relationships between the outcome measures and the performance drivers of those outcomes. The basic philosophy of the BSC is that people will focus on what they are measured on. The BSC does its magic by focusing the organisation on the issues which are pivotal to its success as decided on by the management team (Anon., 2009a).

To summarise, it can be said that the BSC is not just a measurement system; it is a management system to motivate breakthrough competitive performance. Research indicated that the BSC is most successful when it is used to drive the process of change (Kaplan & Norton, 2005:6).

2.3 BENEFITS OF THE BSC

Research (Anon., 2009a; Davies, 2009; Bloomquist & Yeager, 2008:25; Hough *et al.*, 2008:R24; Kaplan & Norton 2004:92-94; Venter, 2004:42; Duvel & Rumbel, 1998:39; Kaplan & Norton, 1996:14) indicates that the BSC has many benefits for organisations if applied effectively. According to Coetsee (2003:42), effectiveness is not only doing the right things right, but it is to *want* to do the right things right. Some of the benefits of the BSC were already mentioned previously in this chapter. Other benefits of an integrated BSC system that are applied the right way are the following:

- The BSC enables an organisation to integrate its strategic planning with its annual budgeting process;

- The BSC ensures better understanding by management of the linkages between specific organisational decisions and actions and the chosen strategic goals;
- The BSC causes a redefinition of relationships with customers;
- The BSC measures what matters in order to achieve breakthrough competitive performance. It helps the entire organisation to focus on what must be done to create breakthrough performance;
- The BSC identifies more efficient processes focused on customer needs;
- The BSC ensures improving prioritisation of initiatives. It gives a clear sense of direction and the ability to focus and prioritise;
- The BSC is improving internal and external communications;
- The BSC is improving alignment of strategy and day-to-day operations;
- The BSC concept provides an excellent foundation for organisations to design its management information systems;
- The BSC helps staff to understand, develop and apply strategy within business units;
- The BSC develops a clear understanding of how strategy is operationalised;
- It encourages employees locally to develop initiatives to support the organisation's strategic direction;
- It develops a performance measuring system that spans all levels in the organisation. It breaks down strategic measures to lower levels so that all people can see what is required at each level to achieve excellent overall performance. This is achieved with the cascading process that will be discussed under point 2.5;
- It helps to integrate various corporate programs such as quality, re-engineering and customer service initiatives;
- It makes strategy operational by translating strategy into performance measures and targets;
- It breaks down corporate level measures for managers, operators and employees to see what they must do well, in order to improve the effectiveness of the organisation;
- It forces people to use valid and meaningful data related to key measures;
- It increases the visibility of the organisation for senior management;
- It establishes performance trends and tracks progress;
- The BSC can give warnings of problems ahead, or signal opportunities if it is updated regularly;
- It helps to meet shareholders' expectations;
- It provides explicit casual linkages through strategy maps and cascaded objectives;

- It establishes targets for breakthrough performance, not merely to match existing best practices;
- It often identifies entirely new processes that are critical for achieving strategic objectives;
- It sets strategic priorities for process enhancements;
- It directs attention to factors creating long-term economic and organisational benefits; and
- It creates a set of measures for benchmarking, forcing management to consider all operational measures together and focusing on growth opportunities rather than on individual short-term gains.

In order for organisations to achieve some of the benefits listed, it is important that the BSC must be implemented and formulated effectively, as will be discussed under point 2.8. A better planned and implemented BSC will automatically ensure that benefits are achieved sooner. An effective BSC will also ensure continuous improvement. Organisations must not approach the BSC as the latest fad. The real benefits come from making the BSC the cornerstone of the way to run a business. It should be the core of the management system, not only the measurement system. Each organisation is unique and follows its own path for building a BSC. A BSC makes sense primarily for business units and divisions with a well-defined strategy (Kaplan & Norton, 2005:11-13).

2.4 SHORTCOMINGS AND OR PROBLEMS OF THE BSC

No system can only be good. Every system has its own problems, especially if it is not applied the right way. According to Kaplan and Norton (as quoted by Bhatia, 2008:137), the basic problem of the BSC is that it sometimes states too many goals. These goals are often difficult to achieve, especially in a conglomerate, where there are chances of clashes arising among business units.

Problems can also occur if the performance measures used by managers in a BSC are not consistent with or follow the organisation's strategy. In cases where this happens, employees will find themselves working at cross purposes. Problems can also occur to a significant extent if the performance measures are not understandable and controllable by those being evaluated. This will lead to de-motivated employees. Further

problems that could occur if the BSC has too many performance measures could be a lack of focus and confusion (Garrison *et al.*, 2007:452).

The BSC system will not work in organisations where the strategic differences are not resolved adequately. This will ensure that people will work separately towards different visions (Anon., 2009b). Spitzer (2007:92) said that BSCs are viewed as “panacea” and are often used as a quick fix. Many organisations do not adequately understand the underlying principles and do not implement the BSC concept properly. A BSC will not make the wrong measures right in order to ensure success for an organisation. It is very important that the right standards are used in measurements. These standards must be achievable and understood by employees before using it in a BSC.

Other very important issues that can lead to problems with the BSC process are the lack of senior executive involvement and the lack of consensus about the role for the BSC. DeBrusk and Crabtree (2006:48) propose the following reasons why the BSC system fails:

- Too much emphasis is placed on financial measures. These are lagging indicators that focus too much attention on gaining short-term results at the expense of long-term performance;
- Employees do not understand how bonuses or incentives are determined; and
- People who receive less incentive compensation than expected, may allege favouritism or bias.

In the earlier stages of the BSC Kaplan and Norton (1996:193) already indicated the following barriers to effective strategy implementation:

- Visions and strategies that are not actionable;
- Strategies that are not linked to departmental, team and individual goals;
- Strategies that are not linked to long-term and short-term resource allocation; and
- Feedback that is tactical, not strategic.

Each of the above barriers can be overcome by integrating the BSC into a new strategic management system. Niven (2002:317-321) states that organisations need to be on the look-out not to fall prey to at least one of the following BSC implementation issues:

premature links to management processes; lack of cascading; terminology use; no new measures; consistent management practices; timing; no objectives for the scorecard; no strategy; lack of training and education and finally also no executive sponsorship. These issues are not shortcomings of a BSC, but will create problems using the BSC if not attended to by management. This is explained in more detail later in this chapter under effective BSC formulation and implementation.

To summarise the most important problems that occur with the BSC systems, the following can be listed: too many performance measures; performance measures that are not aligned with strategy; visions and strategies that are not actionable; insufficient or poor feedback or training; unclear links between the BSC and compensation, and a lack of senior management involvement.

2.5 ALIGNMENT OF THE BSC WITH THE ORGANISATION STRATEGY

A system's overall effectiveness is partly determined by the extent to which different subsystems are aligned with each other. Alignment refers to a characteristic of the relationship between two or more parts. The effectiveness of an organisation's strategic orientation requires knowledge to determine the alignment among different elements (Cummings & Worley, 2005:88). According to Coetsee (2003:27-30), aligned commitment means that all members of a division or organisation are committed passionately to achieve the same goal. Aligned commitment can be explained in the form of an equation that incorporates the following five elements:

Aligned Commitment = Knowledge x Information x Empowerment x Reward and Recognition x Shared Goals and Values

This multiplying equation implies that if one of the elements is absent, aligned commitment will not be achieved even if all the other elements are present. Performance measurement and BSC performance can be linked by the above equation of aligned commitment. Knowledge and information are gained by focusing on strategic issues as listed in the BSC. Through continuous feedback and discussing progress on the listed KPIs, people will gain knowledge and information needed to achieve goals. People gain empowerment by using and tracking data for KPIs listed in BSCs. Involving people in drawing up their performance measures, will also empower them to identify

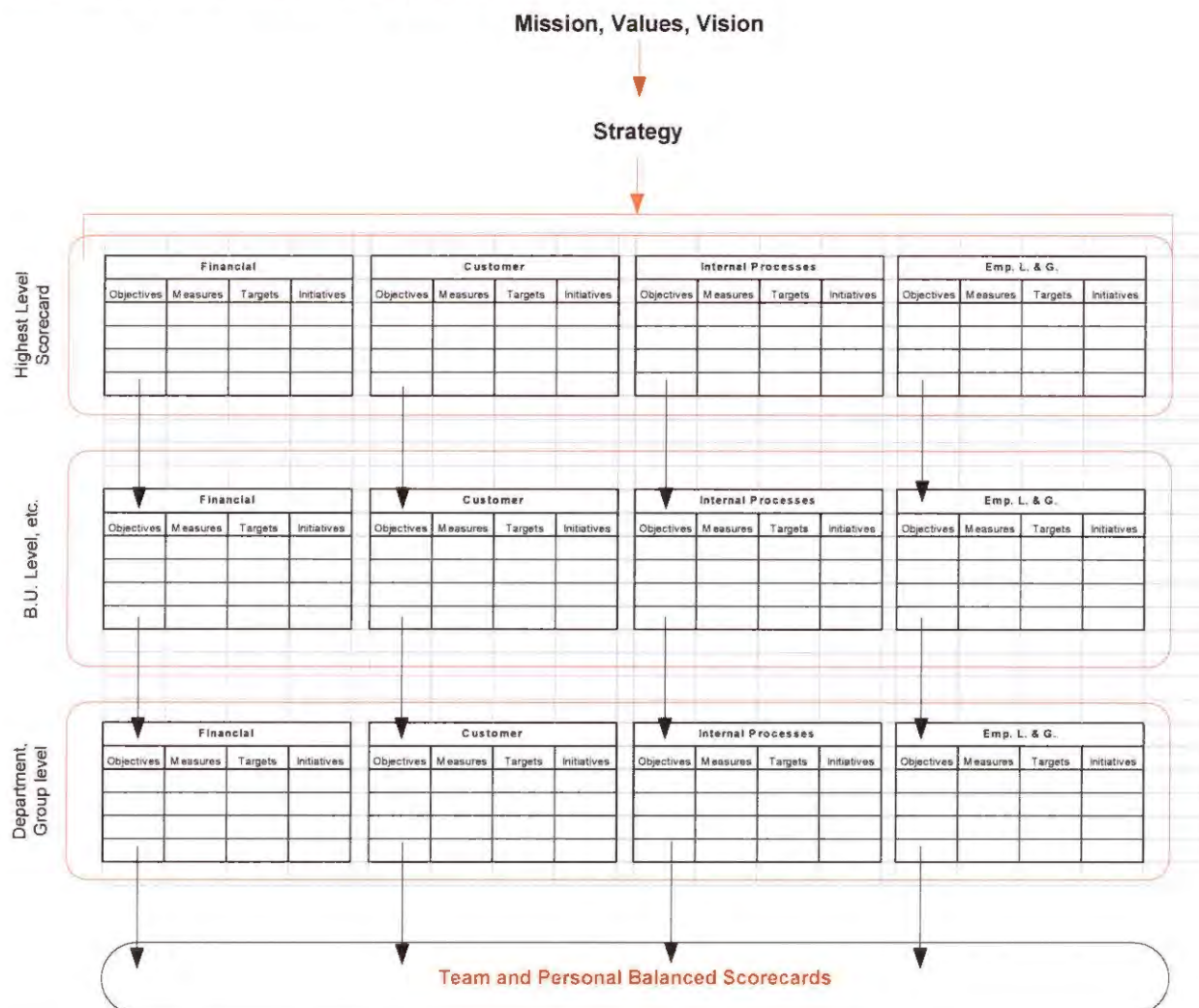
measures in line with the business strategy. The measurement on the BSC must be used as a basis for rewards and or recognition for employees. Without linking the BSC performance to rewards or recognition, will make it less powerful as a performance measurement or management tool. Performance measures are more motivational if linked to rewards. The perspectives in the BSC are focused on achieving targets aligned with shared goals and values. These shared goals and values are linked to the organisation strategy to create shareholder value. In line with what was discussed for a BSC to achieve the financial objectives, the elements in the aligned commitment equation, can also be seen as cause-and-effect relationships to create alignment of employees to achieve goals which were set for the organisation. Aligned commitment of all people will ensure that non-tangible assets are converted into tangible assets in a shorter period.

Kaplan and Norton (2004:299) state, that alignment is the necessary condition before empowering and then the individual will empower the whole team. Peter Senge stresses (as quoted by Kaplan & Norton, 2004:299) that broad-based organisational change requires alignment when all team members do not have a commonality of purpose, a shared vision and an understanding of how personal roles support the overall strategy. Alignment firstly requires that awareness is created and then that incentives are established. Alignment to a common goal ensures that employees are focused to work toward common, customer-based objectives. According to Niven (2005a:129), through alignment, one would be harnessing the greatest resources known to humankind: the minds and hearts of employees.

Cascading the corporate scorecard through the organisation is one way of getting alignment amongst people in order to ensure the organisational strategy is achieved. Cascading is the process of developing BSCs at ever lower levels of an organisation. In order to kick-start individual contribution engines throughout an organisation, people must have the ability to demonstrate how everyday actions are making a difference in assisting the organisation in fulfilling strategic objectives. Cascading the BSC is a proven technique to make this happen. Through cascading, the scorecards are aligned with the highest level scorecard of the organisation by identifying the strategic objectives. The scorecards measure lower level business units, departments and groups to track its progress, in contributing to the overall goals of the organisation (Niven, 2005a:130). Figure 2.5 illustrates the concept of cascading the BSC. Each

group must ask the question of how it might influence the objectives and measures appearing on the higher level BSCs.

Figure 2.5: The cascading process

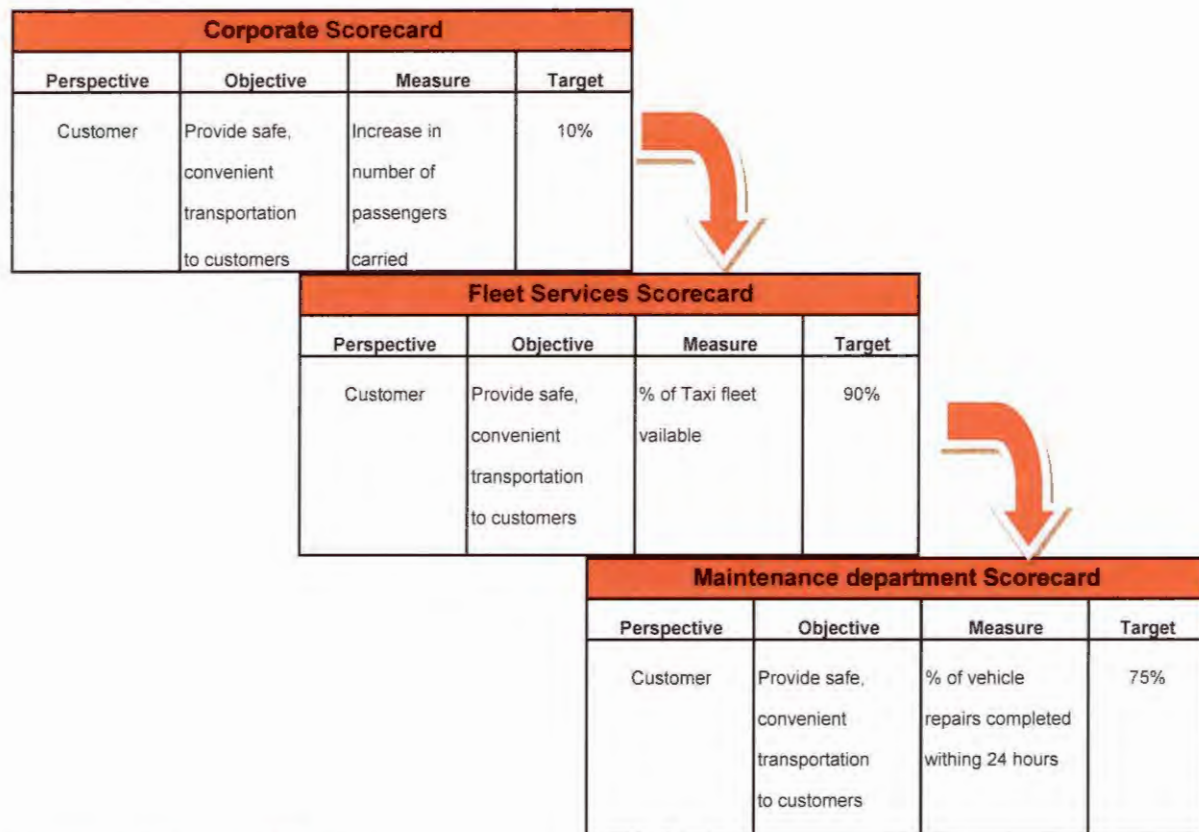


(Source: Niven, 2005a:132)

Figure 2.5 illustrates that the cascading process begins with the highest level scorecard which is normally the corporate-level or organisation-wide scorecard. The objectives and measures on this scorecard represent the critical variables for success. Therefore, every scorecard that is subsequently created at all lower levels of the organisation, should link back to this document. This will ensure that the BUs, Departmental groups and eventually the groups and individuals are measured on objectives related back to the critical variables in order to ensure organisational success. To create alignment, the focus must be on the strategically relevant objectives and measures within a specific BU (Niven, 2005a:131).

As illustration of cascading a typical example used in a taxi organisation is shown in Figure 2.6 for three levels in the organisation.

Figure 2.6: Example of cascading the BSC



(Source: Niven, 2005a:134)

Figure 2.6 provides excerpts from scorecards at three different levels in the organisation. Looking at the customer perspective, an objective was chosen to provide safe, convenient transportation to customers. To gauge the effectiveness on this objective, the increase in the number of passengers carried, will be measured. An increase of 10% is set as the aspired target on corporate level. The Fleet service and Maintenance departments are using the same objective and different measures to see how these can influence the number of passengers carried. From the detail in Figure 2.6 it is clear that different measures and targets are used. Each of the above scorecard profiles share a common objective but a different measure is chosen at each level to contribute to the overall success. Those linked performance measures constitute the key to ensuring alignment throughout the organisation. Cascading the BSC, binds the people to the anchor, adding strength and knowledge along the way, leading to an

organisation aligned in purpose and united in the determination to effectively execute strategy (Niven, 2005a:137).

