

UNIVERSITY OF KWA-ZULU NATAL

**FEASIBILITY OF IMPLEMENTING THE BALANCED SCORECARD IN A
HIGHER EDUCATION INSTITUTION: A CASE STUDY OF THE FACULTY OF
ENGINEERING AT DURBAN UNIVERSITY OF TECHNOLOGY**

by

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Declaration

I, Manimagalay Chetty, hereby declare that

- (i) The research reported in this thesis, except where otherwise indicated is my original work.
- (ii) This thesis has not been submitted for any degree or examination at any other university.
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Manimagalay Chetty

Dedication

This thesis is dedicated to my father, Rajandram Moonsamy Pillay whose wisdom, support and encouragement is sorely missed. His famous words were: “An education cannot be taken away from you”.

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I would like to take this opportunity to thank the following people for supporting me during my studies:

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Abstract

Higher education institutions are being challenged to reform and restructure to offer top quality education, while at the same time produce highly skilled graduates for the workforce. In order to be competitive and sustainable Higher Education Institutions (HEIs) have to make changes in their management, operations, recruitment of students and staff, curriculum offerings and in all areas of the organisation. The aim of this research was to investigate the current management performance systems in the Faculty of Engineering at Durban University of Technology (DUT) and propose a framework for a performance management system based on the balanced scorecard. The readiness of the institution for a performance management system, its culture fit with performance management systems and the link between individual and organisation performance was also surveyed. It has been noted from the surveys that individual performance impacts on the organisational performance. The institution has procedures, policies and measures in place for quality of the academic programs, research outputs and student success rates. The integrated electronic database systems can ensure updating and reporting of performance indicators. Performance indicators can be linked to the financial, student, internal processes and organisational learning perspective.

The program quality, student success rates and research outputs from individuals in academic departments do impact on the organisational performance. Outputs from individuals are collated in the department into faculty and institutional data which is then used for the Department of Higher Education and Training (DOHET) institution subsidy. Even though there are numerous reports generated at various sub levels in the areas of management, facilities, research, teaching and external links, this information still exists in a dispersed format. The establishment of a performance measurement tool like the balanced scorecard would not only serve as a single source of data and information on the institution's progress but would also highlight that DUTs objectives have been met. The balanced scorecard framework will allow for a central location of data, provide specific information on research and student success rates and track expenditure while linking individual goals to organisational goals. It can also be used to predict long term sustainability of the university. The outcome of this research will benefit students, the community, employers, academic and support staff of the university. The adoption of the balanced scorecard will favour effectiveness and efficiency within all sectors of the institution.

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Abbreviations

BSC	Balanced Scorecard
CHE	Council for Higher Education
CQPA	Centre for Quality Promotion and Assurance
DUT	Durban University of Technology
DVC	Deputy Vice Chancellor
DOHET	Department of Higher Education and Training
ECSA	Engineering Council of South Africa
FTE	Full Time Equivalent
HEQC	Higher Education Quality Committee ITS
ITSS	Integrated Tertiary Software System
UOT	University of Technology
PMS	Performance Management System
RIMS	Research Integrated Management System
SA	South Africa
SAPSE	South African Post- Secondary Education
TIP	Technology, Innovation and Partnerships

CHAPTER 1

INTRODUCTION

“Excellence is an art won by training and habituation. We do not act rightly because we have virtue or excellence, but rather we have those because we have acted rightly. We are what we repeatedly do. Excellence, then, is not an act but a habit” (Aristotle).

1.1. Introduction

Strategic management is based on effective and holistic use of organisational resources for achieving its goals and developing such resources and activities. Government funding alone is insufficient to develop world class institutions in Africa, therefore Higher Education Institutions (HEIs) need to strategically manage their intellectual capital, resources and finances. Universities need to formulate a vision building process and adopt management models to strategically govern their internal and external affairs (www.dhet.gov.za). HEIs are subjected to quality assessment procedures to maintain research and academic standards. Traditional university governance models are inadequate for managing both efficiently and effectively according to the new socio-economic context, thus resulting in the need for better governance structures and new managerial skills and practices. HEIs worldwide, but particularly in South Africa, are not embracing modern managerial methods, approaches, practices and methodologies in managing institutions. Teaching and learning are HEIs core business but governance, finances and other institutional operations are equally important (CHE Monitor, 2009 and 2012). To establish a framework of success in the HEI environment, Durban University of Technology (DUT) has to evaluate its current management models and future direction to deliver the institution into the next millennium. The implementation of the Balanced Scorecard in the Faculty of Engineering will align the faculty goals and objectives to the institutional strategy. This chapter will include the motivation, the focus of the study; the research questions, objectives, methodology and the limitations of the study.

1.2. Motivation for the Study

The change in student demographics due to changing schools curricula, declining student performances, diminishing government funding, rising dropout and throughput rates and

competition from both private and government HEIs has been the driving force for the change in HEI management. The graduation rate for undergraduate students in South Africa (SA) averages at 15%. DUT graduation rate at 23% is the second highest in the country (Daily News, 2013). The current estimate is that 44% of total students enrolling at HEIs in SA graduate, thus implying a dropout rate of 56%. At HEIs in SA 16% of academic staff have PhDs and 34% have MScs. At Universities of Technology (UOTs) only 8% have PhDs and 73% have qualifications lower than a Master's qualification (CHE Monitor, 2009). Higher education institutions are thus pressurised to reform and restructure higher education to offer top quality education, while at the same time produce worthy graduates who can add value to the workforce, and become responsible citizens. HEIs have to make changes in their management, operations, recruitment of students and staff, curriculum offerings and ultimately quality changes at all levels and areas. Good performance has to be supported by effective measurement and management systems (Kaplan *et al*, 1996). The balanced scorecard is a framework for performance management that is now widely used in organisations. The balanced scorecard (BSC) was developed by Kaplan and Norton (1996) to be used as a tool to translate the mission and strategy of an organisation into a complex set of performance measures. Kaplan & Norton (1996) stated that "the balanced scorecard provides executives with a comprehensive framework that can translate a company's vision and strategy into a coherent set of performance measures". The aim of this research was to investigate the current management performance systems at DUT and propose a framework for a performance management system based on the balanced scorecard. The outcome of this research will benefit students, the community, employers, academic and support staff of the university. The adoption of the balanced scorecard will favour effectiveness and efficiency within all sectors of the institution.

1.3. Focus of the Study

This study focuses on the Faculty of Engineering at DUT and its current management practices, performance measurement standards and methods; its quality improvement processes and its reporting processes. Only one faculty was investigated as it is similar to the other five faculties in terms of management, procedures and processes followed. DUT policies and systems are common to all faculties even though they offer different programs. All faculties have academic departments which report the Dean. The faculties in turn are

managed by an executive management team and the University Council. The HEI's culture and its fit with PMSs together with the alignment of individual performance to organisational performance were also investigated. "Management practice in HEIs have to be governed by management approaches to business functions such as strategy formulation, finance, investment, risk management, human resources, labour relations, marketing and communication, procurement, quality assurance, client service, innovation, facilities and real estate, and information technology" (Ferreira, 2003). Income is generated by student fees, industry sponsorships and research grants. The academic program, student success rates, research outputs and graduation rates are used for the government funding formulae. These are the key factors together with the budget which forms the core business of management in the faculty. The support departments input into the faculty has not been considered in this research. The key stakeholders considered in the proposed framework are the students, employers and the community. One of the key and enduring characteristics of HEIs has been their capacity to adapt to shifting demands and the environment. This durability has helped retain HEIs as centres of knowledge and learning (Ferreira, 2003). These institutions have to gain a competitive edge in their sector and aim to be sustainable over time. Government funding alone is insufficient to develop world class institutions in Africa, therefore HEIs need to strategically manage their intellectual capital and resources. Universities need to formulate a vision building process and adopt management models to strategically govern their internal and external affairs. They are forced to work in a highly competitive environment, develop entrepreneurial ventures, contribute to local wealth and manage all these activities efficiently and effectively. One has to be flexible and adaptive to keep up with the fast-changing environment (Perez *et al*, 2011). The adoption of the balanced scorecard as a performance management system can enable HEIs to manage their finance, internal processes, students and skills training to produce industry relevant graduates.

1.4. Problem Statement

Government funding forms the major portion of an HEIs income. Student fees, research grants, business sponsors and donations make up the balance of the income. Government funding is dependent on student success rates, research outputs and graduation rates. This presents multiple challenges to HEIs, to employ highly qualified staff, produce top quality academic programs and research, produce highly skilled graduates for the workplace and deal

with competition from other HEIs. HEIs are predominantly results orientated from student success rates and quality of programs to skill-fully managing limited finances and resources. Academic program quality checks and accreditation criteria are used to formulate the main strategy of the institution. The implementation of a performance management system in a HEI will include measurement, tracking and reviewing processes that align the actual results with the strategic business goals and objectives of the organisation (Chearskul, 2010). The aim of the balanced scorecard is continual increase of customer satisfaction at a continually lower cost. The survey of the current management processes and models will inform the proposed framework of the balanced scorecard. Financial and nonfinancial information will be communicated through automated systems that will stream live data for use in decision making and managerial action.

1.5. Research Questions

- 1.5.1. What are the current performance management processes and models followed at DUT?
- 1.5.2. Does a performance management system fit in with the culture of HEIs?
- 1.5.3. What effective performance framework can be suitable with the HEI to ensure that it is results-oriented.?

1.6. Main Objectives

The problem statement and the research questions were used to develop the objectives of this study.

- 1.6.1. To investigate the current performance management processes or models used at DUT.
- 1.6.2. To assess the institution's readiness for a performance management system.
- 1.6.3. To determine an effective framework for a performance system within the HEI to ensure that the institution is results-oriented.
- 1.6.4. To evaluate whether performance management systems fit in with the culture of HEIs.

1.7. Proposed Methodology

The preliminary study was carried out at the Durban campus of the Durban University of Technology (DUT). Current management from the Faculty of Engineering and the executive manager for research were required to fill out a questionnaire to assess current performance management practices, and their readiness for a new performance management system. The research method adopted for this research is the questionnaire method base on quantitative research. There are limitations to this method as response rates can be low but the deductive method allows for a comparison between theory and practice. The term survey research refers to a descriptive and quantitative method where information from the respondents on their opinions and attitudes can be solicited using questions. The answers can then be tabulated and manipulated as necessary for data analysis. This method was chosen for the following reasons: simple to administer, reasonable costs, an abridged version of the information is obtained, responses based on structured questions and anonymity of the respondents ensures truthful responses (Sparrow, 2010). The questionnaire was developed using a performance management self-assessment tool to determine the extent to which the faculty has the components of a performance management system.

The four components of performance management: standards, measurement, reporting progress and improvement of process were considered in this model. For each component the questions asked served as an indicator of performance capacity. The questions cover elements of resource availability, skills, accountability and communications which are deemed to be effective in each component. There are 12 HODs in the faculty and all 12 were sampled. The HODs were the respondents in the survey because if the balanced scorecard is implemented then they would have to manage the process in the Faculty together with the Dean. From the executive management level the deputy vice-chancellor for research was chosen as one of the scorecard perspectives for the faculty is research. The cultural fit of HEIs and PMS; and the link between individual and organisational performance were also surveyed. The questionnaire was divided into the following sections: current performance management practices and institution's readiness for, performance standards and measurements, reporting processes and quality improvement processes. The results were used to assess the current management processes, policies and models and to propose a framework for implementing the balanced scorecard as a performance management system at DUT.

1.8. Limitations of this Study

The target groups were predetermined as managers in the faculty and executive management that were directly linked to the academic program and institutional output used for the DOHET subsidy funding formulae. The survey was carried out at executive management level for research, middle management for the faculty, and at the head of department (HOD) level for the academic programs. The performance of support departments have not been investigated even though they impact on the procedures and policies required for academic quality and research outputs. Currently there is no performance management system at the institution. Quality policies and accreditation criteria are followed by academic departments. There are policies and procedures that are formulated for support departments and institutional operation which impact greatly on the success rate of academic programs. These are used as guidelines in the daily activities of a HEI. The faculty of engineering is unique as its qualifications are accredited by a professional body, thus ensuring that the academic programs are quality controlled even though there is no formal performance management system.

1.9. Summary

The Council of Higher Education (CHE) has the administrative responsibility for quality assurance within higher education in South Africa. The CHE document, ***Quality Assurance in Higher Education***, which is distributed by the Higher Education Quality Committee (HEQC) states that quality is neither new nor unfamiliar (CHE, 2009). The only difference is that there are new and modern challenges in the higher education sector which has propelled HEIs into reviewing their current practices. Universities are composed of academic departments, administrative support and research institutes. Historically university departments were measured on a financial basis. In a university environment intangible factors like the level of academic or researcher knowledge and the understanding of the requirements also need to be considered. In addition HEIs have to manage the traditional management functions of human resources, operations, finance, etc. While administrative departments within the institution can be managed similarly to the corporate world of business, the intangibles in the form of intellectual capital, which includes human capital, rational capital and structural capital also has to be managed. The Faculty of Engineering is

currently responsible for reporting on quality, student success rates and research outputs in order to meet subsidy funding and accreditation of its qualifications by professional bodies. Their overall success is also dependent on the institutions management systems, policies and procedures. The implementation of the balanced scorecard would result in a structured framework for aligning the institutional goals and performance targets. Performance measures from the financial, student, internal processes and organisation learning perspective can have targets that align individual scorecards with the institutional scorecard. The proposed balanced scorecard framework will have to be developed with the faculty goals and objectives which are aligned to the institutional strategy.