For a BSC to be successful, it is very important that the intangible assets are aligned with the strategy in order to create value for the organisation. According to Kaplan and Norton (2004:13), strategic alignment determines the value of intangible assets. The learning and growth perspective of the BSC describes the intangible assets and its role in the strategy of an organisation. Intangible assets can be classified into the following categories:

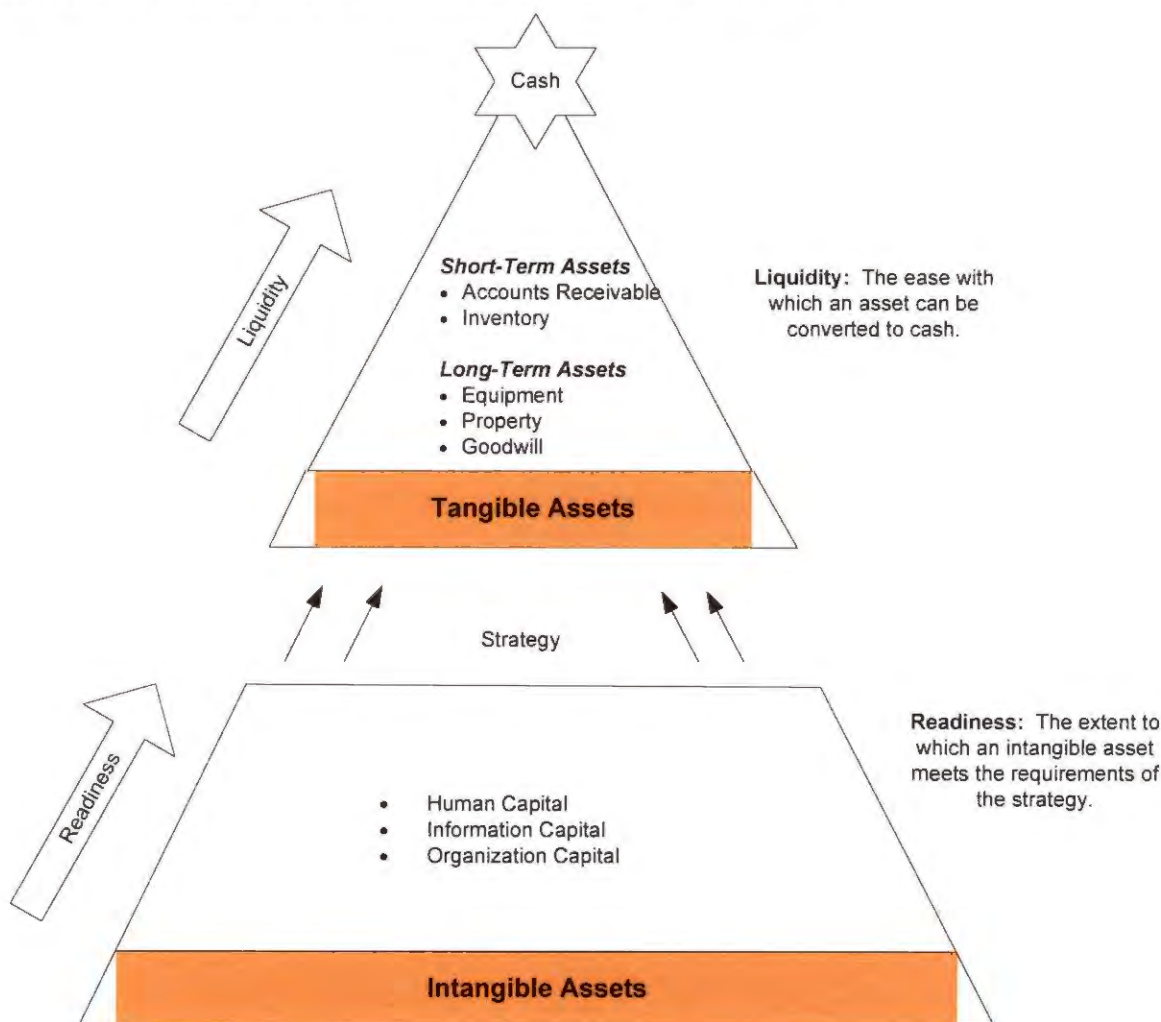
- **Human capital.** This refers to the skills, talent and knowledge of employees.
- **Information capital.** This includes databases, information systems, networks, and technology infrastructure.
- **Organisational capital.** This includes culture, leadership, employee alignment, teamwork, and knowledge management.

When human capital, informational capital and organisational capital are aligned with the strategy of the organisation, the entity has a high degree of organisational readiness. The higher the state of readiness, the faster the intangible assets can contribute to generating cash. The organisation will then have the ability to mobilise and sustain the process of change required to execute its strategy. Intangible assets can be converted into tangible outcomes through direct support of the strategy. Figure 2.7 provides a framework for measuring intangible assets.

The value of intangible assets comes from how well it is aligned with the strategic priorities of the organisation. If intangible assets are closely aligned to the strategy, it will have greater value for the organisation. Kaplan and Norton (2004:213) state, that strategic readiness gets converted into tangible value only when internal processes create increased levels of revenue and profit. One must remember that the readiness of the human capital intangible asset is a necessary, but not sufficient by-condition for strategic success. Tangible assets are divided into long-term and short-term assets, as illustrated in Figure 2.7. Liquidity is seen as the ease with which an asset can be converted into cash. Niven (2005a:8) states that tangible assets can easily be duplicated or copied and depreciate with use. Intangible assets cannot be bought or

duplicated and will appreciate with purposeful use. As an example of an intangible asset, think of knowledge sharing and the benefits it can create for an organisation.

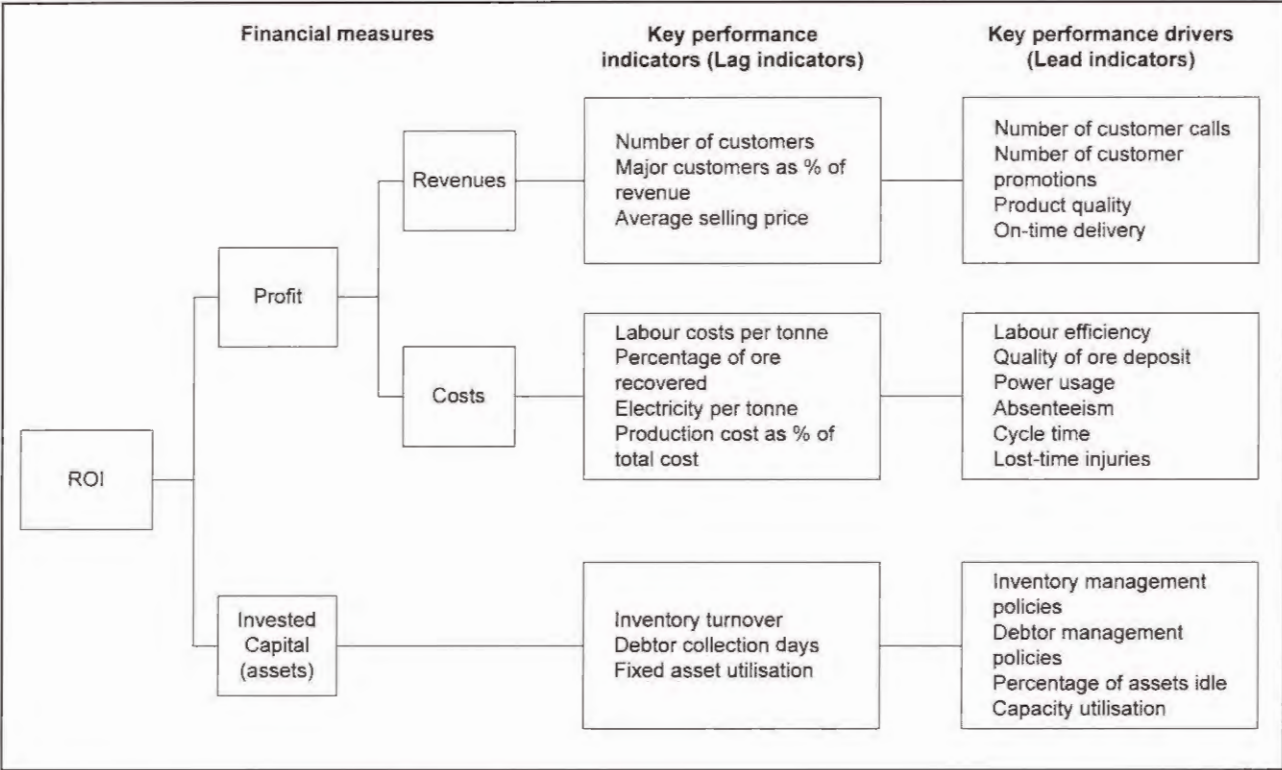
Figure 2.7: Framework for measuring intangible assets



(Source: Kaplan & Norton, 2004:212)

A Du Pont chart, as illustrated in Figure 2.8, can also be used as an alternative approach to link non-financial performance measures to profitability. The chart identifies the linkages between key performance drivers (lead indicators), key performance indicators (lag indicators) and financial performance measures. Effective management of non-financial measures at an operational level should normally ensure improved profitability. This will be possible only if managers selected the right critical success factors in order to ensure higher revenues and less costs (Correia, Langfield-Smith, Thorne & Hilton, 2008:678). The Du Pont chart below is illustrated as based on a typical mining organisation. More or less the same KPDs and KPIs could be applied to the Rolling department at AMSA.

Figure 2.8: Typical Du Pont chart linking financial and non-financial measures



(Source: Correia et al., 2008:679)

The above Du Pont chart clearly indicates that the lead indicators are linked to the lag indicators which eventually indicate the detail used in verifying the revenues and costs needed to determine the profits and eventually the return on investment (ROI). In a steel business like AMSA, more or less the same lead and lag indicators can be used to determine the ROI. Typical important lead indicators at AMSA would be product quality, on-time delivery, labour efficiency, lost-time injuries, inventory management policies, debtor management policies and capacity utilisation. The most important lag indicators applicable at AMSA would be market share, steel prices, customer demand, labour costs, costs of raw materials and electricity, inventory turnover and the utilisation of fixed assets.

According to Davies (2009), the BSC is not a stand-alone process. It must be fed into and driven by the strategy process. Each organisation's scorecard will be different because of different industries, strategies and organisational structures. It is cardinaly important that all employees really do understand how the scorecard works and how it will benefit them. People must know that the BSC is primarily a mechanism for strategy

implementation and not for strategy formulation (Kaplan & Norton, 1996:38). When one leader with a clear vision, works together with others to develop strategies, they will be able to transform the culture and the organisational structure in order to ensure success for the company (Anon., 2009a).

Fonvielle and Carr (as quoted by Hough *et al.*, 2008:13) indicate that the following six steps are needed to achieve alignment in an organisation. These steps can be implemented by using a BSC system to track, measure and manage performance.

- Articulate the key strategic drivers of the business and the main focus areas that will make the organisation successful.
- Define critical strategic goals that should be deployed throughout the organisation.
- Develop performance measures for each of these goals.
- Ensure that all employees understand the measures of both the department and the organisation and how it all link together into strategy.
- Link each measure to a formal feedback and recognition system and communicate the results regularly.
- Review the goals' performance often and develop corrective actions to ensure that it is met.

According to Kaplan and Norton (1996:148), organisations that are able to translate strategies into the measurement system, are more able to execute strategy because this can communicate objectives and targets. Communication helps employees to focus on the critical drivers to align investments, initiatives and actions with accomplishing strategic goals. A BSC that is successful is one that communicates a strategy through an integrated set of financial and non-financial measurements. It is important to note that the BSC should not only be derived from the organisation's strategy; it should also be transparent back to the strategy. The following three principles enable an organisation's BSC to be linked to its strategy:

- Cause-and-effect relationship;
- Performance drivers; and
- Linkage to financials.

It is important that a BSC must have an appropriate mix of outcomes and performance drivers that have been customised to the strategy of each business unit. In this case, the outcomes are the lagging indicators and the performance drivers are the leading indicators. The BSC must be viewed as the instrumentation for a single strategy. The BSC must not be seen as a replacement for an organisation's day-to-day measurement system. The measures on the scorecard must be chosen to direct the attention of managers and employees to those factors expecting to lead to competitive breakthroughs for the organisation. Eventually the scorecard should be able to tell the story of the business unit's strategy by linking outcome and performance driver measures together via a series of cause-and-effect relationships.

Alignment of the BSC with the strategy is the most important factor needed to ensure that the right objectives and measures are addressed on all levels of the organisation to ensure continuous improvement and shareholder value. Managing alignment is seen as a key management process in strategy implementation. Organisations that are better aligned with its corporate business unit and support strategies are enjoying the greater benefits from the company's performance management systems (Hough *et al.*, 2008:14). Niven (2005a:10) states that strategy execution is more important than strategy formulation. The effective use of the BSC will ensure the strategy is executed. Research (Niven, 2005a:28) done on a large organisation, indicated that the BSC ensured that the strategy was well-understood across many languages and cultures of the organisation and it helped to build a unified team committed to move ahead together as one.

2.6 BSC – A MANAGEMENT TOOL

Research as stated by Niven (2002:35) suggests that approximately 75% of an organisation's value is derived from intangible assets. The BSC, with its focus on cause-and-effect linkages woven together to tell the story of the strategy, provides an ideal means for capturing and transforming the value of intangible assets. Intangible assets were also discussed previously in Figure 2.7. The transition in value creation from physical to intangible assets has major implications for measurement systems like the BSC. Today's systems must have the capabilities to identify, monitor, describe and provide feedback on the intangible assets that drive the organisational success (Niven, 2002:29). Kaplan and Norton (quoted by Niven, 2002:29-30) suggest the following

differentiating factors between the value derived from intangible assets and purely physical assets:

- Intangible assets may not have a direct impact on financial results;
- The value of intangibles is largely potential – it must be transformed from the raw yet powerful forces it represents, to actual value-creating opportunities; and
- Intangible assets require interdependence for success. An organisation's leadership style, culture, skills, networks and technology should all be forged together in order to draw value from each.

Since the first book on the use and application of the BSC was published by Kaplan and Norton, the BSC has become the preferred way to develop, document and drive strategy through the business. De Kock (2007:30) also states that Human Resources (HR) has taken the approach that the scorecard is a cornerstone to the effective management of human capital. Despite various challenges, the BSC system can also be used as a management tool in government, public and not-for-profit organisations to achieve significant results. In these cases, the measures on the BSC should be linked together to drive the mission of the organisation.

The real power of the BSC occurs when it is transformed from a measurement system to a management system. In order to truly harness the power of the BSC methodology, new robust reporting engines are required. A lack of powerful reporting tools could have threatened the continued development of the BSC system. Fortunately, the software industry was able to help with a great number of products to fit every BSC implementation. In order to maximise its efforts, organisations will continue to look for better software providers (Niven, 2002:33). Kaplan and Norton (1996:19) further state, that the BSC can be seen as the cornerstone of an organisation's management system. More and more organisations are using the BSC system as a management tool because they see how it can be used to carry out the following:

- Clarify and gain consensus about strategy;
- Communicate strategy throughout the organisation;
- Align departmental and personal goals to strategy;
- Link strategic objectives to annual budgets and long-term targets;
- Identify and align strategic initiatives;

- Perform systematic and periodic strategic reviews; and
- Obtain feedback to learn about and improve strategy.

According to Hough *et al.* (2008:R25), the BSC system represents an integrated management tool that is very useful for co-ordinating cross-function and cross-level decisions and activities in an organisation. It was also found that organisations that adopted the BSC system were significantly larger organisations than the non-adopters. The BSC must not be used as a tool to scare people. The BSC provides a mechanism whereby opportunities for synergy across decentralised strategic business units (SBUs) can be identified and exploited (Kaplan & Norton, 1996:244). Research indicated many success stories where strategic management worked wonders, but there are also many cases where the BSC system did not work well. The BSC works well as a management tool, only if it is implemented the right way (Anon., 2009b). Thompson and Mathys (2008:391) affirm that by using the BSC as a management tool rather than an evaluation tool will change the focus of the leader/subordinate relationship. Employees will then become more actively engaged in reaching organisational goals. According to Cokins (2009:6), performance management is about translating plans into results. Cokins (2009:7) also states that BSCs are not report cards and should not be used to celebrate who have been “good” and punish those who have been “bad”.

To put it plain and simple, the BSC gets results. The BSC has been successfully implemented as a management tool in thousands of organisations across the world. According to Niven (2002:36), an empirical study done by the Cost Management Group, confirmed that consistent and sustainable results were achieved by organisations using the BSC system. It was concluded that measurement drives the agreement on strategy and the communication of that strategy, leading to successful change efforts and improved financial performance. The consistent and sustainable results achieved by using the BSC, serve as the best indicator of the concept's future growth and development (Niven, 2002:34-36). According to Gering and Venkatramen (2000:16), the BSC is a management tool, designed to operationalise and then monitor a strategy by using the appropriate mix of financial and non-financial measures. It must always be clear to know that the BSC is a tool that was designed to assist in executing strategy, not crafting a new strategy (Niven, 2005a:27). Furthermore, Niven (2005a:37) states, that in order for the BSC system to stand the test of time within the organisation and

provide the benefits it is capable of, it must enjoy the sponsorship of an executive who understands, embraces and utilises the tool.

2.7 BSC LINKED TO EMPLOYEE COMPENSATION

“What will it take to make the BSC ‘real’ at your organisation? In other words, how do we transform it from an interesting academic exercise to something people live and breathe every day?” – The answer is clear, *“Link it to people’s pay.”* The BSC and compensation is a match made in pay-for-performance heaven because the scorecard contains the key metrics, exclusively derived from strategy, which sets a trajectory of future growth and profitability. The pay component of the equation keeps everyone committed to do whatever it takes to achieve the scorecard targets (Niven, 2005a:148). Jack Welch (as stated by Niven, 2005a:149) said that by *“not aligning measurements and rewards, you often get what you’re not looking for”*.

Obviously, this is easier said than done. Most BSC implementations will differ from one another because organisations will manipulate the BSC tool to fit the individual culture, current managerial processes and the state of organisational readiness for such a change initiative. Based on this, Niven (2002:244) says, that linking the BSC to compensation will result in even greater individual differences. He further states, that the base salary of people is normally not affected by the BSC. The BSC is used more in variable or incentive compensation. In order to ensure the right link to compensation it is very important to do proper planning by focusing on the following:

- **Purpose.** Questions to be answered are to determine the purpose: What is the overall purpose of the linkages of compensation to the BSC? What specific behaviours are you attempting to encourage or discourage? How will the new pay plan affect the culture?
- **Communication.** Compensation is always an issue; thus it is in an organisation’s best interest to communicate the specifics to the entire employee audience as soon as the BSC plan is developed. It must be ensured that the plan is fair while equitable and the benefits must also be highlighted.
- **Development.** It is important that a variety of participants are involved to ensure the different perspectives and functions are represented.

- **System review.** It must be made clear that the payment program will be reviewed continuously, normally twelve months after the initial launch. This will also indicate a signal of commitment by management and it will ensure that it is possible to make modifications if necessary.