CHAPTER 2

LITERATURE SURVEY

2.1. Introduction

Performance management has been restricted to financial accounting measures like return on investment, earnings per share and economic value added. The current business environment is plagued by political, technological and social forces. Corporate governance in South Africa has been influenced widely by the King III Report. Companies are now being held accountable for both their economic social performance. The stakeholder approach is used as a performance measurement in contrast to the shareholders approach which is based totally on the balance sheet (Metawie and Gilman, 2005). Managers whether in the private or public sector are under constant pressure to improve the performance of their organisations.

Higher education institutions (HEIs) have to be ready for the future since “they are increasingly questioned concerning their fitness for addressing the challenges of fast moving business, technology development and social changes. The socio-economic and politico-geographical representativeness of the apartheid era endures with higher education institutions struggling with the urban and rural divide between advantaged and disadvantaged HEIs” (Odhav, 2009). One of the key and enduring characteristics of HEIs has been their capacity to adapt to shifting demands and the environment. This durability has helped retain HEIs as centres of knowledge and learning (Ferreira, 2003). These institutions have to gain a competitive edge in their sector and aim to be sustainable over time. Universities need to formulate a vision building process and adopt management models to strategically govern their internal and external affairs. They are forced to work in a highly competitive environment, develop entrepreneurial ventures, contribute to local wealth and manage all these activities efficiently and effectively. One has to be flexible and adaptive to keep up with the fast-changing environment (Perez *et al*, 2011). Universities struggle for resources like funding, students, research and teaching while at the same time it addresses the market in the form of potential students, journals, labour market and society at large. Frequent changes in the funding model for HEIs, increasing levels of institutional autonomy and new social demands for greater transparency and accountability have highlighted the conflicting views on how institutions should be managed. Management tools were traditionally used in private companies. Universities find it difficult to implement “business” thinking as a means of attaining success. Vice Chancellors, Faculty Deans and Heads of Department are usually

academics who are selected by their own peers from the scientific community. Their selection is usually based their academic achievements and not their managerial skills. This is in contrast to the corporate world where individual skills, capabilities and expertise determine managerial positions. Academics appointed to managerial posts have to deal with financial and organisational matters, including human resource management, which their academic training may not have equipped them for success. Academic expertise is prized over crucial management skills thus making it relevant for the introduction of new management tools to develop new capabilities. This will enable the institutions to strategically manage their affairs with a long term perspective (Perez *et al*, 2011).

2.2. Quality in higher education

“The Higher Education Quality Committee (HEQC) certifies academic quality by institutional accreditation audits on teaching and learning, research and service learning at Higher Education Institutions in South Africa. HEIs need a framework to guarantee institutional quality in the higher education sector, therefore areas like governance, finances and institutional operations which are not part of the HEQC audits have to be monitored and well managed” (Ferreira, 2003). The Council for Higher Education (CHE) has set up a framework for continuous improvement of standards to ensure quality assurance and development of quality in the education sector (CHE, 2011). “Self-assessment approaches and quality principles have to be adopted to address issues of leadership, policy and strategy, people management and satisfaction, client and customer satisfaction, resource and information management, processes and impact on society. Organisational results should be analysed for strengths and areas to improve” (Ferreira, 2003). Individual institutions are accountable for the quality and management of qualification programs. How does one decide on quality of an HEI? One would ask the registrar, look up the recent quality audit report or contact the teaching staff. There is no one correct answer, but if one truly wants to seek the most appropriate response then the closest interface to look at are the academics and the students. Quality is in the eye of the beholder and the perceptions of all stakeholders should be sought. “Government may consider quality as attrition rates, throughput and pass rates; the profession may view quality as the skills and attributes developed by students; students may refer to their individual development and their position in society; and academics may define it as knowledge transfer, good academic training, and a good learning environment” (Watty, 2006).

Quality has to be measured by some scale that is applicable to an organisation. In businesses there are certain conventions that are followed to measure excellence. Similarly, in higher education systems performance can be measured using various performance management system (PMS) models. Barnett (1994) raised concerns about the quality of education stating that it is viewed differently as a result of the various assessment methods used, thus leading to variations in perceptions on quality. Alternate sets of performance indicators (PI) are also responsible for variations in quality assessments. Various stakeholders have different conceptions of higher education. The implications raises concerns that there is a direct relationship between stakeholder conceptions, the definition of quality and the measurement method used for the performance indicators. The challenge facing HEIs is to produce a performance evaluation framework that allows all stakeholders an equal voice even though there are conflicts or competition in the process (Tam, 2001). The balanced scorecard (BSC) provides a framework for strategic measurement and management. The application of the BSC has recently been applied to HEIs as a performance measurement tool. While businesses emphasise financial performance, HEIs look at academic measures in its scorecard (Farid *et al*, 2008b).

A successful economy is based on having a highly trained and skilled workforce that can effectively and efficiently produce high quality goods and services. This impacts greatly on the quality of graduates that industry seek. Poor quality students, rising costs of education and curriculum renewal to meet advances in technology are some of the new challenges facing HEIs. Higher education institutions are thus pressurised to reform and restructure higher education to offer top quality education while at the same time produce worthy graduates who can add to the workforce and become responsible citizens. HEIs are dynamic organisations because teaching, research and community outreach are some of the activities which they engage in addition to their participation in industry projects, public sector forums and numerous other platforms. Since they are training students for the professional world of work which is located globally, their interactions and engagements are limitless and only bound by the limitations of staff and students. “The balanced scorecard can be adapted to provide a comprehensive perspective of a higher education institution and measure its evolution from short term to long term strategic goals” (Farid, 2008). There are also on-going pressures from accrediting bodies, legislators and a variety of stakeholders linked to the institution.