Niven (2005a:150-155) later also states, that the following key principles must be considered when forging or designing the critical pay-for-performance link:

- **Communicate the incentive compensation plan.** It is imperative that before launching any compensation plan, the detail of management's intentions needs to be communicated widely. This information must be shared with the employees in order to ensure the plan is understood, as well as how it advances the organisation's strategic agenda.
- **Who participates in the plan.** It is important to determine exactly who will participate in the compensation plan. The level or group of people linked to the compensation plan varies between different organisations.
- **Are rewards based on individual or group efforts.** Most work in organisations has a cross-functional component and therefore, rewards should represent this reality. An approach that can be followed, is to use both group and individual incentives by using a balanced incentive programme. This will ensure rewards for outstanding individuals and it will also prevent some less motivated employees from earning rewards only on the backs of fellow workers.
- **Perspectives to be included in the compensation plan.** Incentives should be spread across all four perspectives. This will inspire the team to grasp the greater significance of individual performance metrics as it works together to spell success. Different weights can be linked to each perspective in order to ensure focused employee attention on critical drivers for performance in his or her specific area.
- **Measures to be used.** It is very important to use the right measures on a BSC to ensure the strategic goals are achieved. Selecting the wrong measures can send results spiralling in the wrong direction as people will be compensated for performance while organisational goals are not achieved.
- **Lead and lag indicators.** The key again is balance. A healthy and appropriate mix of lead and lag indicators ensures that people are focused both on results today and the determinants of sustaining that success.

- **Thresholds and targets.** It is important that organisations must set a threshold that must be met before any rewards are distributed. All measures forming part of the compensation plan must have targets or multiple target bands that will affect the level of rewards.
- **Different types of rewards.** Organisations can apply monetary awards or recognition in various forms. What is important, is to ensure that individuals' desires and preferences must be met.
- **Frequent reporting of results.** Continuously updated performance information is needed to ensure that people know where they stand and what needs to be done to earn the promised rewards. Linking incentives to metrics that are calculated once a year, will hardly galvanise employee actions because the results are too far in the future.

The design elements needed to link the BSC to compensation are very important towards ensuring an effective system. By applying these elements correctly, it will be ensured that the right linkage is established between compensation and the BSC. It will prevent the problem of, "*You get what you measure*" and it will force management to make ongoing changes to the original scorecard objectives and measurements to fine-tune the cause-and-effect linkages (Niven, 2002:245). It is dangerous to link pay to measures that may or may not stand the test of time. As also previously said, a good BSC must tell the story of the organisation's strategy through a series of cause-and-effect relationships running through the four perspectives, as previously illustrated in Figure 2.3.

The following paragraphs indicate some examples or viewpoints from organisations and or people who more or less agree that payment must be linked to the BSC. According to Garrison *et al.* (2007:454), managers must be confident that the performance measures are reliable, sensible and understood and not easily manipulated by those who are being evaluated. According to Kaplan and Norton (as quoted by Garrison *et al.*, 2007:454), compensation is such a powerful lever that you have to be confident that the right measures and good data for measures are available before making the link of tying compensation to the BSC.

Lawler (2003:402) states that performance systems are more effective when there is a connection between the results of the performance management system and the reward

system of the organisation. It is also strongly emphasised that organisations should not separate performance from determining pay changes and concludes by saying that it is good practice to tie the results of performance reviews to the financial rewards individuals receive.

Davies (2009) also states, that it is very important that the BSC measurements must be used as part of what determines compensation of employees. If this is not done, the credibility of the process will be undermined. According to Kaplan and Norton (1996:217), the big question faced by all organisations, is whether and how to link the compensation system to the BSC measurements. It is important that, for the BSC to create a cultural change, incentive compensation must be connected to achievement of the BSC objectives. Based on this, the issue is not whether, but when and how the connection should be made to compensation. Knowing that compensation based on BSC measures will differ from organisation to organisation, one must remember that alignment and accountability will clearly be enhanced when individual contributions to achieving BSC objectives are linked to recognition, promotion and compensation programmes. It is a known fact that incentive compensation motivates performance. It is, however, important that organisations should first gain some experience in managing with the BSC before explicitly tying compensation to it. Gering and Rosmarin (2002:19) state that for the BSC to work, it must be aligned to incentives. It is, however, important to avoid one of the biggest mistakes made by trying to incentivise the scorecard directly. Incentivising the BSC directly results in confusion, while ignoring the BSC destroys any chance of buy-in.

According to Kaplan and Norton (2007:155), most organisations believe that tying financial compensation to performance is a powerful lever, for which a linkage needs to be established. It also states what has been said by the CEO of Pioneer, that linking compensation to the BSC has helped to align the organisation with its strategy. It must, however, be kept in mind that as attractive and as powerful the linkage is, it nonetheless carries risks. Examples of these risks can be identified by asking the following questions:

- Does the organisation have the right measures on the scorecard?
- Does it have valid and reliable data for the selected measures?

- Could unintended or unexpected consequences arise from the way the targets for the measures are achieved?

Many organisations believe that performance measures are more motivational if linked to rewards. The performance measures used in a BSC are very important for the success of the BSC system. To generalise, according to Correia *et al.* (2008:672), the following factors should be common to all scorecard approaches in order to reduce the likelihood of dysfunctional behaviour:

- The measures should support the objectives and strategy of the business;
- These should cascade down through the various levels of the organisation; and
- The chosen measures should include both short-term and long-term measures as well as financial and non-financial measures.

DeBrusk and Crabtree (2006:47) also say, that providing incentive compensation based on BSCs is easier said than done. It is difficult to link BSC measures to compensation and it carries some risk because incentive pay based on a few variables will focus attention only on those variables that can increase compensation. The remaining variables will be ignored even though also linked to the organisation's strategy. A pay plan that focuses only on a few variables will also tend to focus on financial measures, which are focused on short-term results that can be manipulated easily. A survey done on members of the Institute of Management Accountants indicates that 65% of the respondents, who did not see an increase in operating performance, did not use the BSC to determine management compensation (DeBrusk & Crabtree, 2006:48).

The following methods can be used to link the BSC to compensation (Niven, 2002:249):

- **Basing rewards on overall results.** Under this method a certain percentage of incentive compensation is available should the organisation achieve some or all of its goals. Weights are assigned to each of the four perspectives to the sum of 100%.
- **Driving the link to all levels of the organisation.** This is where the cascading technique is used to align rewards with results that hit closer to home for employees. With this method, outstanding performance is rewarded differently on individual levels.

- **Competency-based pay.** Incentive compensation is directed towards the acquisition of competencies. This method was used the least up to date.
- **Gain sharing.** This is an improvement system that relies on employee actions to enhance organisational results. Savings generated from the improved results are shared with employees through incentive bonuses.

To summarise, it could be said, that most organisations will devise a linkage between the BSC system and its compensation system that is customised to meet unique needs and challenges. Management must consider all the planning and design elements before attempting to link the BCS to compensation. The most convenient linking method is to base payouts on the results achieved with the high level organisational scorecard, but this method does little to reward outstanding performance at a business unit, department or individual level. Each organisation will use a different way to link compensation to the BSC. Despite many challenges, the BSC and compensation bond can offer a legitimate win-win proposition to organisations and employees. Money may or may not make the world go round, but it certainly can grease the wheel of your BSC (Niven, 2005a:155).

2.8 EFFECTIVE BSC FORMULATION AND IMPLEMENTATION

As previously said, effectiveness is not only to do the right things right, it is to want to do the right things right (Coetsee, 2003:42). For Covey (1994:54), effectiveness lies in the balance about producing the desired results and using the production capability. Focused measurement is about being effective; that means getting the right things done (Spitzer, 2007:71). For a BSC system to be effective, organisations need to make sure the rights objectives are measured the right way to ensure long-term performance.

The BSC is also a performance measurement system. It does not eliminate the role of financial management in a management system; it embeds financial measurement in a more balanced management system that links short-term operational performance with longer term strategic objectives (Kaplan & Norton, 1996:273-276). The first few steps in the implementation process of a BSC include the following:

- The organisation's strategy and vision needs to be clarified;
- The corporate strategy needs to be communicated;

- Cross-business strategic initiatives need to be launched; and
- Each SBU must develop its own strategy that is consistent with that of the organisation.

Bloomquist and Yeager (2008:24-26) state, that a key to successfully designing and implementing a BSC system, is alignment with the strategic plan. If a BSC is used effectively, it serves as a component of a measurement-based strategic management and learning system that furthers the organisation's ability to achieve its strategic objectives. The BSC can be seen as the compass along the journey to achieving the strategic plan. It all sounds very easy but achieving the ultimate BSC, does not happen overnight. Some of the lessons learned to ensure a smooth process, include the following:

- **Be flexible.** Developing and implementing a BSC is an evolutionary process. Not every measure will be correct the first time.
- **Be consistent.** Good documentation needs to be created for each measure.
- **Be clear.** Leadership buy-in and understanding need to be obtained.
- **Be open.** Frequent communication is needed.
- **Be thorough.** The existing infrastructure must be used, not something new.
- **Be efficient.** Ensure the individual goal setting is not too cumbersome.
- **Be inclusive.** Involve multiple departments at any stage.
- **Be systematic.** It is important to improve the process continuously.

Research (Correia *et al.*, 2008:685; Davies, 2009; Hough *et al.*, 2008:R27; DeBrusk & Crabtree, 2006:48; Gering & Rosmarin, 2002:18-19) indicate, that the following recommendations can be used for the implementation and formulation of an effective BSC:

- Senior leadership involvement must always be obtained. The BSC development process must not be delegated to middle management;
- The firm's business vision and strategy need to be articulated;
- Performance categories that link vision and strategy to results need to be identified;
- The scorecard must be cascaded to team, division and functional levels;
- Effective measures and meaningful standards need to be developed. Measures must be chosen to optimise the whole;

- The BSC must be viewed as a continuous process, requiring maintenance, re-assessment and updating. BSCs are dynamic and should be continually reviewed to reflect new competitive, technological and market conditions;
- Appropriate budgeting, Information Technology (IT), communication and reward systems need to be deployed;
- It should recognise controllability. When people are responsible for achieving certain performance measures, these measures should relate to activities and processes that are under their control;
- It must emphasise the positive. Performance measures should be expressed in positive rather than negative terms to motivate improvements. It gives immediate feedback and allows that timely corrective actions can be taken;
- It must be timely to ensure that the performance measures are reported as close as possible to the period which they relate to;
- It should include benchmarking. Performance measures must be benchmarked to high external standards in order to lift performance;
- It should embrace participation and empowerment. To encourage managers and employees to accept performance measures as fair, they must be involved in their formulation and operation. Employees may be empowered to identify their own performance measures linked to business strategies and to take actions to improve performance. It is very important to have buy-in from all the essential players;
- One must believe in the BSC as a facilitator of organisational and culture change;
- The key to the success of the BSC is its simplicity. One must see an organisation from four perspectives, one driving the other. Only a few performance measures need to be included; and
- Linking BSC performance goals to compensation might add additional complexity, but it is a valuable tool in implementing the BSC successfully. Performance measures are more motivational if they are linked to rewards.

Kaplan and Norton (1996:224) found the following four steps in the mid nineties needed to use the BSC in an integrated long-range strategic planning and operational budgeting process:

- Set stretch targets;
- Strategic initiatives need to be identified and rationalised;
- Critical cross-business initiatives need to be identified; and

- Annual resource allocation and budgets need to be linked.

Strategic feedback and learning constitute a very important process of the BSC as it affects the morale of employees. A case study done on Echo Engineering, as stated by Kaplan and Norton (1996:256), indicates that improved employee morale will lead to the following:

- Increased customer satisfaction;
- Lower accounts receivable; and
- Higher return-on-capital-employed.

According to Niven (2002:317-321), many organisations will fall prey to at least one of the top ten BSC implementation issues listed:

- Premature links to management processes;
- Lack of cascading;
- Terminology use;
- No new measures;
- Consistent management practices;
- Timing;
- No objectives for the scorecard;
- No strategy;
- Lack of training and education; and
- No executive sponsorship.

For the effective implementation of a BSC, it is very important to make sure the above listed points are addressed to ensure good performance measures for the improvement performance of individuals and that of the organisation. Designing and implementing a good performance measurement system are difficult. It requires careful analysis and frequent reviews and an understanding of how people behave and react to particular performance measurement systems. It is not just a case of replacing or supplementing financial performance measures with non-financial performance ones (Correia *et al.*, 2008:684). Gering and Rosmarin (2002:18) state, that if correctly implemented, the BSC is a tool for decentralisation and it will empower line managers. On the other hand, a

badly implemented BSC has the potential to become a centralist trap. Once the BSC becomes viewed as a central planning tool, it rapidly becomes part of corporate politics.

Research (Lawler, 2003:396) shows that performance management effectiveness increases when there is ongoing feedback, behaviour-based measures are used and preset goals and trained raters are employed. Many companies are using a forced distribution approach but this represents an unrealistic mandate and it may force managers to make judgements they cannot support with data. A study that was done on 55 Fortune 500 organisations confirms that performance management systems are rated as more effective when a forced distribution approach is *not* used. It is also better not to use a forced distribution approach when the results of an appraisal will be used for terminations (Lawler, 2003:401). Lawler (2003:398) also states, that when performance appraisals have a great or very great influence on salary increases, they are more effective.

Niven (2005a:59) states that the rate at which the BSC is developed, depends on several variables, including organisational readiness, the sense of urgency within an organisation, commitment of senior management to the tool, the scope of the work and the availability of resources.

Over the years the BSC system has been modified and improved and these changes ensured that it became stronger and more adaptable as a management system. Research (Niven, 2002:325) indicates that the potential for future growth and development for the BSC system is dramatic. The work continues and the most exciting breakthroughs are most likely still ahead. It is very important that the performance measures used in a BSC must be tailored to the specific strategy of each organisation. If a BSC is constructed correctly, the performance measures should be linked together on a cause-and-effect basis. Each link can then be read as a typical hypothesis; if one improves this performance measure, then the other performance measure should also improve (Garrison *et al.*, 2007:453). In order for an organisation to ensure continuous improvement and to remain competitive, it is important that relevant performance measures are selected, the measures are defined and redefined and performance targets must be made more challenging as measured in BSCs (Correia *et al.*, 2008:685). The results of the BSC must be analysed on an ongoing basis and it must be used to learn about the effectiveness of strategy execution (Niven, 2005a:20).

2.9 CHAPTER SUMMARY

The BSC is a management system, not just a measurement system. The four perspectives of the BSC are casually related, linked together to create value in achieving the financial objectives. The BSC is a management system to motivate breakthrough competitive performance. Research indicates that the BSC is most successful when it is used to drive the process of change. The BSC system offers many benefits that make it a must-have tool for any organisation who wants to have a competitive advantage. The most important problems that can occur in using the BSC systems, are too many performance measures, performance measures not aligned with strategy, visions and strategies that are not actionable, insufficient or poor feedback or training, unclear links between the BSC and compensation, and a lack of senior management involvement.

The BSC is a powerful management tool that will ensure that an organisation's vision and strategy are translated into action in order to ensure that long- and short-term goals are achieved. A BSC system can be applied effectively only if senior management of an organisation is involved and leads the process. Scorecards succeed or fail based on the quality of their measures, how they are implemented and how well people use them. The essence of the BSC is the process and discussion relating to the measures.

Much of the BSC is simple common sense: getting agreement on strategy, strengths and weaknesses, measuring essential business numbers, and focusing not only on financial outcomes, but also on those issues that will affect those outcomes in future. It can thus be said that the BSC leverages common sense into a substantial competitive advantage (Anon., 2009a). The single most important condition for the successful implementation of the BSC is the ownership and active involvement of the executive leadership team (Chang, Tung, Huang & Yang, 2008:1151).

The BSC is seen as the cornerstone of an organisation's management system because it aligns and supports the following key processes: It updates and clarifies strategy; it communicates strategy throughout the organisation; it aligns personal and departmental goals to strategy; it identifies and aligns strategic initiatives; it links strategic objectives

to long-term targets and annual budgets; it aligns strategic and operational reviews and it obtains feedback to learn about and improve strategy.

A well-constructed BSC provides a means for guiding an organisation and it also provides feedback concerning the effectiveness of the strategy. The BSC system should be viewed as a dynamic system that evolves as the organisation's strategy evolves (Garrison *et al.*, 2007:458). Communication and continuous feedback are very important for effective BSC implementation. Before employees in an organisation can act on an idea, they must accept it and in order to accept it, they must understand it fully. Consistent and well-timed communication is the foundation for understanding, acceptance and ultimately, effectiveness.

According to Niven (2005a:58), in order for the BSC to reach its potential as a strategic management system, it must be nurtured along a steady implementation path and should evolve as the business inevitably does. As previously mentioned, change is the only constant in today's world, thus market forces, customer preferences, demographics, technology and a host of other factors affecting a business, are constantly shifting. To ensure the effectiveness of the BSC system, people in an organisation must want to do the right things right in making sure they use the BSC for the way it was implemented. Lawler (2003:402) states that performance appraisal systems are more effective when there is a connection between the results of the performance management system and the reward system of the organisation. Forced distribution approaches tend to be associated with lower effectiveness in general. If the BSC system is done incorrectly, it can lead to a significant level of negativity in an organisation.

The information gained during the literature study was used to construe the questionnaire used for the empirical study. The results of the empirical study are discussed in Chapter 3. The results will be used to verify if the primary objective and the secondary objectives were met.

CHAPTER 3: EMPIRICAL STUDY

3.1 INTRODUCTION

ArcelorMittal South Africa (AMSA) has been using the BSC system for the past eight years. Initially most people's perceptions were very negative about this system because they did not see the benefits of the system as projected by management. As people's perceptions about the BSC were negative, they felt that compensation is also not done in line with BSC performance. They also felt that the BSC is not a fair measurement and that time is wasted by drawing up the BSCs. In order to apply the BSC system effectively, employees need to understand the use of the BSC and its benefits to ensure they meet all customers and shareholder objectives.

The BSC was chosen as topic to evaluate the current BSC system as applied in the Rolling department of AMSA and to identify ways of improvement to gain more benefits for the organisation and its employees. An empirical study was conducted by means of a questionnaire. This study was aimed at getting answers to the primary as well as the secondary objectives. The empirical study focused on the general knowledge of people about basic principles of a BSC system, the benefits of a BSC system, problems with a BSC system, alignment of the BSC with strategy, the BSC as a management tool, the BSC linked to employee compensation, and effective BSC formulation and implementation.

3.2 GATHERING OF DATA

The people in the Rolling department included people from the following different divisions: Quality Management (QM), and Production and Maintenance. Members of this group of people were chosen for the empirical study because they are responsible for producing the final product delivered to customers. These are the people who, together with Marketing, liaise with customers on a weekly and or monthly basis. It is thus very important to evaluate whether these people are using the BSC the right way to improve the organisation's performance in line with the strategy. People in Rolling are also in daily contact with people working in other departments like Planning, Finance and Steelmaking. The sample was selected randomly to ensure that several job levels are involved. Respondents included people on three different job levels ranging from

Technicians, Engineers, Technologists, Senior Engineers and Managers (mainly middle management). These people were selected because they are mainly responsible for doing the work to ensure that targets set by senior management, were met.

The empirical study was done by distributing questionnaires via e-mail. This was chosen as the easiest and most effective way of getting the best feedback as all the people in the target group had access to e-mail. A pilot study was done by distributing the questionnaire to only ten people to test the correctness and people's understanding of the questionnaire. The final questionnaires were distributed to 200 randomly selected people on G, F and E roles from different divisions, different age groups and people with different years of service. The aim was to obtain at least the same number of respondents per role and per division to be able to generate better statistical analyses. Respondents had a choice of returning questionnaires by hand or electronically. Questionnaires were completed voluntarily and treated anonymously. The questionnaires consisted of three parts with different types of questions as can be seen in Annexure 1.

- **Part A.** General 'Yes' or 'No' type questions as background to investigate the use and employee engagement in the BSC system. Under these questions employees were requested to basically confirm whether they have BSCs and if they had inputs in designing their BSCs and whether they had feedback discussions on their previous BSC performance.
- **Part B.** Likert Scale type questions based on the secondary objectives. This part formed the biggest portion of the questionnaire and included 40 questions divided into the following sub-headings:

General questions – Questions 1 to 5.

Benefits of the BSC – Questions 6 to 13.

Problems with the BSC – Questions 14 to 19.

Alignment of the BSC with Strategy – Questions 20 to 24.

BSC as a management tool – Questions 25 to 29.

BSC linked to employee compensation – Questions 30 to 34.

Effective BSC formulation and implementation – Questions 35 to 40.

- **Part C.** An open-ended question was asked to gain feedback on people's perceptions whether the BSC system is applied effectively or not. Respondents were also requested to motivate their answers.

The data gathered from the questionnaires under Part B, were measured by means of a five-point Likert Scale. The scale varied from (1) strongly disagree to (5) strongly agree. Mid points on the scale were (2) disagree, (3) neutral, (4) agree. Typical statistical techniques used to analyse the data, included the following:

- Radar graphs;
- Descriptive statistics (Skewness and Kurtosis values);
- Histograms, frequency tables and normal distribution fits; and
- Summarised as to compare mean values amongst different groups.

Microsoft Excel, PHStat2 and Minitab were the statistical programs used to do the statistical analysis.

3.3 RESULTS AND DISCUSSION

The responses on the questionnaires were not as good as expected. This could have been because of the perceived negative view of employees about the BSC and also because people were not awarded any increases this year because of the economic crises. Only 90 people or 45% from the sample of 200 responded to the questionnaires. The detail of the number of responses is summarised in the Table 3.1.

Table 3.1 clearly indicates that good representative responses were obtained for each division as well as from people on different job levels. The amount of responses per group in years of service and the age groups was not the same. In some sub-groups less than 10 people responded. This makes statistical analyses somewhat more difficult as results cannot really be compared to draw statistical conclusions. The number of responses per age group is a good reflection of the number of employees on E, F and G roles in total under Rolling. The low percentage of younger people could be seen as a problem to ensure sustainability, especially seeing that most of these people are technically qualified.

Table 3.1: Summary of number of respondents per area or group

Issue or group measured	Sub-group	No of respondents
Division in Rolling	Production	31
	Quality Management	28
	Maintenance	31
		90
Job level in organisation	E-Role	28
	F-Role	29
	G-Role	33
		90
Years of service	< 5 years	9
	5 to 10 years	8
	11 – 20 years	19
	> 20 years	54
		90
Age of respondents	20 – 25 years	3
	26 – 35 years	10
	36 – 45 years	32
	46 – 55 years	38
	Older than 55 years	7
		90

(Source: Own research)

Statistical techniques were used to analyse the data. Descriptive statistics were used to identify or highlight the good and or bad perceptions of respondents on the BSC system. The gathered information was compared amongst different divisions, age groups, years of service and job levels. Averages or means and standard deviations were drawn up to draw conclusions. The obtained results were interpreted qualitatively and quantitatively to verify the effectiveness of the BSC system. As criteria for effectiveness, the higher the average number on the Likert Scale, the more effective the BSC is seen to be used and or applied. Theoretically, for a BSC system to be applied the right way (effectively), all ratings should be on three, four or five. A higher number also indicated the level of knowledge of employees about a BSC system. An effective BSC system would thus reflect as a left-skew distribution with a relatively high average rating of above 3.5 for statements or questions under Part B of the questionnaire.

3.3.1 Part A: General questions

A total of 100% of all respondents confirmed that they do have a BSC. This is a very good performance, indicating that the BSC system is applied and known to all respondents. It, however, does not say the BSC system is effectively applied.

A total of 75.6% of the respondents indicated that their direct managers did not have a detailed discussion with them regarding the new BSC, nor was feedback given on the previous BSC performance. This is an indication that the BSC system is not effectively applied across all divisions within Rolling.

A total of 84.4% of the respondents indicated that they were given the opportunity to provide inputs in their new BSC. This figure would also have been higher if the BSC system is applied effectively in order to ensure that BSCs of employees are aligned with the goals of the division and the organisation's strategy and values.

Table 3.2 summarises the results of responses per sub-group. The numbers in "**bold**" indicate the highest percentages in each sub-group per column. From the information in Table 3.2 it can be concluded that people in different divisions are using the BSC system differently. Quality Management (QM) showed higher percentages on all three answers, which could be an indication that the BSC is used or applied more effectively than in Production and Maintenance. Feedback received from different job levels indicates that E-role people, which is the highest level of the sample surveyed, mostly showed the highest percentages. F-role and G-role people who normally report to E-role people, show lower percentages. This could be an indication that senior management people who are on D-roles and upwards apply the BSC more effectively on the E-roles who are reporting to them. The BSC is not applied as effectively on F-role and G-role people as they have less engagement on their BSCs.

Regarding years of service, it is not possible to make clear conclusions amongst all sub-groups of respondents as the number of responses varies from eight to fifty-four. The percentages for each sub-group also varied too much to make any correct conclusion. The same applied to the different age groups where the number of responses varied from three to thirty-eight. Although only a few responses were received in the youngest

(20 to 25 years) and the oldest (> 55 years) age groups, it is encouraging to see that they showed high percentages, indicating that they are more engaged in the BSC system than are the middle age groups. The values in Table 3.2 need to be viewed together with the number of responses as indicated in Table 3.1.

Table 3.2: Summary for 'Part A' questions

Sub group	Total % of respondents who had a detailed discussion on their new BSC	Total % of respondents who had a feedback session on their old BSC	Total % of respondents who had the opportunity to give inputs in their new BSC.
Production	74.2	61.3	74.2
QM	89.3	85.7	92.9
Maintenance	64.5	80.6	87.1
E Role	78.6	85.7	92.9
F Role	69.0	72.4	86.2
G Role	78.8	69.7	75.8
< 5 years	77.8	88.9	66.7
5 – 10 years	62.5	62.5	87.5
11 – 20 years	68.4	68.4	84.2
> 20 years	79.6	77.8	87.0
20 – 25 years	100	100	66.7
26 – 35 years	50	60	80
36 – 45 years	78.1	71.9	87.5
46 – 55 years	76.3	76.3	84.2
Older than 55	85.7	100.0	85.7

(Source: Own research)

3.3.2 Part B: Specific BSC related questions related to sub-headings

3.3.2.1 General summarised results

Each question in the questionnaire is analysed separately for the total group below as per the sub-headings used. The tables include the number of responses (N), the average (Mean), the standard deviation (STD), the minimum (Min) and the maximum (Max) value of the ratings. The detail is summarised in Tables 3.3 to 3.9. Detail frequency tables for all responses to each question are available in Annexure 3.

A summary for questions one to five, about the general BSC related questions, is shown in Table 3.3. On average, the responses were relatively high for the general questions related to the BSC. Since these questions form the basic principles of a BSC, it was expected that the average ratings would be higher in order for the BSC to be applied effectively. Responses varied from 1 (Strongly disagree) to 5 (Strongly agree). Looking at the frequency tables in Annexure 3, about 60% of the respondents on each question, agreed with the statements made in the questionnaire, by giving a rating of 4. The low ratings of 1 are an indication that not all people understand the principles of a BSC system.

Table 3.3: Table with all responses on general BSC questions

No	General: All respondents	N	Mean	STD	Min	Max
1	AMSA's strategic goals and values form the basis of your BSC.	90	3.56	0.79	1	5
2	Your BSC is in line with what is expected from you to ensure good performance for Rolling in general.	90	3.65	0.81	1	5
3	You are measured against the four perspectives of the BSC.	88	3.81	0.80	1	5
4	The overall intent of your BSC is to support and drive goals in achieving the strategic objectives.	90	3.63	0.77	1	5
5	The BSC provides managers with an instrument needed to navigate for future competitive success.	89	3.30	1.07	1	5
	Overall	447	3.59	0.87	1	5

(Source: Own research)

3.3.2.2 Benefits of the BSC

A summary for questions six to thirteen, about the benefits of the BSC, is shown in Table 3.4.

Table 3.4: Table with all responses on the benefits of the BSC

No	Benefits of the BSC	N	Mean	STD	Min	Max
6	Your BSC improves your alignment with strategy and day-to-day operations.	89	3.27	1.06	1	5
7	The BSC helps people to understand, develop and apply strategy within their business units.	89	3.25	0.98	1	5
8	The BSC develops a clear understanding of how strategy is operationalised.	89	3.16	0.96	1	5
9	The BSC helps the entire organisation to focus on what must be done to create breakthrough performance.	90	3.01	1.02	1	5
10	The BSC helps to integrate various corporate programs such as quality, re-engineering and customer service initiatives.	90	3.07	1.00	1	5
11	The BSC breaks down strategic measures to lower levels so that all people can see what is required at their level to achieve excellent overall performance.	89	3.28	0.95	1	5
12	The BSC increases the visibility of the organisation for senior management and improves communication.	90	2.90	0.97	1	5
13	If the BSC is updated regularly, it can give warnings of problems ahead, or signal opportunities.	90	3.59	0.93	1	5
	Overall	716	3.19	1.00	1	5

(Source: Own research)

Responses on most of the questions indicated, that people are more neutral regarding the benefits of the BSC. This is also an indication that they are not in agreement with the listed benefits that can be achieved if a BSC is applied effectively. The responses also covered the full range from 1 to 5, as can be seen in the frequency tables. The ratings were mainly from 2 to 4 which explained the sort of average or neutral average rating. The "lower" average for question 12 forms some concern for the organisation because some people do not understand that the BSC increases visibility of the actual performance to senior management, and that through the BSC, communication is improved. This could be a result that cascading of the high level BSC is not done properly or effectively in all divisions or all levels.

3.3.2.3 Problems with the BSC

A summary for questions 14 to 19, about problems with the BSC, is shown in Table 3.5. Responses on most of the questions indicate that people are more neutral regarding the problems that could be experienced with the BSC. The responses also covered the full range from one to five. The frequency tables show that the majority of the ratings were from 2 to 4, which explained the sort of average or neutral average rating.

Table 3.5: Table with all responses on problems with the BSC

No	Problems with the BSC	N	Mean	STD	Min	Max
14	Senior management supports the BSC system.	89	3.46	0.93	1	5
15	Your performance measures in your BSC are SMART (Specific, Measurable, Attainable and Time-bound).	89	3.29	0.89	1	5
16	You have focused feedback and continuous communication sessions regarding your BSC.	90	2.91	1.01	1	5
17	You have clear monthly visibility of the progress on the KPIs you are measured against.	89	3.02	1.10	1	5
18	Your BSC is a simple and transparent process.	90	3.14	0.95	1	5
19	You have an influence on all the KPIs listed in your BSC.	90	2.99	1.09	1	5
	Overall	537	3.14	1.01	1	5

(Source: Own research)

The “lower” average for question 16 indicated that some people are not receiving focused and continuous communication on their BSCs. Without feedback and continuous communication, no BSC system can be applied effectively. Another concern that is also clear is the fact that some people said that they do not have an influence on all the KPIs listed on their BSCs as per question 19. This is and will always be a difficult measurement to manage in any steel organisation as the downstream performance depends a lot on the incoming material. The important aspect in this case is to manage the balance between group and individual measurements.

3.3.2.4 Alignment of the BSC with strategy

A summary for questions 20 to 24, about the alignment of the BSC with strategy, is shown in Table 3.6. On average, the responses were relatively high and most people tend to be more in agreement with the statements made on alignment of the BSC with

the strategy. The low standard deviations also indicate that although the full range of responses was seen, people understand the issues and criticality about alignment of the BSC with the organisation's strategy. The majority of the ratings came out on a 4 which indicates that people agree with the statements made in all questions.

Table 3.6: Table with all responses on alignment of the BSC with strategy

No	Alignment of the BSC with the strategy	N	Mean	STD	Min	Max
20	Your BSC is aligned with the strategy, vision and values.	89	3.48	0.74	1	5
21	When human, informational and organisational capitals are aligned with the strategy, the organisation will have the ability to mobilise and sustain the process of change required to execute its strategy.	89	3.56	0.67	2	5
22	Helping others to perform will improve your own performance and that of Rolling.	88	3.84	0.83	1	5
23	Executive team building and commitment are essential parts of gaining benefits from the BSC.	88	3.56	0.88	1	5
24	Communication of the BSC should increase people's understanding of the organisation's strategy and enhance motivation to achieve strategic objectives.	89	3.79	0.75	1	5
	Overall	443	3.65	0.79	1	5

(Source: Own research)

3.3.2.5 BSC as a management tool

A summary for questions 25 to 29, about the BSC as a management tool, is shown in Table 3.7. On average, the responses were relatively high and most of the people tend to be more in agreement on the questions related to the BSC as a management tool. The low standard deviations also indicate that although the full range of responses was seen, people understand that the BSC can be used as a management tool in the organisation. The frequency tables also indicate that the majority of the ratings were around four, which indicate that most people agreed with statements made in all questions. Apart from question 28 and to some extent question 26, most of the other average values indicate, that people are more in agreement on the use of the BSC as a management tool.

Table 3.7: Table with all responses on the BSC as a management tool

No	BSC – a management tool	N	Mean	STD	Min	Max
25	Challenging but obtainable performance goals motivate you to perform better.	90	3.90	0.82	2	5
26	The BSC is used as a management tool to guide employees towards achieving personal as well as organisational goals.	88	3.38	1.02	1	5
27	With a clear understanding of the role and function of the BSC, one can take the business to higher levels of productivity.	90	3.86	0.74	2	5
28	The BSC provides a mechanism whereby opportunities for synergy across SBUs can be identified and exploited.	90	3.24	0.94	1	5
29	The real power of the BSC occurs when it is transformed from a measurement system to a management system.	90	3.89	0.82	1	5
	Overall	445	3.65	0.91	1	5

(Source: Own research)

3.3.2.6 BSC linked to employee compensation

A summary for questions 30 to 34 in terms of the link between the BSC and employee compensation, is shown in Table 3.8. As expected, after doing the literature study, whenever there is money involved, one can expect some kind of reaction. This surely was clear from questions 30 and 31, as can be seen on the low average ratings received.

Table 3.8: Table with all responses on the link between BSC and compensation

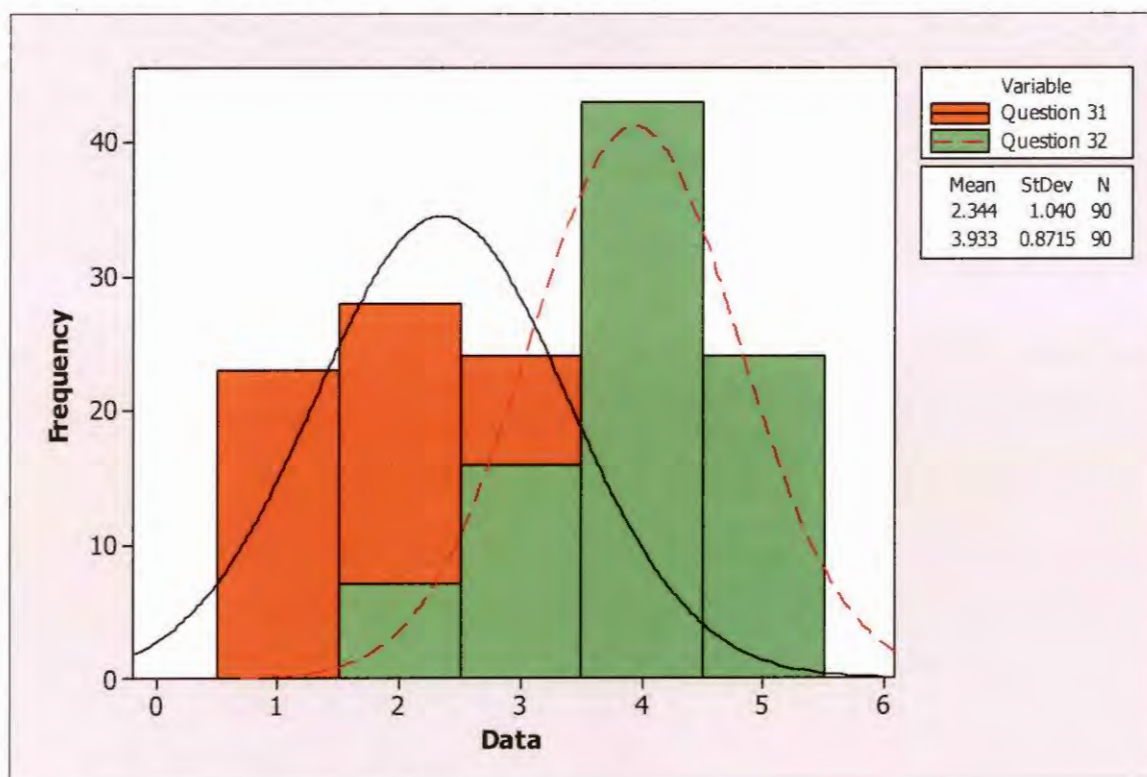
No	BSC linked to employee compensation	N	Mean	STD	Min	Max
30	Your BSC rating is a reflection of your compensation.	90	2.64	1.06	1	4
31	AMSA's link between BSC and compensation is fair and transparent.	90	2.34	1.04	1	4
32	Your BSC rating must <i>not</i> be the only rating to determine your compensation.	90	3.93	0.87	2	5
33	Communication of the BSC's objectives and measures is a first step in gaining individual commitment to the business unit's strategy.	90	3.89	0.61	2	5
34	For the BSC to create the cultural change, incentive compensation must be connected to the achievement of the scorecard objectives.	89	3.64	0.91	1	5
	Overall	449	3.29	1.13	1	5

(Source: Own research)

The frequency tables also clearly show that the majority of the ratings for these two questions were below or equal to three. A big concern is the fact, that most people indicated that the link between the BSC and compensation is not fair and transparent. A much higher rating must be achieved on such a question to imply that the BSC system is applied effectively.