Jefferson College in Virginia, USA and Rhodes College in Memphis, USA have used the four perspectives (finance, customer, internal processes and learning and growth) in 2003 and 2005, respectively, in developing their balanced scorecards. The vision was developed by a planning committee and then reviewed by the administration and board of directors before a final version was agreed upon. A spider chart was divided into the four perspectives to yield four quadrants with predetermined goals in terms of percentages. This overall perspective was shown to the board together with the measures and its link to the targets. The benchmark was 100% but allowed for measures below and those that were superior (above 100%). A more detailed spreadsheet that documents the specific metrics for each strategic objective was maintained by the administrative team in a database. There was constant feedback and discussion on best methods to achieve success for each objective. It is recommended that Kaplan's four perspectives be used as the time, energy and goodwill spent on developing new ones is better spent on devising measures for the existing four perspectives and developing individual scorecards to achieve the institution's goals. Prototyping is essential therefore it is recommended that metrics that are easily obtainable be used to develop an initial model. This can be used as a basis for discussion and review that will eventually lead to a working model. The final measure should be well-defined and communicated from the top down for the balanced scorecard (BSC) to be successful. The BSC proved to be an effective tool for translating institutional strategy into action at Jefferson and Rhodes College (Ballentine *et al*, 2009).

2.3. Strategy

According to Mintzberg (1998) strategy is defined as a plan, which guides an action and links the present to the future. Planned and realised strategy usually diverges therefore it is not a full definition. Strategy may also be a pattern which recurs over time, linking strategy to its past behaviours and recurrences. Strategy can be considered as gaining a competitive advantage, that is, strategy could be a position in a similar market. Strategy, vision and communication are the main arms of an organisation rather than control. (Metawie *et al*, 2005). HEIs are being accessed from multiple perspectives. HEIs are changing to meet the future needs and demands of an increasingly complex and dynamic environment. For example, traditional universities and institutions are now offering on-line or distance learning

qualifications which are both face-to-face and supported by online technology. The following are some of the broad based strategic challenges facing HEIs:

- “Removing boundaries
- Establishing interdisciplinary programs
- Supporting entrepreneurial efforts and technology
- Redesigning and personalizing student support services
- Emphasized connected and lifelong learning
- Investing in technologically competent faculty
- Building strategic alliances with others
- Incorporating technologies into strategic thinking
- Measuring program quality
- Achieving institutional advantage
- Transforming bureaucracy, culture and assumptions” (Hanna, 2003).

Once a strategy is formulated it has to be executed. The process of implementation focuses on transforming strategy into action by communication, interpretation, adoption and action. Successful strategies involve converging planned and realised strategies to meet the vision of the organisation. Strategic management systems are developed to ensure successful implementation. These systems enable managers to stay on track while allowing for adaption and review of strategies as and when necessary.

The BSC was first proposed as a measurement system but it is now widely recognised as strategic management system. (Chenhall, 2005) defines strategic performance management systems as “financial and non-financial measures covering different perspectives which, in combination, provide a way of translating strategy into a coherent set of performance measures.” “The BSC provides a balance between long and short term goals, between financial and non-financial measures, between lagging and leading indicators and between internal and external perspectives” (Seppala, 2010). It provides a link between performance indicators and an organisation’s strategy. The use of an integrative performance management system for the alignment of strategy to finances, customers, internal processes and organisational learning strengthens ones strategic competitiveness. The following criteria have to be accomplished in an integrative performance management system.

- A PMS must provide strategic and operational linkages to integrate strategy and operations

- A PMS must provide customer orientation by having customer linkages with financial and customer measures.
- A PMS must provide supplier orientation by having supplier linkages with business process and innovation measures.

An organisation has four key resource areas, namely people, information, finance and technology which can influence the success or failure of its strategy. For example, if there is a limited budget available for the development of a new curriculum then it can have a negative impact on its development. HEIs in South Africa are currently recurriculating for the launch of the new curriculum under the guidelines of the CHE, Department of Higher Education and Training (DOHET) and the HEQC. This is a national initiative driven by government policy; therefor institutions have to invest in this process to ensure its success (www.dhet.gov.za). There is no option to fail as the framework has been established and institutions have to allocate resources to formulate the new curriculum for all existing qualifications offered. Long term, intermediate and short term options are available for institutions when implementing their strategic plans. Human resource management, institutional culture and tradition are long term changes required in HEIs. A strong human capital basis is essential to deliver high quality qualifications annually. The quality of the teaching and support staff will impact greatly of the type of graduate exiting the institution. Introduction of reward systems, allowing participation, use of goals and key performance indicators, use of change champions, faculty staff development and successful systems for implementation are intermediate term options for planning strategy (Ten Vergert, 2010).

“Blue chip companies do not stop at the gathering and analysis of performance data, but use performance management to initiate improvements and successfully translate strategy into action” (Chenhall, 2005). A systematic, holistic and integrated approach is essential for “identifying, formulating, deploying, measuring and tracking strategic changes while continuously focusing on strategic alignment” (Jayashree *et al*, 2011). In this way the change is kept on track in accordance with strategic goals and operational priorities. Formulation of the approach aims to reduce the probability of failure.

2.4. Performance Management Systems

Performance measure is defined as “an assessment of an organisation’s performance including the following measures:

- Productivity is the ratio of output to input.
- Effectiveness is the relationship of the outputs to the company goals
- Quality is a check of attributes such as accuracy (or error rate) thoroughness and complexity.
- Timeliness is the period taken for the output to be produced” (Metawie *et al*, 2005).

Van Der Walt (2004) stated that economy, efficiency and effectiveness are interdependent factors that affect performance measures and service delivery. A typical process consists of inputs and outputs with outcomes. Economy is the costs or resources allocated to achieve the outputs, efficiency is the cost per unit of output and effectiveness is the degree or extent of the objectives being met from the target set points. Economy is measured by resources, efficiency is measured by cost per unit in a specific period and effectiveness is measured using quality indicators and measures. In HEIs KPIs of individuals can be measured to determine the overall institution efficiency and effectiveness.

Managing performance is important as it enables the individual goals to be aligned to a common vision for organisational success. An effective holistic performance measurement and appraisal system is key to attaining this vision. Performance measurement is the act of measuring the performance at an organisational level while performance management is usually at an individual level. Performance measurement is clearly understood for implementation purposes as it was driven by financial indicators in terms of direct and indirect costs, and because it is easier to measure performance than manage it. Kaplan and Norton included the measurement of indicators other than financial ones (Whittington-Jones, 2005). They postulated that these scorecards can be drivers of strategy and that the path of all measures on a scorecard should be aligned to the financial objectives. Another commonly used definition for performance measurement by Neely (1998) is: “the process of quantifying the efficiency and effectiveness of past actions through acquisition, collation, sorting, analysis, interpretation and dissemination of appropriate data.” Performance management defines performance measurement as a means of determining the effectiveness of the management and the value they provide to their stakeholders. It can be carried out at multiple

levels including program, organisation, community and state levels. Performance management is a practice of actively using performance data to improve an organisation's effectiveness and foster a culture of continuous best practice. This practice involves the use of performance measures and standards to develop and establish targets and goals. This practice involves the prioritisation and allocation of resources; directing of managers to changes in policy or program to meet goals, to report on attainment of goals and to improve the quality of the organisation. Performance management is composed of performance standards and measures, progress reporting and quality improvement. Performance standards are used to determine an organisation's effectiveness and efficiency. Performance indicators are used for communication purposes which precede the development of specific measures (www.phf.org). Performance measures are quantitative measures processes or outcomes necessary for the assessment of performance indicators. Performance targets are specific and measurable goals linked to agency or system performance. These components can be applied to human resource development, data management, customer focus, financial systems and general management practices.

There are three major purposes of performance management systems, namely, a process for strategy implementation; a vehicle for culture change and a framework that informs human resource systems on development and remuneration. The main aim is to enhance the individual and the organisation's achievements by considering both the '*what*' and '*how*' it was achieved. Effective performance management systems require three key components: definition of the characteristics for good performance, removal of obstacles to facilitate good performance and reward, praise or promotion as recognition for excellence. Employees will perform well if they know what is expected and if they had helped in setting the expectations. With access to the necessary resources and training within a supportive organisational structure people will perform better and realise expectations that are set within their skill set. A good performance management system (PMS) has a rewards based system to motivate staff and help them improve their performance so that their objectives are met. Rewards should be fair and a strong culture of communication must prevail so that there are channels for comments and criticism. A well designed and strategically implemented system separates the ordinary organisation from the excellent one. The employees are the most important assets to the organisation and if used strategically, they can contribute effectively to the overall success (Whittington-Jones, 2005).

PMSs have been criticised, but this should be expected as it is about people's actions and activities which are also linked to the dynamics of the workplace. The human element influences the performance management system which may lead to staff demotivation and unfair application. It is also seen to be too subjective, unethical, unclear and sometimes as time consuming. These systems may be ideal on paper but the implementation may be flawed or difficult to execute in a dynamic environment. Performance appraisals are seen as time wasters, just an exercise to extract information, file and store. Theoretically PMSs can be used to make tall claims but when executed it may not be as effective as the design intended it to be. Ethical frameworks are vital in designing PMSs because it takes into account the humanity of the employee. Respect for the individual, mutual respect, transparency of decision making and procedural fairness should be the main concerns for all employees. A performance appraisal comes with its own set of biases and judgement which may affect the outcome of the appraisal. Higher than average ratings may be due to factors such as preservation of morale, confrontation, avoidance and a negative image of management for a department that was underrated in the appraisal process (Fischer, 1997).

Implementation of PMSs may promise unrealistic expectations. If the main purpose of a PMS is to reward individuals then there is an expectation that their pay is linked to their performance. Senior staff may be convinced that there is a place for all people, both achievers and underachievers. Directors will expect PMSs to improve organisational effectiveness, even though it is actually linked to the efficiency of each individual, and each activity, which collectively leads to a successful organisation. Management buy in and support from top management is essential for successful PMSs. The system must be ethically designed; and fairly and accurately implemented. Clear intentions should be clearly communicated to all levels of employees of the organisation. There has to be a continuous two way sharing of information and feedback. Data should be collected, verified and then used to evaluate people's performance, or to develop and train if attributes or skills are lacking (Fischer, 1997). Achievements and behaviours that contribute to the efficiency and effectiveness of the organisation should be rewarded, as it instils a sense of appreciation while at the same time it convinces people to perform at their best.

Performance management systems were designed to measure success in terms of profitability. For example when a balanced scorecard tool was introduced the initial reason was to improve

the financial viability of an organisation. In higher education institutions, profitability is not the key performance indicator, but it is still quite an important factor. If the bottom line is not the focus of performance then this message has to be communicated. In HEIs financial viability is still necessary, as the infrastructure has to be maintained, support provided for staff and students, research pursued and the updating of the latest technologies is essential. Communication of the performance appraisal is a key contributor to the success of a performance management system. An example of a performance indicator for research would be the number of publications per research member. Institutions can increase their government subsidy by publishing papers which the Department of Higher Education and Training (DOHET) will pay for based on a current formula. If the papers are not of good quality, then new targets can be set where quality of the paper can be linked to individual performance (Andrew, 2004). The above brief can then be changed to the number of papers in internationally accredited journals per research active member. One has to use various approaches to decide on the best performance management system for the organisation.

The implementation of performance management principles from the private sector is not easily transferred to a higher education institution. The educational process is quite complex as teaching is not only about contact time in the classroom, but preparation, consultation, and multiple assessments of individual's work. It also involves research and keeping abreast of one's discipline. The results of a PMS are usually linked to remuneration, tenure and promotion. For example in teaching the rewards are not linked to the time spent in the teaching but pass rates, throughput rates, student retention and students' level of satisfaction of the subject. The selection of indicators for performance measurement is key in determining academic workload. Individual performance can be linked to a range of measures that are necessary for the institution. Equivalent full-time student load, perceived teaching quality, postgraduate completion rate, research grants, publication rate and productivity rate of other original works can be collated with institutional performance indicators. The broad institutional indicators are cost per student, qualification completion rate, graduate employment rate and student progression. Indicators vary between institutions but the final measures and analysis would be student success rate and financial success. Each of these can be used to determine the indicators for individual performance. For example, student success rate would depend on individual courses and how it is taught by the academic. At the University of Stellenbosch a credit system was implemented for activities which were additional to teaching, e.g. Doctor of Philosophy (60), journal publication (50), conference

(20), etc. The process of quantifying academic productivity is complex therefore each faculty should find measures that are aligned to their objectives and goals. A workload algorithm was developed to determine academic workload at Cape Technikon. Each activity had a formula which was based on a number applied to an aspect, a weighting factor and the time allocated. This was valid, reliable, useful and acceptable to the academic staff in the context of a performance management system. The algorithm can be adapted to suit activities at other institutions (Parsons, 2000). This algorithm can also be adapted for the administrative sector of higher education institutions.

2.4.1. Development of an Organisation's Performance Management system

The vision and mission of an organisation is incorporated into its reason for existing or *raison d'être*. The organisation's purpose and core values will be used to strategise its trajectory into a long term business plan. When an employee starts working for a company the terms of employment, values and goals together with personality and skills shapes the work ethic of the individual. The employee expects certain compensation and a conducive working environment. The organisation in turn requires the employee to carry out a series of tasks while at the same time achieve its vision. If there are differences in what is expected from both parties, and what is actually 'delivered,' then the performance is affected (Williams (2002).