Figure 3.1 is a graph with combined histograms indicating the detail of the responses to questions 31 and 32. Figure 3.1 clearly indicates that the average rating on question 31 was below four. This confirms that no-one strongly agrees that the BSC is a fair and transparent process.

Figure 3.1: Combined histograms on ratings to questions 31 and 32



(Source: Own research)

The average response on question 32 was the highest of any question and indicated that most respondents are in agreement that the BSC should **not be used as the only rating** to determine compensation. The frequency tables in Annexure 3 indicate percentage responses for each question and it is clear that 83.3% of the responses were neutral or lower to strongly disagreement on question 31. The frequency table for question 32 shows more or less the opposite where about 75% of the respondents rated the statement as neutral or agree to strongly agree. In both the questions the responses

did not form a normal distribution. The standard deviation was lower in the case of question 32, mainly because most respondents were in agreement with the statement and thus the smaller variation.

3.3.2.7 BSC formulation and implementation

A summary for questions 35 to 40, about the BSC formulation and implementation, is shown in Table 3.9. On average, the responses were relatively high and most of the people tend to be more in agreement on the questions related to the formulation and implementation of the BSC system. The low standard deviations also indicate that although the full range of responses was seen, most people understand the criticalities of formulation and implementation of the BSC system.

Table 3.9: Table for all responses on BSC formulation and implementation

No	BSC formulation and implementation	N	Mean	STD	Min	Max
35	Top management is committed to ensure the use of an effective BSC system.	90	3.11	0.93	1	5
36	Effective measures and meaningful standards are used to determine your BSC ratings.	90	3.11	0.90	1	4
37	The BSC must be viewed as a continuous process, requiring maintenance, re-assessment and updating.	90	3.92	0.62	1	5
38	At AMSA we believe in the BSC as a facilitator of organisational and cultural change.	89	3.02	0.89	1	4
39	Your BSC is simple and easy to use.	90	3.39	0.86	1	5
40	You understand all the terminology used in your BSC.	89	3.71	0.79	1	5
	Overall	538	3.38	0.90	1	5

(Source: Own research)

The average responses to questions 37 and 40 were high, which again emphasises the importance of continuous feedback, communication and understanding of the BSC system. This can also be seen in the frequency tables in Annexure 3 where a high percentage (70%) of the respondents agreed with the statements made.

Figures 3.2 to 3.10 represent **radar graphs and histograms for all the average ratings** on the 5-point Likert Scale where the groups and sub-groups were compared to one another as well as with the total of all responses. The average values per group were also used to determine the skewness and kurtosis values, as can be seen in Annexure 4. None of the ratings showed a normal distribution as is suggested in the

histograms where a normal distribution plot was fitted by using the values for the mean and the standard deviation.

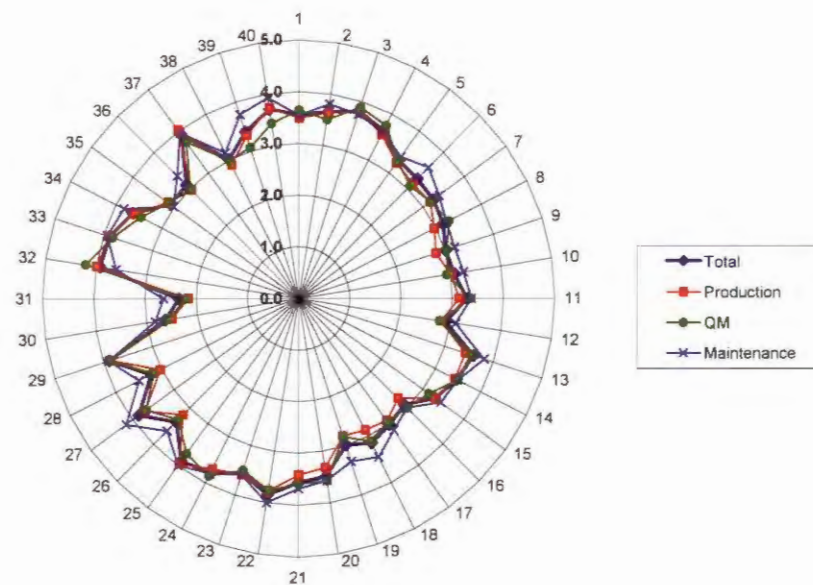
This is also confirmed by the positive or negative skewness and kurtosis values. The majority of the distributions show a slight left skewness which is an indication that the average or mean is smaller than the median value. A skewness value of zero indicates a symmetrical or normal distribution. The kurtosis values were also either positive or negative, which indicates sharper or flatter levels than a normal distribution or bell-shaped distribution. A kurtosis value of zero indicates a bell-shaped distribution (Levine, Stephan, Krehbiel & Berenson, 2008:114).

It is clear that the same tendency is seen on all radar graphs, indicating that the average responses were more or less the same. In all the graphs the thicker line represents the average responses from the total group of all respondents. Looking at each graph, one can see more or less the same pattern in respect of question 31, which is related to the fairness and transparency of the BSC linked to compensation. Histograms drawn up for each group and sub-groups show the difference in responses more clearly because it highlights the distribution of ratings in general.

Figures 3.2 and 3.3 present the radar graph and histograms with average ratings on each question for the whole group as well as for respondents from different divisions. All the lines in Figure 3.2 follow more or less the same pattern, which indicates more or less the same average ratings on each question by people in different divisions.

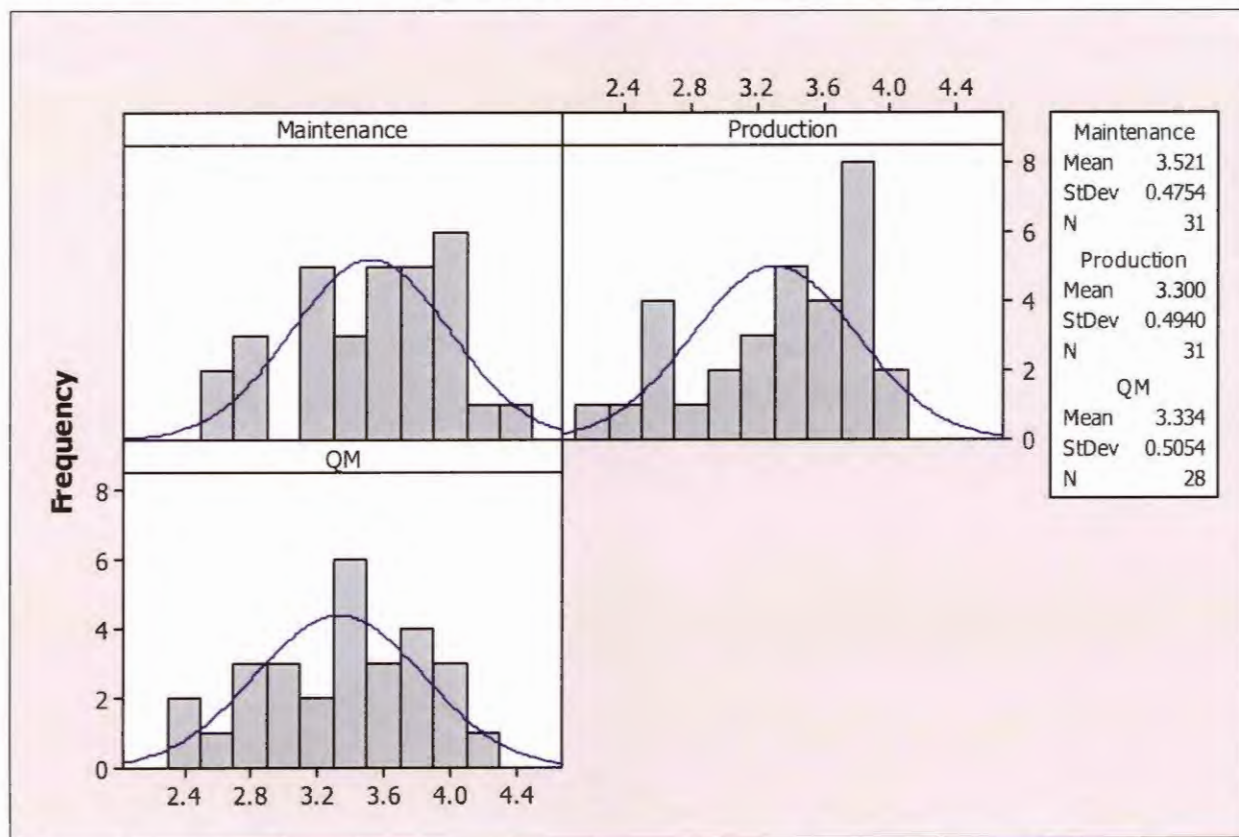
The same type of normal distribution fit is also seen for each division as illustrated in Figure 3.3. The normal distribution fits on the histograms in Figure 3.3 are more or less in line with the distribution illustrated in Figure 3.10, which represent the average ratings of the total group of responses. The values for the means and standard deviations were also more or less the same.

Figure 3.2: Radar graph for average ratings for all divisions under Rolling



(Source: Own research)

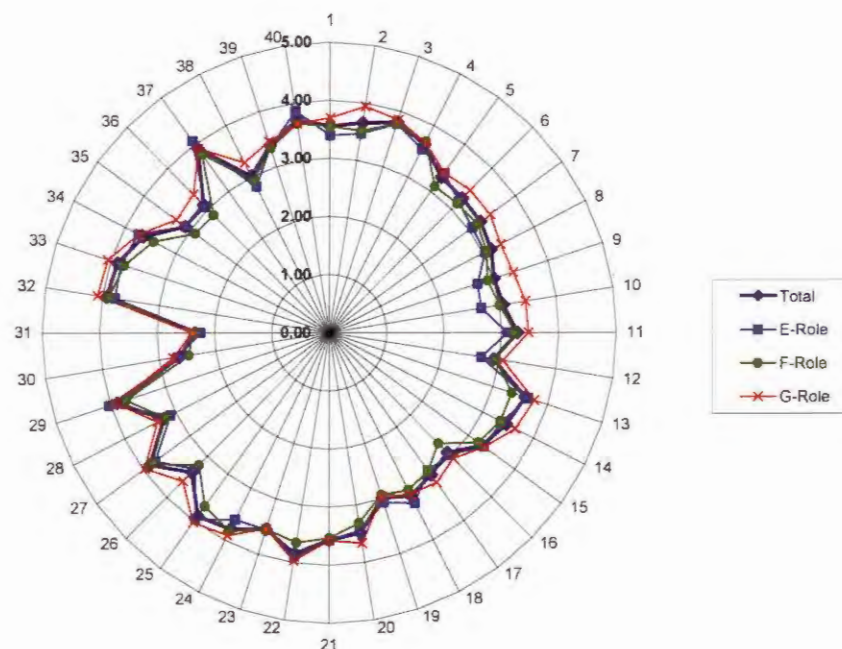
Figure 3.3: Histograms for average ratings for all divisions under Rolling



(Source: Own research)

Figures 3.4 and 3.5 show the radar graph and the histograms with average ratings on each question for the whole group as well as for respondents on different job levels. All the lines in Figure 3.4 follow more or less the same pattern, which indicate more or less the same average ratings to each question from people on different job levels. One can see a small deviation in respect of the G role responses from questions six to eleven which were about the benefits of the BSC system. In general, the responses from each job level group are more or less in line with the overall total average responses.

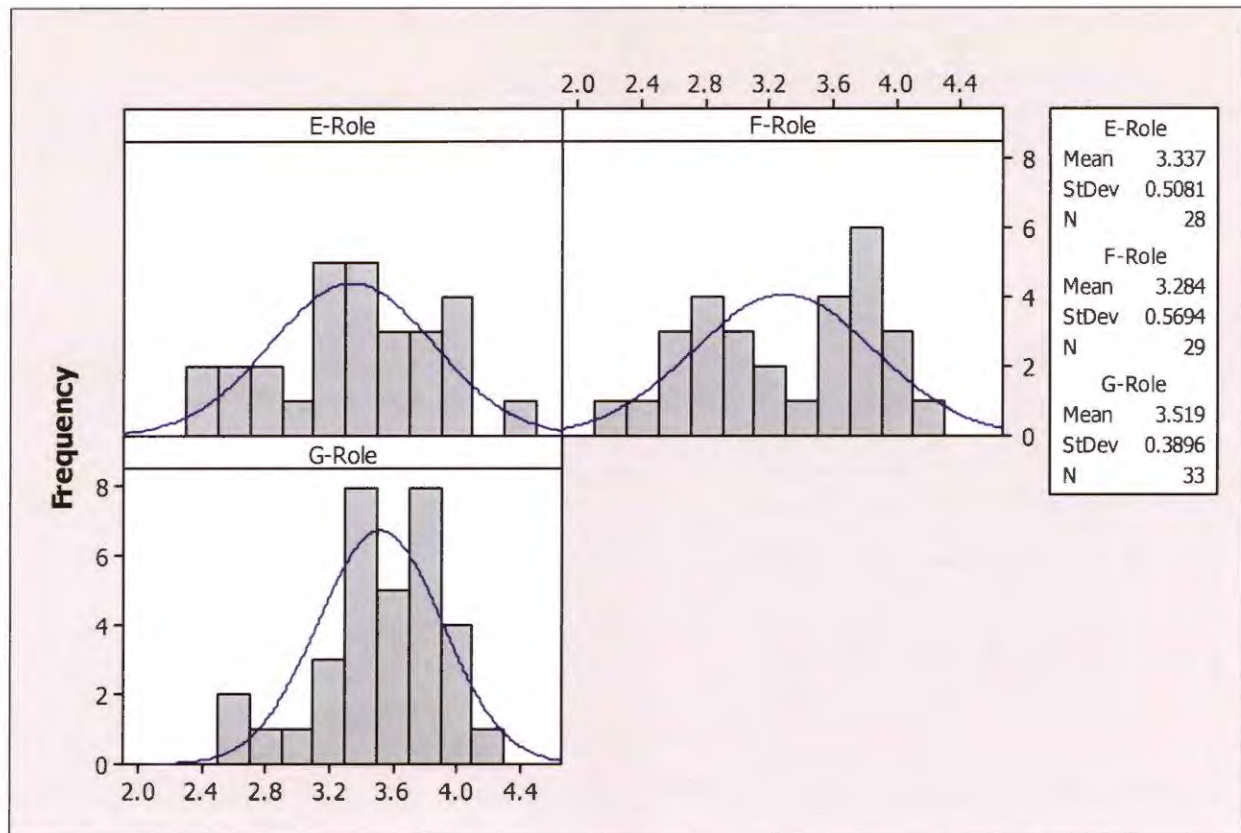
Figure 3.4: Radar graph on average ratings for all job levels (E, F and G Roles)



(Source: Own research)

The histograms in Figure 3.5 display more or less the same normal distribution fit for respondents on E roles and F roles but a different distribution with a smaller standard deviation is seen for the G roles.

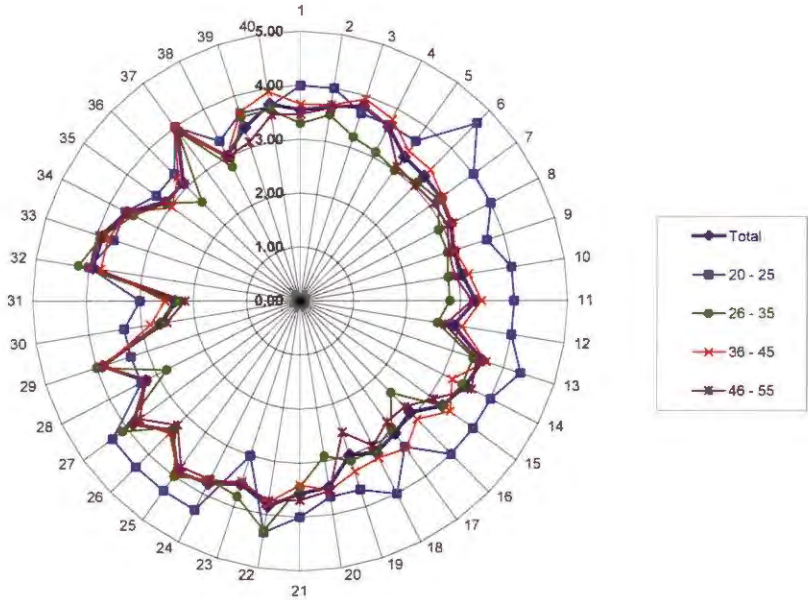
Figure 3.5: Histograms on average ratings for all job levels (E, F and G Roles)



(Source: Own research)

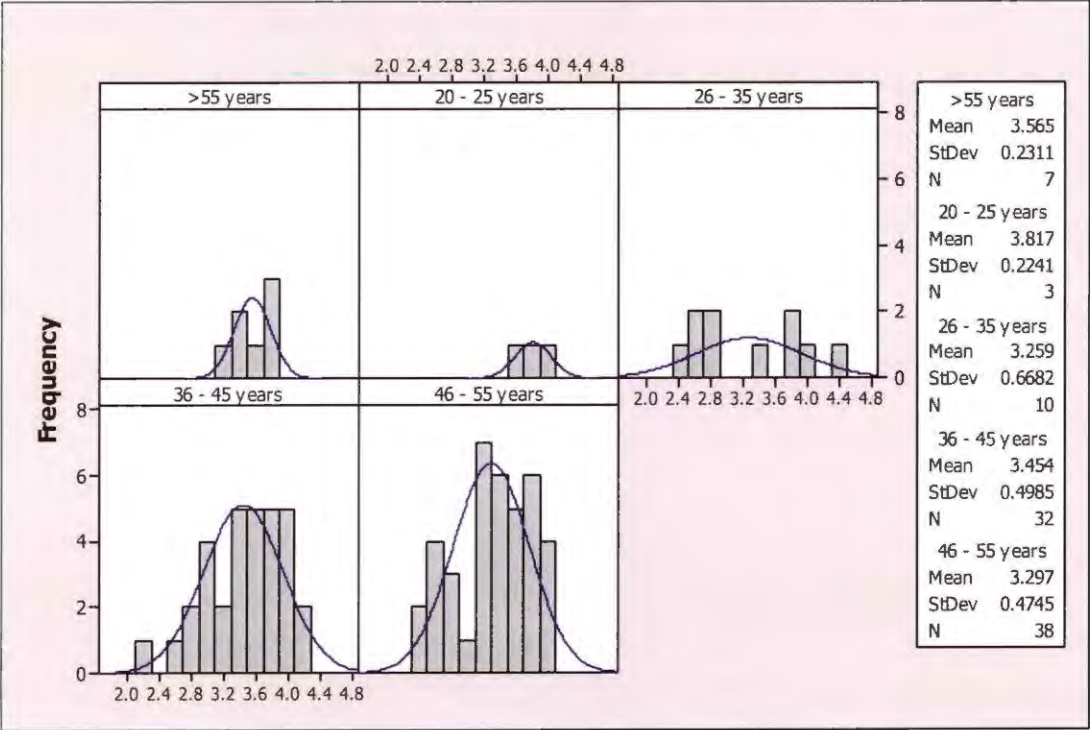
Figures 3.6 and 3.7 show the radar graph and the histograms with average ratings on each question for the whole group as well as for respondents from different age groups.