Williams (2002) states that a performance management system has three main perspectives that has to be managed: organisational performance, individual performance and the integrated organisational-employee performance. If an employee is inducted on appointment, into a performance management system, then the goals and objectives are clearly laid out for both parties. The individual and the organisational form a psychological bond. Organisations need to be effective, efficient and appropriate in their operations but this can only be determined by a system that measures the performance of its managers and ground staff. Four key elements have been identified which links organisational, team and individual goals: organisational leadership, leadership of individuals and teams, management of change and accountability for performance. This includes having adequately qualified individuals or teams, in the right position at the right time; creating a culture of performance by focusing on best practice and continuous improvement techniques; and developing a culture of respect and significance amongst all (Mackenzie, 2000). Pettinger (2002) indicated that the appraiser

and the appraisee should develop a mutual commitment to achieving their common goals. The individual should be able to attain the organisational goals while aspiring for their own goals. This prevents poor work performance since the organisation's performance management system is formulated to ensure that the employee is supported and nurtured through training and mentoring (Senger *et al*, 1995). Skills and behaviours of individuals and teams have to be integrated with the core competencies of the organisation. It is not solely the responsibility of an organisation to provide a performance management system, but also the employee's task to discover the needs of the job and the organisation so that they complete them as effectively and efficiently as possible (Whittington-Jones, 2005).

2.4.2. Components of an effective performance Management System

The development of a process cannot be isolated from its implementation, as it is dependent on its framework, which in this context, is the balanced scorecard. The implementation of a performance management system focuses on the actual procedures followed. A vision can be used as a concise document to plot a course on how the organisation will attain this vision. When the vision is translated into action items to pursue the goals and objectives of the organisation, then it is considered to be the implementation stage of the performance management system. Appropriate leadership is necessary for an effective PMS where values and ethics are guiding principles that promote respect for individuals, mutual respect, procedural fairness and transparency. An effective PMS can increase efficiency, foster development, influence decision-making, strengthen accountability, develop cost effective models, and motivate and increase staff retention (Ngcelwane, 2008).

Overall organisation goals get translated to department/unit/ team goals which are further cascaded to individual goals. Objectives are laid out in a document known as a performance agreement or performance contract. Knowing one's expectations gives the individual a sense of security and motivates them in their job performance. Gaps need to be identified and the necessary training and skills have to be facilitated by the organisation. There are also other contributing factors like level of responsibility and authority, provision of feedback and effective communication that needs to be considered before training is undergone. A PMS must contain core components, namely: Key Performance Indicators (KPIs) and measurable targets for common goals and objectives. KPIs are quantifiable measurements laid out by the latter. Clearly defined KPIs have to be established for sections, teams and individuals. Each

KPI in each level will have a quantifiable target value. Data collected for each KPI will be used as a benchmark for future improvements. KPIs have to be linked to critical success factors which focus on the organisational vision (Bauer, 2004). KPIs form the individual's and the team's performance agreement and can be linked to form the organisational PMS. Targets are associated with the performance appraisal to assess and reward. A performance agreement sets out targets and the time period that it needs to be accomplished in. Specific targets should be S.M.A.R.T. (specific, measurable, achievable, realistic, and time specific) as this enables the individual to gain a sense of accomplishment when a task is fulfilled to the best of their ability. Best practice requires that the employee and supervisor discuss the measures according to the targets set in the performance agreement. A 360-degree feedback can be designed to get the bigger picture of the employees and their tasks. It is a difficult system to implement but the rewards are continuous which is indicative of a learning organisation (Whittington-Jones, 2005).

Human resource policies and organisational procedures have to underpin and support the performance management system. Each organisation can tailor make their system to fit into their business culture. The most effective way is to start with the recruitment and selection policies; and ensure that individual performance assessments are timed to ensure that the organisation target dates are met. This should consist of a cycle (Figure 2.4.2.1.) which would include periodic meetings or interviews to set target agreements, to review problems if any and ensure that current activities do meet targets. At the end of the cycle a formal assessment should be carried out and the end result fed back, whether it is a bonus for good performance or counselling for poor performance (Whittington-Jones, 2005). Once the outcome is conveyed to the employee, the next step is to set a target agreement for the next cycle, identify weaknesses, and make suggestions for training and development for future activities which are tied to the individual's target measures. Personal appraisals, program evaluation and internal audits are mechanisms adopted to review and maintain best practice, to monitor accountability and ensure transparency to all the organisations stakeholders (MacKenzie, 2000).

A performance management system must have systems in place to deal with poor performers. The organisation has to make interventions to remedy the situation and not make the employee feel inadequate. The organisation has to ensure that there are relevant resources to accomplish the set activities and train employees in areas of poor performance. This can be

done in-house or by external professionals. If the employee fails after these the organisation has fulfilled its responsibilities then the employee has to take the responsibility for the poor performance. The employee should not be made to feel inadequate as this can lead to further bouts of underperformance which will affect the performance targets set for the unit or department, and ultimately it affects the organisation's performance. (Whetten, 1998) uses the model of performance that states:

$$\textit{Performance} = \textit{ability} \times \textit{motivation}$$

where

$$\textit{Ability} = \textit{aptitude} \times \textit{training} \times \textit{resources}$$

and

$$\textit{Motivation} = \textit{desire} \times \textit{commitment}$$

The above should be used as a guideline. It can be noted that if an employee lacks the motivation or aptitude then training and resources provided by the organisation may still not have any impact on the poor performance. In order to improve performance there has to be continuous feedback, in terms of appropriate training or alternate strategies. Nowadays most organisations have employee assistance programs to assist staff in various areas like support Aids patients, alcoholism, debt payment and many others that may be relevant to that organisation. These non-core activities can have an effect on employee performance (Whittington-Jones, 2005).