Figure 3.6: Radar graph for average ratings for all age groups



(Source: Own research)

Figure 3.7: Histograms on average ratings for all age groups



(Source: Own research)

As previously shown in Table 3.1, the low number of responses in the age group 20 to 25 makes it difficult to draw a valid statistical conclusion in comparing the patterns on Figure 3.6. A different pattern is clearly seen looking at the age group 20 to 25 years from questions six to thirty-one. This could be because only three responses were received. The patterns for the other age groups are more or less the same and they also follow the same pattern as responses from the total group. The histograms clearly show differences in distributions, mainly because of the number of responses causing different means and standard deviations. The different distributions are clearly visible in Figure 3.7. Only the sub-groups 36 to 45 years and 46 to 55 years have enough data points to be used for statistical analyses. The flat normal distribution fits for the other sub-groups are also expected by viewing the low number of responses.

Figures 3.8 and 3.9 show the radar graph and the histograms with average ratings on each question for the whole group as well as for respondents from people with different years of service. As previously shown in Table 3.1, the low number of responses in the years of service for groups with less than five years of service and groups with five to ten years of service, make it difficult to draw statistical conclusions. Some deviations in the patterns can be seen in Figure 3.8. Different patterns are clearly seen, looking at these groups for questions six to about twenty-eight. The general patterns of the other sub-groups are more or less the same, indicating the same type of responses for all sub-groups as well as for the total group.

The histograms and normal distribution fits again, show differences in distributions, mainly because of the number of responses causing different values for the means and the standard deviations. The majority of the responses were from people with more than 20 years of service. Only the sub-group > 20 years have enough data points to be used for statistical analyses. The flat normal distribution fits for the other sub-groups are also expected when one considers the low number of responses.

(Source: Own research)

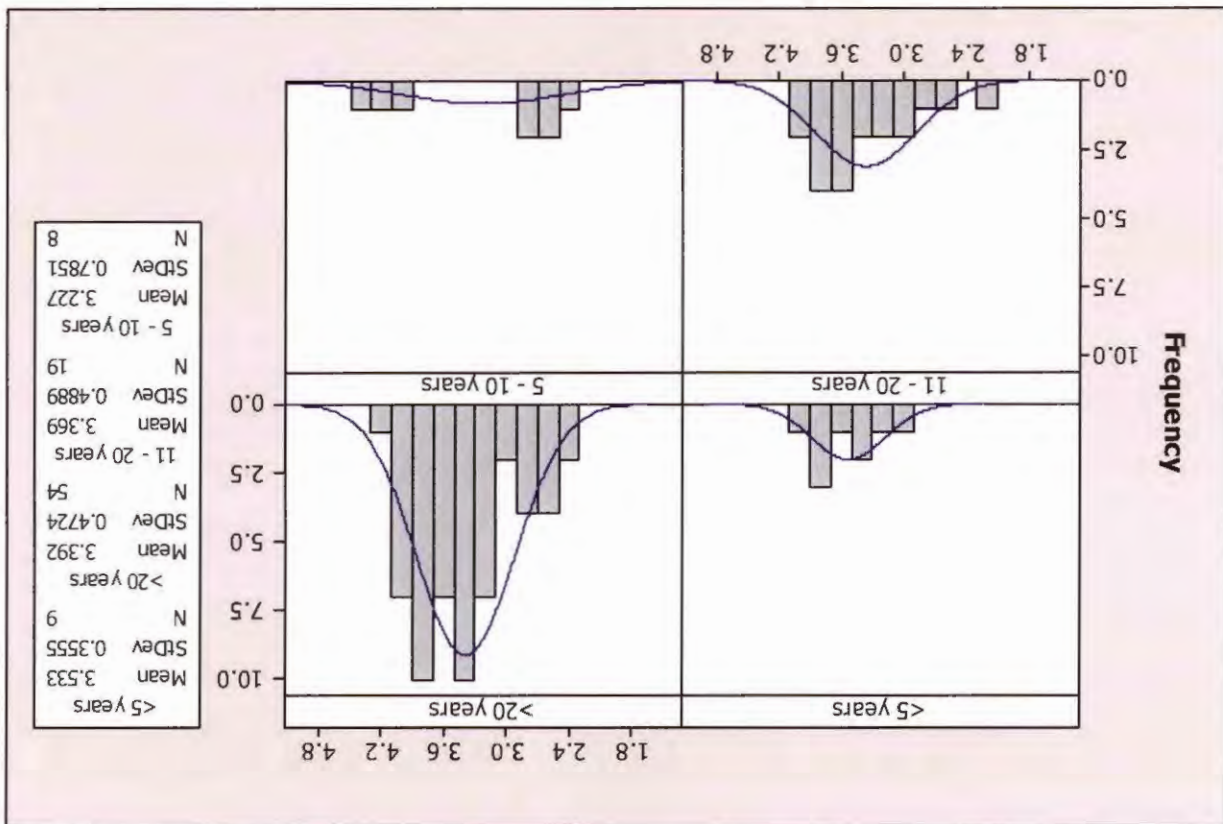


Figure 3.9: Histograms for average ratings on different years of service

(Source: Own research)

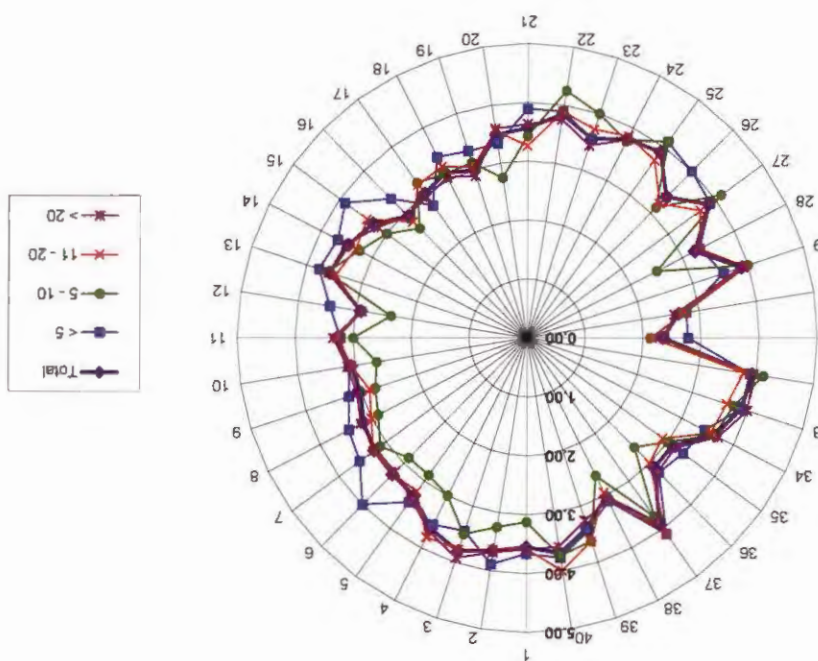
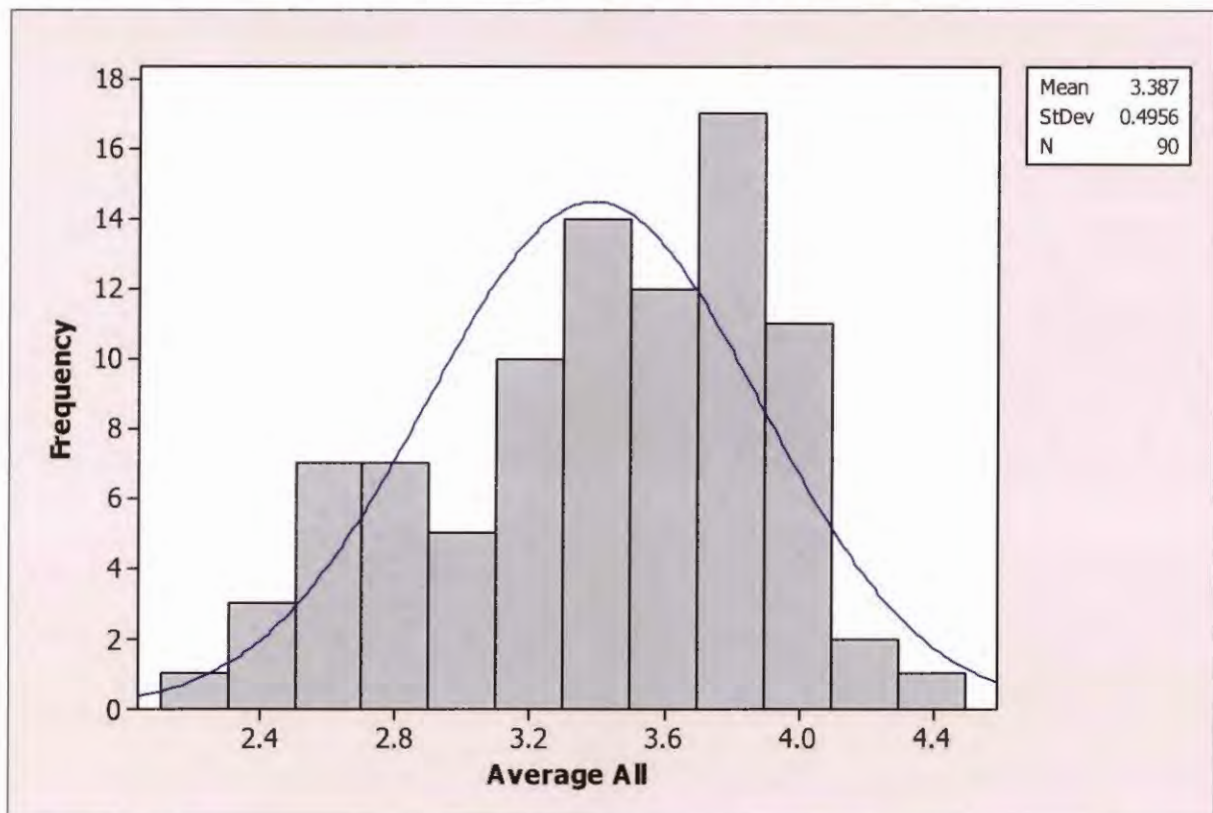


Figure 3.8: Radar graph for average ratings on different years of service

Figure 3.10 shows the histogram and normal distribution fit for the average ratings of the total group of responses. It is clear that the majority of ratings fall between three and four, which indicates a neutral to positive rating. The mean value is 3.387 while the skewness value is -0.397 which indicates a slight left skew distribution. An effectively applied BSC system should have reflected a higher mean value, together with a more negative skewness value.

Figure 3.10: Histogram for average ratings for all respondents



(Source: Own research)

In conclusion, it can be said that, by studying all the radar graphs and the histograms as illustrated in Figures 3.2 to 3.10, the majority of the average ratings were between three and four, which indicated a neutral to positive rating on the BSC-related questions. A higher average trend is needed in order to say that the BSC is applied effectively across all areas in Rolling.

The data were also analysed and present the average rating for questions **related to each sub-heading type of question in the different sub-groups and the total group**. Tables 3.10 to 3.13 and Figures 3.11 to 3.14 summarise feedback from each sub-group under the sub-headings for all questions in the questionnaire.

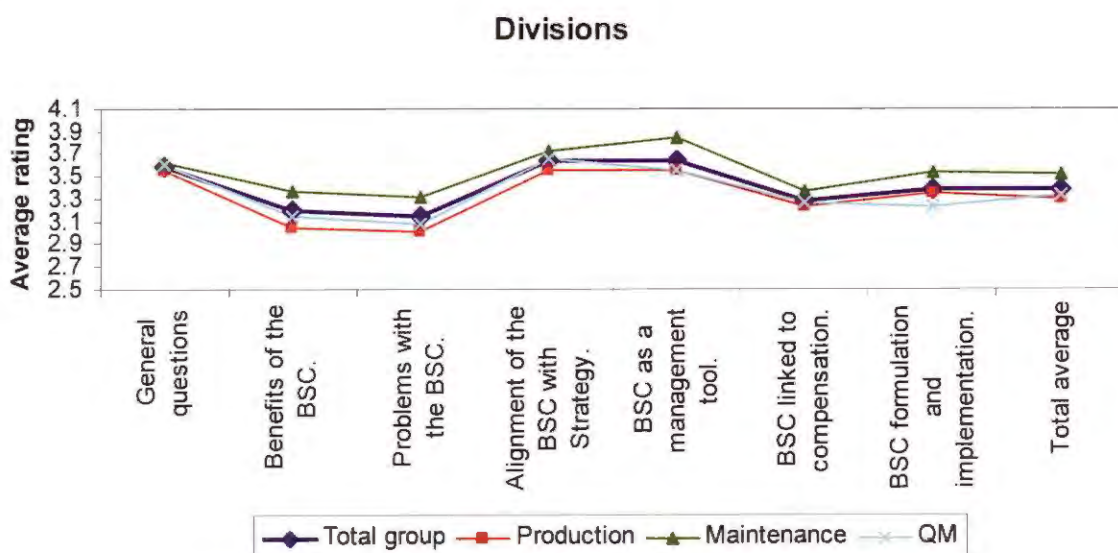
Table 3.10 shows no major differences by comparing average ratings amongst divisions. On average, the Maintenance division showed the highest average ratings on all groups of sub-heading group questions. This is also reflected in the patterns of Figure 3.11. The ratings were fairly averaged and showed more or less the same pattern for people in all divisions.

Table 3.10: Average values for sub-groups comparing divisions

Sub-heading	Total group	Production	Maintenance	QM
General questions	3.59	3.55	3.62	3.61
Benefits of the BSC	3.20	3.05	3.37	3.15
Problems with the BSC	3.15	3.01	3.31	3.08
Alignment of the BSC with strategy	3.64	3.56	3.73	3.65
BSC as a management tool	3.64	3.55	3.84	3.55
BSC linked to compensation	3.29	3.24	3.37	3.26
BSC formulation and implementation	3.38	3.35	3.54	3.23
Total average	3.39	3.30	3.52	3.33

(Source: Own research)

Figure 3.11: Average ratings for sub-groups comparing divisions



(Source: Own research)

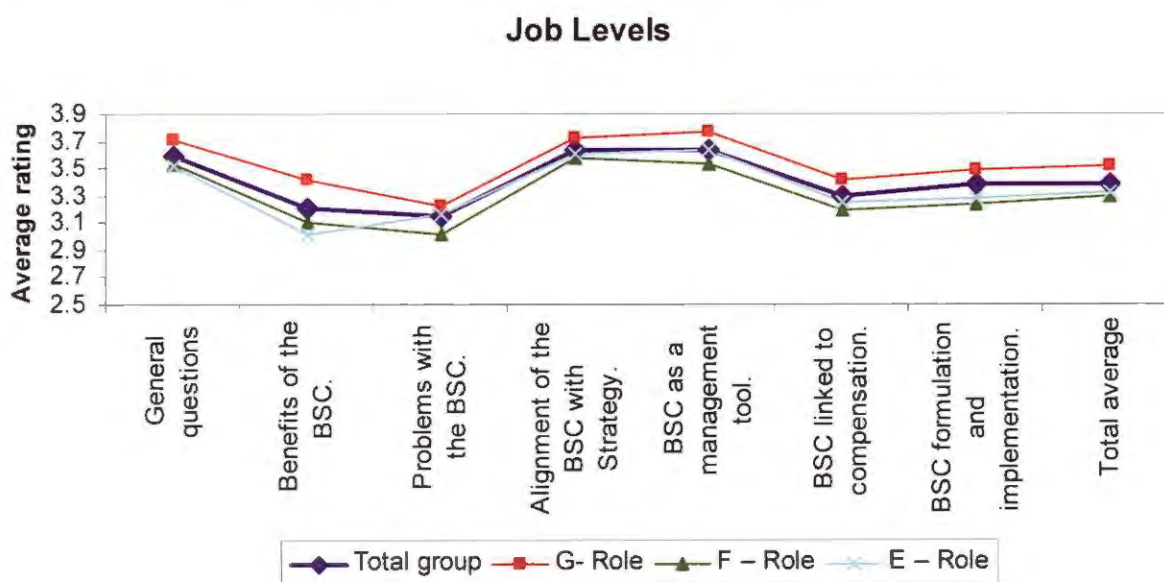
Table 3.11 shows no major differences by comparing average ratings amongst job levels. The G roles showed the highest average value in respect of all questions. This is also reflected in the patterns of Figure 3.12. The ratings were fairly averaged and showed more or less the same pattern for people on all job levels.