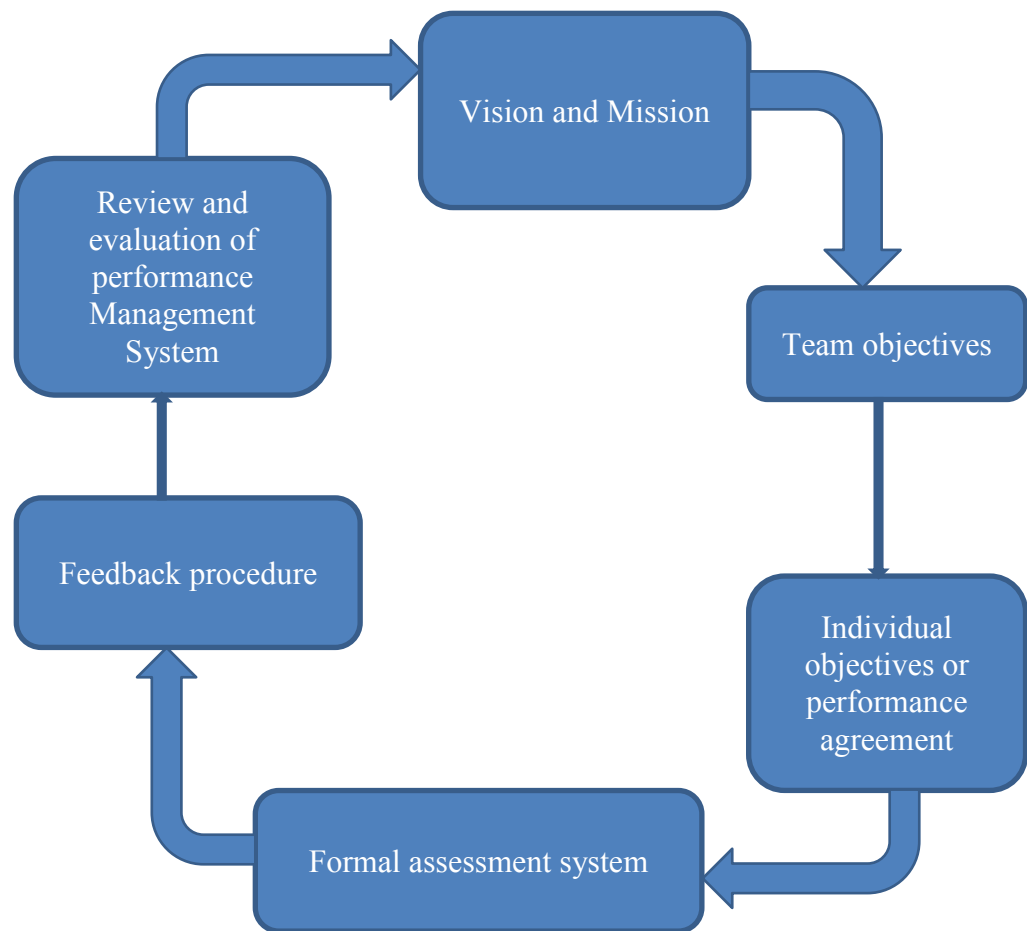


Figure 2.4.2.1. Effective performance management system (Whittington-Jones, 2005)

2.4.3. Performance measurement

Various researchers from different disciplines have given varied definitions of performance measurement. A performance measurement system is defined as an “information system that managers use to track the implementation of business strategy by comparing actual results against strategic goals and objectives. A performance measurement system typically comprises systematic methods of setting business goals together with period feedback reports” (Chearskul, 2010). Bourne *et al* (2003) defines a performance measure as a metric and performance measurement as a process to quantify effectiveness and efficiency. Performance measurement refers to a multidimensional set of measures which include financial and non-financial measures, and both internal and external factors. Performance measures have to be developed in line with the organisational strategy. It is important that the correct indicators are chosen. The starting time of what is measured, how it is measured and what the targets will be will impact on individual and organisational action. Once started the

performance review will use the measured indicators in decision making. Performance frameworks are not a complete solution as it does not dictate what should be measured, therefore if it is integrated into the management process, meaningful measures will add value (Bourne *et al*, 2003).

Companies might find it easier for a consultant to develop a measurement system as they may see it as time consuming exercise for full time staff whose main task are to profit the company. It will be advantageous to the company to use their own management team and develop a measurement system through facilitated workshops. The employees that work in the organisation will know the successes and failures, industry trends, stakeholder, etc. They will also have the inside knowledge of ‘what’ to measure, ‘how’ to measure and the actions to take, to improve performance measures. The design of a performance measurement system is followed by the implementation and use phases. Measures are derived from the strategy therefore it should inspire activities that support it. The process of designing, implementing, reviewing and reflecting should be applied to the performance measurement system that is developed. The information and feedback from the measures should be used to challenge the validity of the strategy. Targets and standards have to be monitored and reviewed so that it can be aligned to the competitive changes that occurs internally and externally to the organisation. Information has to be redistributed to all staff where previously only senior staff had access to. Managers may feel threatened and may resist sharing of information which is vital for the performance measurement system to work. Skills have to be developed in critiquing and learning from performance measures in a group. The change process will have to be well managed as this system will force people to communicate and share information and activities. (Bourne *et al*, 2000).

There are experts in determining ‘what’ should be measured, but the dilemma is ‘how’ to measure it. Performance measures should be aligned to reflect the performance of the process and individuals. Measures should be effortlessly transformed into business processes which should be able to adapt in an ever changing business environment. Organisations face numerous challenges in the area of ‘how to measure’. For example, staff at a service desk are involved in booking in processes, and they do have any control over the financial turnover, therefore they cannot be evaluated in monetary terms. Non-financial metrics when added to the pressures of financial metrics can become operationally challenging, unmanageable and costly. Keeping measures relevant is another problematic part of the measurement system,

and often new measures are added but the unrelated ones are not discarded, just adding to the dilemma (Paranjape *et al*, 2006).

Measurement information needs to be effectively used to expedite strategy development, process enhancements and organisation learning. Performance measurement (a subsystem) thus transforms into a performance management system. These subsystems focus on recording financial and non-financial data which managers used to inform them in organisational decision-making. Franco-Santos *et al* (2007) identified thirteen performance management processes: “(1) information provision; (2) measures design/selection; (3) data capture; (4) data analysis; (5) target setting; (6) identify stakeholders’ needs and wants; (7) strategic objectives specification; (8) planning; (9) interpretation; (10) decision making; (11) performance evaluation; (12) reward; and (13) review”. This was further categorised into five fundamental processes: selection and design, data collection and analysis, information management for decision making, performance appraisal and bonuses, and system evaluations. The first three are considered to be the basis of a performance measurement system (Franco-Santos *et al*, 2007).

Bourne *et al* (2000) proposes four stages: design, implementation, use and update of performance measures. During the design phase the strategic objectives are identified for measurement. The next step is to find the appropriate framework and model for performance measurement. Performance measurement frameworks can be recognised by a set of common characteristics. Once defined the performance measurement system can be implemented (Kennerley *et al*, 2002). There are three phases in the implementation phase. First, techniques for a continuous measurement system need to be developed with responsible persons allocated, establishment of processes for recording and reporting, and formulation of objectives and timelines. Secondly, new solutions for information technology and/or instructions for collection of data need to be adopted, analysis and communication of results have to be established and these have to be put into action. Lastly, change has to be managed to ensure the acceptance of the new system by the employees, since they have to adopt the new procedures for measurement of the correct variables. This will aid in data analysis for organisational decision-making (Leinonen, 2010).