Table 3.11: Average values for sub-groups comparing job levels

Sub-heading	Total group	G-Role	F-Role	E-Role
General questions	3.59	3.71	3.53	3.51
Benefits of the BSC	3.20	3.42	3.10	3.01
Problems with the BSC	3.15	3.22	3.02	3.16
Alignment of the BSC with strategy	3.64	3.73	3.57	3.61
BSC as a management tool	3.64	3.77	3.53	3.63
BSC linked to compensation	3.29	3.41	3.19	3.25
BSC formulation and implementation	3.38	3.49	3.24	3.28
Total average	3.39	3.52	3.28	3.33

(Source: Own research)

Figure 3.12: Average ratings for sub-groups comparing job levels



(Source: Own research)

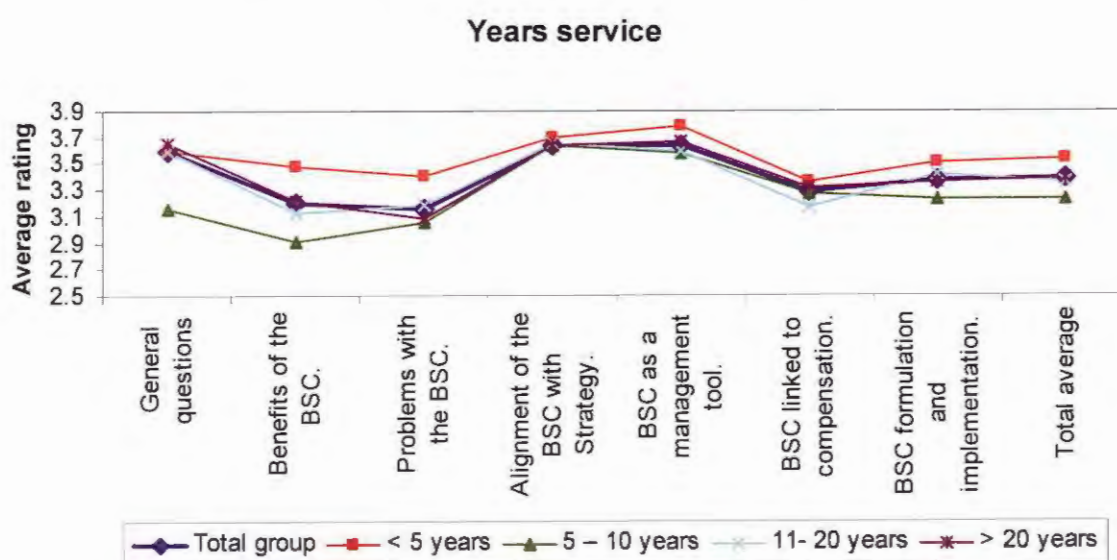
Table 3.12 also shows more or less the same average ratings when comparing ratings from people with 11 to 20 years service to those with more than 20 years service. Figure 3.13 shows the slight different patterns for the average ratings mainly because of the number of responses.

Table 3.12: Average values for sub-groups comparing years of service

Sub-group	< 5 years	5 - 10 years	11- 20 years	> 20 years
General questions	3.60	3.15	3.60	3.65
Benefits of the BSC	3.47	2.91	3.13	3.21
Problems with the BSC	3.41	3.06	3.18	3.09
Alignment of the BSC with strategy	3.69	3.64	3.65	3.64
BSC as a management tool	3.78	3.58	3.59	3.66
BSC linked to compensation	3.36	3.28	3.17	3.32
BSC formulation and implementation	3.50	3.23	3.42	3.36
Total average	3.53	3.23	3.37	3.39

(Source: Own research)

Figure 3.13: Average ratings for sub-groups comparing years of service



(Source: Own research)

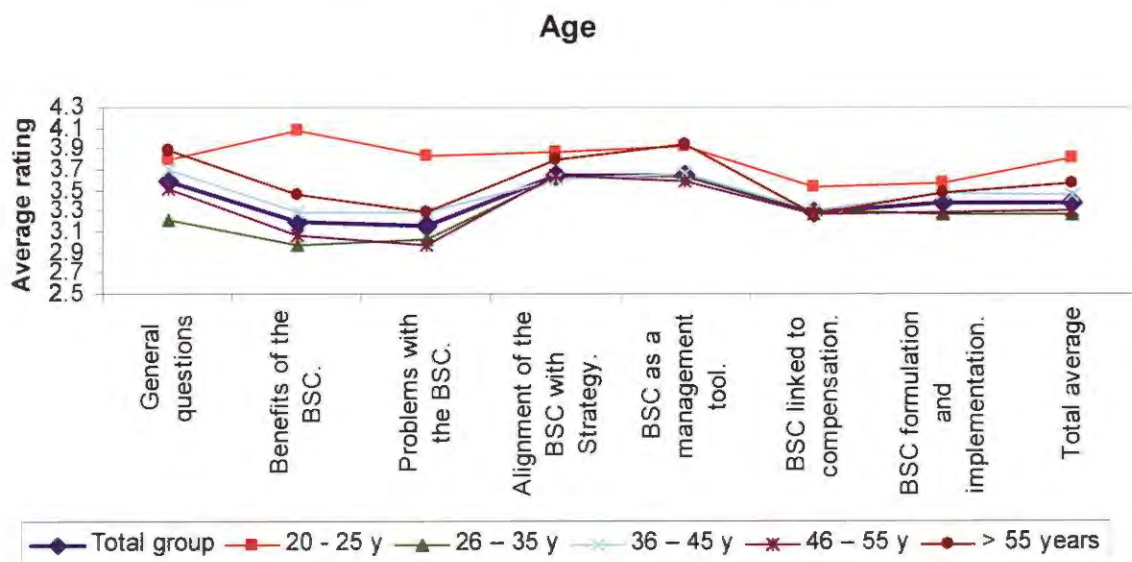
Table 3.13 shows more or less the same average ratings when comparing ratings from people in the different age groups 36 to 45 and 46 to 55. These age groups showed the most responses. Average values for other age groups show different values as can also be seen in Figure 3.14, but this could be because only a few responses were received.

Table 3.13: Average values for sub-groups comparing age in years

Sub-group	20 - 25	26 - 35	36 - 45	46 - 55	> 55 years
General questions	3.80	3.22	3.70	3.52	3.89
Benefits of the BSC	4.08	2.96	3.28	3.06	3.45
Problems with the BSC	3.83	3.03	3.28	2.96	3.29
Alignment of the BSC with strategy	3.87	3.63	3.60	3.65	3.79
BSC as a management tool	3.93	3.64	3.66	3.58	3.94
BSC linked to compensation	3.53	3.30	3.31	3.26	3.26
BSC formulation and implementation	3.56	3.27	3.48	3.29	3.48
Total average	3.82	3.26	3.45	3.30	3.56

(Source: Own research)

Figure 3.14: Average ratings for sub-groups comparing age

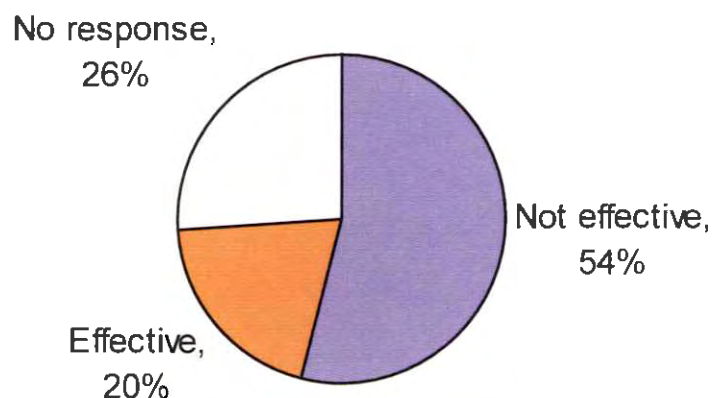


(Source: Own research)

3.3.3 Part C: Is the BSC applied effectively?

This was an open-ended question which caused a lot of reaction. Most of the reaction was negative as 54% of the respondents felt that the BSC is not effectively applied, 20% felt it is effectively applied and 26% did not respond to the question. This distribution is illustrated in Figure 3.15. Refer to Annexure 2 for typical responses on the question as gathered during the empirical study. The majority of respondents that said that the BSC is not applied effectively, listed the compensation link to performance as a major concern. A high number of people said the BSC was a waste of time and some said that it is only a paper exercise. Many people highlighted the fact that BSC ratings mean nothing because forced ranking is applied by senior management when it comes to compensation and or bonus determination. A fact also highlighted, was that the BSC rating is always done as a rush job, which is clearly an indication of poor communication and poor planning in some areas. It is clear that management is not fully committed to the BSC system in all areas.

Figure 3.15: Pie chart indicating perceptions on effectiveness of BSC



(Source: Own research)

Some people (20%) that indicated that the BSC system is applied effectively, also indicated that it could be further improved by better communication. They were also more in favour of the new BSC for 2009. The BSC system guides people on the right

issues in order to ensure improvement. Detail of the responses can also be seen in Annexure 2.

3.4 CHAPTER SUMMARY

An empirical study was done in the Rolling department by means of a survey where questionnaires were distributed and completed via e-mail. The response rate of the survey was 45%. The survey confirmed that 100% of the respondents do have individual BSCs, which is an indication that the BSC system is used by all people on G roles, F roles and E roles. Communication and employee engagement on the BSC was noted as good, but not effective because only about 76% of the respondents received feedback or had inputs in their BSCs. Looking at the various groups, divisions, job-levels, age and years of service, no specific group responded much differently from the others on average. In some cases high and low average ratings were received but the majority of the average ratings were just above three, which indicated a neutral to positive response towards issues tested on the BSC. A variety of statistical techniques and graphs were used to analyse the data. Looking at the average responses for each sub-heading group of questions as per the questionnaire, the results obtained were also more or less the same on or just above the neutral or average rating. Some of the averages pertaining to age groups and years of service were affected because of the low number of responses in some sub-groups. In general, the distribution of the average ratings to questions in Part B showed a slightly left-skewed distribution which, although it is a subjective measurement, is seen to be an indication that the BSC system is not applied effectively enough.

The results for Part C show that 54% of the respondents felt that the BSC is not effectively applied, that 20% felt it is effectively applied, while 26% did not respond to the question at all.

In conclusion it can be said, that the majority of responses indicated that more work needs to be done to apply the BSC more effectively. Some of the major issues that were identified that need improvement, are continuous communication and feedback, and a more transparent link between the BSC rating and compensation. The BSC should not be the only rating to be used in determining compensation. More or better training is also needed in general to improve people's knowledge on the BSC system.

CHAPTER 4: CONCLUSIONS AND RECOMMENDATIONS

4.1 INTRODUCTION

This chapter contains the outcomes of the information gathered in both the literature study and the empirical study. The information obtained is used to draw conclusions and to make recommendations on the BSC system as used in the Rolling department at AMSA. The conclusions are presented in relation to the research objectives established in Chapter 1. Relationships will also be drawn between the results of the empirical study and the literature study. Points for future research that could contribute to apply the BSC system more effectively, will also be listed.

4.2 CONCLUSIONS

After doing a literature study and an empirical study by means of a structured questionnaire, the following conclusions were made on the BSC system in general and as used in Rolling.

- The BSC system is not applied effectively within Rolling. The main reasons for this are because of poor communication and feedback on individual performance, a lack of employee engagement in all divisions and no fixed link between the achieved BSC rating and compensation. The BSC system is seen to be unfair and not transparent by the majority of respondents. Only 20% of the respondents felt that the BSC system is effectively applied at Rolling. The ratification process by senior management was also seen as destroying the power of the BSC system.
- The BSC system offers ample benefits to any kind of organisation if applied the right way. A large portion of the respondents do not know about all the benefits that can be gained by applying the BSC system effectively.
- The main problems experienced in using the BSC system, are when too many measures are used or when the wrong measures are used that are not aligned with the strategy. A lack of senior management's involvement can also be a big problem. These problems were also identified during analysing data for the empirical study.
- In order to improve performance and to reach long-term goals, it is imperative that the BSC needs to be cascaded down to all levels in the organisation, starting from

the corporate scorecard, in order to ensure alignment with the organisation's strategy and vision.

- The BSC system is not always used as a management tool at AMSA. In some areas within Rolling it is seen as a paper exercise needed to keep senior management happy.
- In order to maintain the power and the purposefulness of the BSC system, there must be a definite link between the BSC and employee compensation.
- Most people indicated that AMSA's link between the BSC rating and compensation, is not fair and transparent. They also said that their BSC rating is not a reflection of their compensation. The majority of people agreed that the BSC must not be the only rating to determine compensation.
- Implementing an effective BSC system is not an easy process. The key to the BSC system is to keep it simple. All four perspectives (Learning and Growth, Internal process, Customer and Financial) must be measured and it must be seen as a cause-and-effect relationship in order to ensure that the targets are achieved.
- All the respondents in Rolling have individual BSCs, although not all received feedback on their performance nor were they engaged in their new BSCs. Employees are not all receiving focused feedback and continuous communication on their individual BSCs. Comparing feedback from people on employee engagement in different divisions, it came out that Quality Management is applying the BSC system better than Production and Maintenance.
- Looking at responses related to Part B in the questionnaire, some high and low average ratings were received but the majority of the average ratings were just above three, which indicated a neutral to positive response towards issues tested on the BSC. There are no real differences in the responses received from people in different divisions, people on different job levels, people in different age groups or people with different years of service, on questions specifically related to BSC issues.
- A large number of people indicated that they do not have an influence on all the KPIs listed on their BSCs.
- In general, the majority of people are still very negative about the BSC system as applied at Rolling. This is mainly because they see the BSC as meaningless, as senior management is doing forced rankings anyway after their initial BSC ratings were agreed and confirmed by their direct managers.

- The effectiveness of the BSC system is decreased by applying the forced distribution approach or forced ranking by senior management (Lawler, 2003:402). This also came out strongly during the empirical study.

4.3 RECOMMENDATIONS

In order to ensure a more effectively applied BSC system in all areas within Rolling, the following recommendations are made:

- The BSC must be linked to employee compensation in a transparent way without applying forced rankings by senior management. Before commencing the BSC and compensation linkage, the purpose of the plan must be communicated and it must be clearly explained and understood how the rewards will be earned and distributed. After the initial communication, no changes must be allowed because of economical conditions or other work-related conditions without prior communication and acceptance by the employees on all levels.
- Communication must be improved on the BSC in order to ensure continuous feedback on performance. The discussions on the BSC ratings should be discussed on a continuous basis, not only twice a year. Consistent and well-timed communication is the foundation for understanding, acceptance and ultimately, effectiveness.
- More people should be trained to use and understand the BSC system as a management tool. The BSC is primarily an agent of change, and acceptance of change is a direct by-product of understanding. If people understand the BSC system, they will also understand how it must be used to drive the strategy of an organisation to achieve the long-term goals.
- AMSA must have an ongoing training plan for future BSC developments such as, for example, effective cascading of high level scorecards to lower levels. This will ensure alignment of all employees in the organisation.
- The intangible assets must always be aligned with the strategy in order to create value for the organisation. People are a valuable asset for any organisation. By applying the BSC system the right way, employees will be motivated to reach the set targets and some sense of ownership will also be created.

- Management must ensure that employees understand the measures on their BSCs to see how they are linked together into strategy. All four perspectives must be used in measuring each employee's performance on their personal BSCs.
- To ensure sustainability which is one of the values of AMSA, management in Rolling should be looking to employ or retain younger employees. The BSC needs to include detail for succession planning and an individual development plan for each employee.
- Senior management needs to be involved in all phases of the BSC, not only at the end when ratification needs to be done. If all BSC ratings of people in a small division come out on a three or a four, all the ratings cannot be adjusted to display a normal distribution.
- In general, the BSC process needs to be simplified as far as possible with a clear understanding of objectives and visibility of performance measurements on a monthly basis.
- More time and effort need to be put in, in drawing up individual BSCs in order to ensure the right objectives and measurements are in place to drive the overall strategy. If the process is followed the right way once, it will be easy to do future adjustments and communication of changes. It will also ensure that people have some ownership and that they feel part of the process.
- The objectives and measurements listed on individual BSCs should be focused on what is needed to achieve the targets in line with the organisation's strategy and vision.

4.4 ACHIEVEMENT OF THE STUDY'S OBJECTIVES

The ultimate objective of the study was to evaluate the BSC system as applied in the Rolling department at AMSA and to make recommendations to improve the effectiveness of the BSC system. Considering the conclusions drawn and recommendations made, various issues were identified that need to be improved to ensure a more effective BSC system. Currently, the BSC system is seen to be not effectively applied within Rolling, mainly because of poor communication, poor feedback, the forced distribution approach and poor employee engagement.

The secondary or specific objectives of the study are outlined in the following section. It also includes a short summary of the results or information obtained to confirm that the

secondary objectives as listed in Chapter 1 were achieved. The objectives were the following:

- **To verify the benefits of an effective BSC system.** The BSC system is a very powerful tool that can be used in any kind of organisation to improve performance by transforming strategy into action. Literature indicated a large number of benefits that can be achieved should the BSC system be correctly applied. Using the BSC system as a management tool and not only as a measurement tool, will contribute to highlight the benefits in any organisation.
- **To identify problems and shortcomings of the BSC system.** Problems with the BSC system were identified by doing both the literature study and the empirical study. Major shortcomings and problems were listed and some implementation issues were also discussed. Poor communication, a lack of management's involvement, measuring the wrong KPIs and the link to employees' compensation were some of the main problems identified in the BSC system as used within Rolling.
- **To verify if BSCs are aligned with the organisation's strategy, vision and values will ensure that long-term goals are achieved through improved performance.** The literature study showed various issues and advantages about alignment of the BSC with an organisation strategy. The value of alignment can be very big if applied correctly in any organisation. A proper BSC cascading process will ensure alignment on all levels and eventually improved performance in any organisation. Cascading will ensure alignment to ensure that all people in the organisation know how they can contribute to achieve the long-term goals.
- **To verify the use of a BSC system as a management tool.** The BSC is seen as the cornerstone of an organisation's management system. It is a very powerful tool used to improve communication, get alignment on strategy and long-term goals and obtaining feedback to learn about, and improving the strategy. The feedback from the empirical study confirmed that people understand and agree with the benefits that can be achieved by using the BSC as a management tool.

- **To verify how the BSC system is linked to compensation.** The BSC can be linked to compensation in various ways. The most important issue about linking BSC results to compensation is that all people should understand and agree on the procedure. No changes must be made after finalising the rules for the period under evaluation. Literature also shows that linking rewards to performance in a BSC will empower the BSC more as a measurement and management system. The link between the BSC rating and employee compensation was identified as a major problem within Rolling. This problem was made worse because of the ratification process by senior management after BSC ratings were agreed between direct managers and employees. The BSC system loses all its power when it is not linked to compensation in a proper and sufficient way that is understood and accepted by all people.

- **To verify what is needed for an effective BSC system formulation and implementation.** Effective BSC formulation and implementation are ongoing processes. Various lessons learned that will ensure a smooth BSC implementation process, were identified in the literature. The bottom line is to keep it simple. The BSC system is a very powerful tool if it is used the right way. The empirical study showed that some people in Rolling see it as something that must be done just to keep management happy. More time and planning need to be spent on using the BSC system. Including all four perspectives, as listed by Kaplan and Norton, the original writers of the BSC system, will help to illustrate the cause-and-effect relationship properties of the process.

4.5 RECOMMENDATIONS FOR FUTURE RESEARCH

- Research needs to be done on simplifying the BSC process used in any type of organisation. This must include training modules for all levels in an organisation. The training models need to focus on the benefits of the BSC system that can be achieved by applying proper cascading of the objectives in line with the organisation's strategy.

- The link between compensation and BSC ratings should be investigated in order to present easy-to-use systems, as these are creating most problems in organisations. This will ensure that people will be serious about the BSC system.

- The same research on the effectiveness of the BSC system needs to be done in other departments and BUs as well as in other ArcelorMittal plants (Vereeniging, Newcastle and Saldanha) in South Africa to compare the findings.
- The application of the BSC system needs to be benchmarked with other worldwide ArcelorMittal plants in order to optimise the process in a steel organisation.

4.6 CHAPTER SUMMARY

This chapter outlined mainly the conclusions and recommendations made after the study on the BSC system. It also refers to the primary and secondary objectives as set out in Chapter 1. The information gathered from both the literature study and the empirical study, confirmed that the set objectives were achieved. Lastly, it includes recommendations for further research.

One of the major conclusions made, is that the BSC system was judged to be not effectively used by people within the Rolling department, because of poor communication and feedback, no definite link between the original BSC rating and compensation, and a lack of employee engagement in drawing up individual BSCs. The empirical study showed no real statistical significant differences between responses from people in different divisions, people on different job levels, people in different age groups and people with different years of service on specific BSC-related statements tested.

The major recommendations made to ensure a more effective BSC system at Rolling, were to improve and give continuous feedback on individual as well as on organisational performance. Senior management must be more involved in the BSC system and not only when they do forced rankings at the end of a term when remuneration is due. More people should be trained on the BSC system to ensure that a more effectively applied process, understood by all, is implemented.

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ANNEXURE 1: QUESTIONNAIRE FOR EMPIRICAL STUDY

QUESTIONNAIRE TO EVALUATE THE EFFECTIVENESS OF THE BALANCED SCORECARD (BSC) SYSTEM AT ARCELORMITTAL'S ROLLING DIVISION

The completed questionnaire should be returned to Nic de Jager, nic.dejager@arcelormittal.com per e-mail or hard copies can be delivered to Postal Point 20400, Process Laboratory South. The survey is completely anonymously, so please answer the questions honestly. Please tick the appropriate check box (one per question).

Job level	G-role	<input type="checkbox"/>
	F-role	<input type="checkbox"/>
	E-role	<input type="checkbox"/>
Years service at ArcelorMittal (This includes your service at the previous Iscor, Ispat Iscor and Mittal)	< 5 years	<input type="checkbox"/>
	5 to 10 years	<input type="checkbox"/>
	11 to 20 years	<input type="checkbox"/>
	> 20 years	<input type="checkbox"/>
Area of work	Production	<input type="checkbox"/>
	Maintenance/Instrumentation	<input type="checkbox"/>
	Quality Management	<input type="checkbox"/>
Age group	20 – 25 years	<input type="checkbox"/>
	26 – 35 years	<input type="checkbox"/>
	36 – 45 years	<input type="checkbox"/>
	46 – 55 years	<input type="checkbox"/>
	Older than 55 years	<input type="checkbox"/>

Part A: Answer the following general questions regarding the BSC system at ArcelorMittal South Africa (AMSA)

1. Do you have a BSC (Performance Contract)?

Yes No

2. Did your direct manager have a detailed discussion with you regarding your Balanced Scorecard for 2009?

Yes No

3. Did your direct manager have a feedback-discussion with you regarding your BSC performance for 2008?

Yes No

4. Were you given the opportunity to give inputs in your new BSC?

Yes No

Part B: Please answer all the questions regarding your BSC by evaluating the following statements. Indicate whether you strongly disagree (1) to strongly agree (5). (Please tick the appropriate check box (Only one per question)).

#	QUESTION	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	General	1	2	3	4	5
1	AMSA's strategic goals and values (Sustainability, Leadership and Quality) form the basis of your BSC.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Your BSC is in line with what is expected from you to ensure good performance for Rolling in general.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	You are measured against the 4 perspectives of the BSC (Financial, Customer, Internal Business, and Learning and Growth).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	The overall intent of your BSC is to support and drive AMSA's goals in achieving the strategic objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	The BSC provides managers with an instrument needed to navigate for future competitive success.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Benefits of the BSC	1	2	3	4	5
6	Your BSC improves your alignment with strategy and day-to-day operations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	The BSC helps people to understand, develop and apply strategy within their business units.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	The BSC develops a clear understanding of how strategy is operationalised.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	The BSC helps the entire organisation to focus on what must be done to create breakthrough performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	The BSC helps to integrate various corporate programs such as quality, re-engineering and customer service initiatives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	The BSC breaks down strategic measures to lower levels so that all people can see what is required at their level to achieve excellent overall performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	The BSC increases the visibility of the organisation for senior management and improves communication.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	If the BSC is updated regularly; it can give warnings of problems ahead, or signal opportunities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#	QUESTION	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	Problems with the BSC	1	2	3	4	5
14	Senior management supports the BSC system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	Your performance measures in your BSC are SMART (Specific, Measurable, Attainable and Time-bound).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	You have focused feedback and continuous communication sessions regarding your BSC.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	You have clear monthly visibility of the progress on the key performance indicators (KPIs) you are measured against.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	Your BSC is a simple and transparent process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	You have an influence on all the KPIs listed in your BSC.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Alignment of the BSC with the strategy	1	2	3	4	5
20	Your BSC is aligned with the organisation's strategy, vision and values.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	When human, informational and organisational capitals are aligned with the organisation's strategy, the organisation will have the ability to mobilise and sustain the process of change required to execute its strategy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	Helping others to perform will improve your own performance and that of Rolling.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	Executive team building and commitment are essential parts of gaining benefits from the BSC.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	The communication of the BSC should increase people's understanding of the organisation's strategy and enhance motivation to achieve strategic objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	BSC – a management tool	1	2	3	4	5
25	Challenging but obtainable performance goals motivate you to perform better.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	The BSC is used as a management tool to guide employees towards achieving personal as well as organisational goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	With a clear understanding of the role and function of the BSC, one can take the business to higher levels of productivity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	The BSC provides a mechanism whereby opportunities for	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#	QUESTION	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
	synergy across strategic business units (SBUs) can be identified and exploited.					
29	The real power of the BSC occurs when it is transformed from a measurement system to a management system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	BSC linked to employee compensation	1	2	3	4	5
30	Your BSC rating is a reflection of your compensation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	AMSA's link between BSC and compensation is fair and transparent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	Your BSC rating must <i>not</i> be the only rating to determine your compensation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33	Communication of the BSC's objectives and measures is a first step in gaining individual commitment to the business unit's strategy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	For the BSC to create the cultural change, incentive compensation must be connected to the achievement of the scorecard objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	BSC formulation and implementation	1	2	3	4	5
35	Top management is committed to ensure the use of an effective BSC system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36	Effective measures and meaningful standards are used to determine your BSC ratings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37	The BSC must be viewed as a continuous process, requiring maintenance, re-assessment and updating.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38	At AMSA we believe in the BSC as a facilitator of organisational and cultural change.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39	Your BSC is simple and easy to use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40	You understand all the terminology used in your BSC.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part C: Open-ended question about the BSC system (Please motivate your answer in the field provided.)

1. Do you feel that the BSC system is effectively applied at ArcelorMittal?

ANNEXURE 2: EMPIRICAL STUDY RESULTS FOR PART C

Comments from respondents regarding the question whether the BSC system is effectively applied at AMSA

Not all the respondents completed this question. Of those who answered the question, 54% indicated that the BSC was not applied affectively. Reasons for these answers included the following typical remarks:

- *The system is not transparent. Scores are adjusted by higher management according to their perceptions.*
- *People do not always have a direct influence on the KPIs they are measured on. Scores come from the overall plant performance with respect to quality, finance and safety.*
- *Ratings are done on management's discretion.*
- *The BSC is done only because people are forced to do it. It is a paper exercise that must be completed.*
- *The BSC is just a system to redistribute the salary increase.*
- *The scores are manipulated afterwards. A normal distribution is done after BSC discussions and forced ranks are applied to determine bonuses.*
- *It is not always handled fairly.*
- *It is time-consuming and costly because it is not linked to compensation. The score on the BSC doesn't mean a thing. The salary adjustment is a face value.*
- *The system is vague and just implemented to have it on record. It is not used for what it is meant for.*
- *The BSC rating is always done in a rush. It should be discussed more on a regular basis.*
- *The results on the BSC become meaningless if it is normalised afterwards. It also demotivates people and destroys the credibility of the system. Salaries are adjusted based on where employees are on their salary scale regardless of performance. There is no clear communication about the results of the BSC and how it affects your remuneration.*
- *Detail is not discussed between the manager and the employee. Employees get pre-determined scores.*
- *Management is not fully committed to the system.*

- *The system limits and kills innovation and creativity as it is focused on specific KPIs only.*
- *The system is not aligned in all sections. In some sections managers complete the BSCs without feedback or prior discussion with employees.*
- *Scores on the BSCs are always the same or less than those of the manager.*

A total of 20% of the respondents that indicated that the BSC system is effectively applied, listed the following reasons:

- *Recent KPIs are significant and measured on issues where an individual can make an impact.*
- *Can be further improved with more communication in order to ensure management and employees strive to the same goals.*
- *The system guides the focus on the right issues in order to ensure improvement.*
- *The new BSC is SMART and more specific for the individual being assessed.*

ANNEXURE 3: FREQUENCY TABLES FOR QUESTIONS IN PART B

Table 1: Table with all responses on general BSC questions

Frequencies for Question 1			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	2	2.22%	2.22%
2	9	10.00%	12.22%
3	18	20.00%	32.22%
4	59	65.56%	97.78%
5	2	2.22%	100.00%
Frequencies for Question 2			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	1	1.11%	1.11%
2	8	8.89%	10.00%
3	20	22.22%	32.22%
4	53	58.89%	91.11%
5	8	8.89%	100.00%
Frequencies for Question 3			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	1	1.11%	1.11%
2	7	7.78%	8.89%
3	14	15.56%	24.44%
4	56	62.22%	86.67%
5	12	13.33%	100.00%
Frequencies for Question 4			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	1	1.11%	1.11%
2	8	8.89%	10.00%
3	19	21.11%	31.11%
4	57	63.33%	94.44%
5	5	5.56%	100.00%
Frequencies for Question 5			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	4	4.49%	4.49%
2	21	23.60%	28.09%
3	16	17.98%	46.07%
4	40	44.94%	91.01%
5	8	8.99%	100.00%

Table 2: Table with all responses on the benefits of the BSC

Frequencies for Question 6			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	6	6.74%	6.74%
2	16	17.98%	24.72%
3	22	24.72%	49.44%
4	38	42.70%	92.13%
5	7	7.87%	100.00%
Frequencies for Question 7			
1	7	7.87%	7.87%
2	10	11.24%	19.10%
3	29	32.58%	51.69%
4	40	44.94%	96.63%
5	3	3.37%	100.00%
Frequencies for Question 8			
1	4	4.49%	4.49%
2	20	22.47%	26.97%
3	26	29.21%	56.18%
4	36	40.45%	96.63%
5	3	3.37%	100.00%
Frequencies for Question 9			
1	7	7.78%	7.78%
2	22	24.44%	32.22%
3	27	30.00%	62.22%
4	31	34.44%	96.67%
5	3	3.33%	100.00%
Frequencies for Question 10			
1	6	6.67%	6.67%
2	22	24.44%	31.11%
3	24	26.67%	57.78%
4	36	40.00%	97.78%
5	2	2.22%	100.00%
Frequencies for Question 11			
1	3	3.37%	3.37%
2	17	19.10%	22.47%
3	26	29.21%	51.69%
4	38	42.70%	94.38%
5	5	5.62%	100.00%
Frequencies for Question 12			
1	8	8.89%	8.89%
2	22	24.44%	33.33%
3	32	35.56%	68.89%
4	27	30.00%	98.89%
5	1	1.11%	100.00%
Frequencies for Question 13			
1	2	2.22%	2.22%
2	11	12.22%	14.44%
3	20	22.22%	36.67%
4	46	51.11%	87.78%
5	11	12.22%	100.00%

Table 3: Table with all responses on problems with the BSC

Frequencies for Question 14			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	4	4.49%	4.49%
2	9	10.11%	14.61%
3	24	26.97%	41.57%
4	46	51.69%	93.26%
5	6	6.74%	100.00%
Frequencies for Question 15			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	3	3.37%	3.37%
2	15	16.85%	20.22%
3	26	29.21%	49.44%
4	43	48.31%	97.75%
5	2	2.25%	100.00%
Frequencies for Question 16			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	9	10.00%	10.00%
2	21	23.33%	33.33%
3	31	34.44%	67.78%
4	27	30.00%	97.78%
5	2	2.22%	100.00%
Frequencies for Question 17			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	8	8.99%	8.99%
2	23	25.84%	34.83%
3	22	24.72%	59.55%
4	31	34.83%	94.38%
5	5	5.62%	100.00%
Frequencies for Question 18			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	5	5.56%	5.56%
2	17	18.89%	24.44%
3	31	34.44%	58.89%
4	34	37.78%	96.67%
5	3	3.33%	100.00%
Frequencies for Question 19			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	6	6.67%	6.67%
2	30	33.33%	40.00%
3	18	20.00%	60.00%
4	31	34.44%	94.44%
5	5	5.56%	100.00%

Table 4: Table with all responses on alignment of the BSC with strategy

Frequencies for Question 20			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	1	1.12%	1.12%
2	8	8.99%	10.11%
3	29	32.58%	42.70%
4	49	55.06%	97.75%
5	2	2.25%	100.00%
Frequencies for Question 21			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	0	0.00%	0.00%
2	6	6.74%	6.74%
3	30	33.71%	40.45%
4	50	56.18%	96.63%
5	3	3.37%	100.00%
Frequencies for Question 22			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	2	2.27%	2.27%
2	6	6.82%	9.09%
3	8	9.09%	18.18%
4	60	68.18%	86.36%
5	12	13.64%	100.00%
Frequencies for Question 23			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	1	1.14%	1.14%
2	11	12.50%	13.64%
3	23	26.14%	39.77%
4	44	50.00%	89.77%
5	9	10.23%	100.00%
Frequencies for Question 24			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	1	1.12%	1.12%
2	5	5.62%	6.74%
3	15	16.85%	23.60%
4	59	66.29%	89.89%
5	9	10.11%	100.00%

Table 5: Table with all responses on the BSC as a management tool

Frequencies for Question 25			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	0	0.00%	0.00%
2	8	9.09%	9.09%
3	10	11.36%	20.45%
4	53	60.23%	80.68%
5	17	19.32%	100.00%
Frequencies for Question 26			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	5	5.62%	5.62%
2	14	15.73%	21.35%
3	18	20.22%	41.57%
4	46	51.69%	93.26%
5	6	6.74%	100.00%
Frequencies for Question 27			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	0	0.00%	0.00%
2	6	6.67%	6.67%
3	14	15.56%	22.22%
4	57	63.33%	85.56%
5	13	14.44%	100.00%
Frequencies for Question 28			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	4	4.49%	4.49%
2	17	19.10%	23.60%
3	24	26.97%	50.56%
4	42	47.19%	97.75%
5	2	2.25%	100.00%
Frequencies for Question 29			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	2	2.25%	2.25%
2	3	3.37%	5.62%
3	14	15.73%	21.35%
4	54	60.67%	82.02%
5	16	17.98%	100.00%

Table 6: Table with all responses on the link between BSC and compensation

Frequencies for Question 30			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	14	15.56%	15.56%
2	30	33.33%	48.89%
3	20	22.22%	71.11%
4	26	28.89%	100.00%
5	0	0.00%	100.00%
Frequencies for Question 31			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	23	25.56%	25.56%
2	28	31.11%	56.67%
3	24	26.67%	83.33%
4	15	16.67%	100.00%
5	0	0.00%	100.00%
Frequencies for Question 32			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	0	0.00%	0.00%
2	7	7.78%	7.78%
3	16	17.78%	25.56%
4	43	47.78%	73.33%
5	24	26.67%	100.00%
Frequencies for Question 33			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	0	0.00%	0.00%
2	3	3.33%	3.33%
3	13	14.44%	17.78%
4	65	72.22%	90.00%
5	9	10.00%	100.00%
Frequencies for Question 34			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	3	3.37%	3.37%
2	9	10.11%	13.48%
3	13	14.61%	28.09%
4	56	62.92%	91.01%
5	8	8.99%	100.00%

Table 7: Table for all responses on BSC formulation and implementation

Frequencies for Question 35			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	6	6.67%	6.67%
2	14	15.56%	22.22%
3	36	40.00%	62.22%
4	32	35.56%	97.78%
5	2	2.22%	100.00%
Frequencies for Question 36			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	4	4.44%	4.44%
2	20	22.22%	26.67%
3	28	31.11%	57.78%
4	38	42.22%	100.00%
5	0	0.00%	100.00%
Frequencies for Question 37			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	1	1.11%	1.11%
2	1	1.11%	2.22%
3	12	13.33%	15.56%
4	66	73.33%	88.89%
5	10	11.11%	100.00%
Frequencies for Question 38			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	4	4.49%	4.49%
2	22	24.72%	29.21%
3	31	34.83%	64.04%
4	32	35.96%	100.00%
5	0	0.00%	100.00%
Frequencies for Question 39			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	2	2.22%	2.22%
2	14	15.56%	17.78%
3	23	25.56%	43.33%
4	49	54.44%	97.78%
5	2	2.22%	100.00%
Frequencies for Question 40			
<i>Bins</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
1	1	1.12%	1.12%
2	9	10.11%	11.24%
3	11	12.36%	23.60%
4	62	69.66%	93.26%
5	6	6.74%	100.00%

ANNEXURE 4: SKEWNESS AND KURTOSIS VALUES

The following table indicated skewness and kurtosis values on the average ratings for each group or sub-group analysed on questions in part B of the questionnaire.

Table 1: Summarised skewness and kurtosis values

Group measured	Sub-group	n-value	Skewness	Kurtosis
Division in Rolling	Production	31	-0.619	-0.507
	QM	28	-0.222	-0.901
	Maintenance	31	-0.391	-0.581
Job Level in organisation	E-Role	28	-0.128	-0.654
	F-Role	29	-0.205	-1.153
	G-Role	33	-0.521	0.198
Years of service	< 5 years	9	-0.338	-0.390
	5 to 10 years	8	0.646	-1.919
	11 – 20 years	19	-1.003	0.598
	> 20 years	54	-0.409	-0.611
Age of respondents	20 – 25 years	3	n/a	n/a
	26 – 35 years	10	0.335	-1.552
	36 – 45 years	32	-0.607	0.087
	46 – 55 years	38	-0.282	-0.879
	Older than 55	7	-0.163	-1.339
Total Group	All responses	90	-0.397	-0.621

n/a = Not available