The measurement system should be hierarchal from the top levels to the lower level units. Training and assessment should be incorporated into the implementation phase (Chearskul,

2010). Once implemented the performance measures have to be continuously reviewed and evaluated to ensure alignment with the organisational strategy. A schedule of meetings need to be planned and attended by all those involved in the measurement of performance so that corrective procedures can be planned and actioned. This also allows for verification of data collection and analysis, and ensures its relevance to organisational strategy. The results obtained can be used to inform strategic decision making, allocation of resources, operational management and communication with internal and external stakeholders. The performance measurement system has to be dynamic in nature. There has to be on-going reviewing, tracking and monitoring of processes and data. New measures have to adopted or existing ones adapted if there are deviations in strategy, organisational performance and the wider business environment (Bourne *et al*, 2000).

Performance management systems promote teamwork, skills and attitudes and overall performance enhancement. Organisational performance is influenced by ‘measurement diversity’ and performance measures aligned with the firm’s strategy. “Measurement diversity is the extent to which top management measure and use information related to a broad set of financial and non-financial measures” (Henri, 2006). The use of a range of measures allows for the critical success factors to be in equilibrium with strategy. A study carried out in Australia found a positive relationship between alleged organisational performance and a range of performance measures linked to the four categories of the balanced scorecard regardless of firm size, product life cycle or business environment (Hoque *et al*, 2003). Ittner *et al* (2003a) concluded that an extensive set of performance measures led to greater satisfaction with the performance measurement system and financial performance of the organisation. There is also the risk that the measurement system may be too comprehensive for understanding and executing. Information overload can overwhelm staff and this may lead to lower productivity and a decrease in the firm’s financial performance (Ittner *et al*, 2003b).

Strategic aligned measures help organisations close the gap between what is actually measured and what needs to be measured thus affording rapid responses on organisational effectiveness. Employees’ expectations can be clarified if there is a lower risk of uncertainty in firm processes and procedures, but organisational goals will take precedence (Chenhall, 2005). Various studies have been carried out to test the relationship between strategic aligned performance measurement systems and organisational performance. Crabtree *et al* (2008)

compared 57 BSC and 107 non-BSC firms over a three year period and concluded that the company that implemented the BSC strategic framework performed better. Gimbert *et al* (2010) surveyed 349 Spanish companies and concluded that those that used a performance measurement system outperformed those that did not. Ittner *et al* (2003b) reported that even though BSC firms in the financial sector were pleased with their performance measurement system it did not transpose into financial performance. Companies that align their performance measurement with their strategic goals across the value chain improved their competitiveness and sustainability (Chenhall, 2005).

There will always be conflicting results when comparing organisation performance. There are a multitude of dynamic factors that affect organisations on a global scale. An organisation culture of performance management and measurement has to developed and maintained so that measures are accurately recorded, and appropriate actions are taken to ensure that the goals and objectives of the organisational strategy are met. Organisational structure and size, external environment and industry characteristics also affect the design and implementation of performance measurement systems. . The size and structure will influence the procedures adopted, reporting structures needed, resource allocation, communication and reporting methods, data collection, storage, etc. The BSC usage intensifies with increase in organisation size, but this does not influence the models developed or the rewards linked to performance measurement. Industry characteristics, i.e., public, regulated, private or government, manufacturing or service, monopoly or competitive, can affect the selection and use of performance measures (Chearskul, 2010).

2.4.4. Review and evaluation of the Performance Management System

A performance management system is a dynamic system which needs a constant two way feedback between the employer and employee, with on-going suggestions and improvements which have to be integrated into the system. As the organisation evolves the needs of both the employee and employer can change therefore the organisation has to provide a supportive platform, relevant resources and training as well as other extrinsic motivators. Individual behaviours have to be understood for a successful PMS. During the review process corrected behaviours and their consequences must be tracked and rewarded or disciplined when necessary. Continuous review and evaluation is required so that staff perceive the process as fair. Implementing a fair system shows respect and value for individual employees which is a

great motivating factor in the work environment. Engagement, explanation and expectation are considered to be the three principles of a fair process. The implementation of a PMS system should include the complexities of the evaluations and rewards. It is composed of the real nuts and bolts which incorporates aspects such as paperwork, meetings, data acquisition and rating methods (Bourne *et al*, 2000).

2.5. Balanced Scorecard

The need for having the competitive advantage in the information age for both manufacturing and service organisations requires a new set of competencies. “Exploitation of an organisation’s tangible and invisible assets enables it to:

- Develop loyal customer relationships
- Introduce innovative products and services
- Produce high quality products and services at the lowest cost and the with the shortest lead times
- Ensure employee skills and motivation for effective and efficient process capabilities, quality and response times
- Use information technology, data bases and systems” (Helreigel, 2001).

Organisations are now competing for the future as sustainability will distinguish the winners from the losers. There are some various initiatives deployed by organisations in order to gain the competitive edge like:

- “Total quality management
- Just-in-time (JIT) production and distribution
- Time based competition
- Lead production/ lean enterprise
- Building a customer focused organisation
- Activity based cost management
- Employee empowerment
- Reengineering” (Helreigel, 2001).

Each of the above initiatives competes for time, energy and resources of senior executives and promises value creation for all its stakeholders: shareholders, customers, suppliers and

employees. Programs that are not linked to a firm's strategy and not aligned to specific financial and economic goals will yield negative results. Good performance has to be supported by effective measurement and management systems (Kaplan *et al*, 1996). The balanced scorecard is a framework for performance management that is now widely used in organisations. The balanced scorecard (BSC) was developed by Kaplan and Norton (1996) to be used as a tool to translate the mission and strategy of an organisation into a complex set of performance measures. Kaplan & Norton (1996) stated that "the balanced scorecard provides executives with a comprehensive framework that can translate a company's vision and strategy into a coherent set of performance measures".

The balanced scorecard reflects a common vision for the organisation's future, and plots the path through the areas that need commitment with respect to long term sustainability while inspiring a "learning organisation" (Whittington-Jones, 2005). It provides management with the ability to identify 'cause-and effect' relationships across key performance indicators, and to manage the business more effectively. "It also provides the framework for strategic measurement and management. The measures represent a *balance* between internal measures of critical business processes, innovation, and learning and growth; and external measures for shareholders and customers" (Gaiss, 1998). The measures are *balanced* between the outcomes – past results – and those that drive future performance. The scorecard is *balanced* between objective, quantified outcome measures and subjective performance drivers of the outcome measures. "The measurement focus of the scorecard is to achieve the strategic management processes: translation of vision and strategy, communication and linking of strategic measures and objectives, planning, setting and aligning strategic initiatives and enhancing strategic feedback and learning as shown in Figure 2.5.1." (Kaplan *et al*, 1996).

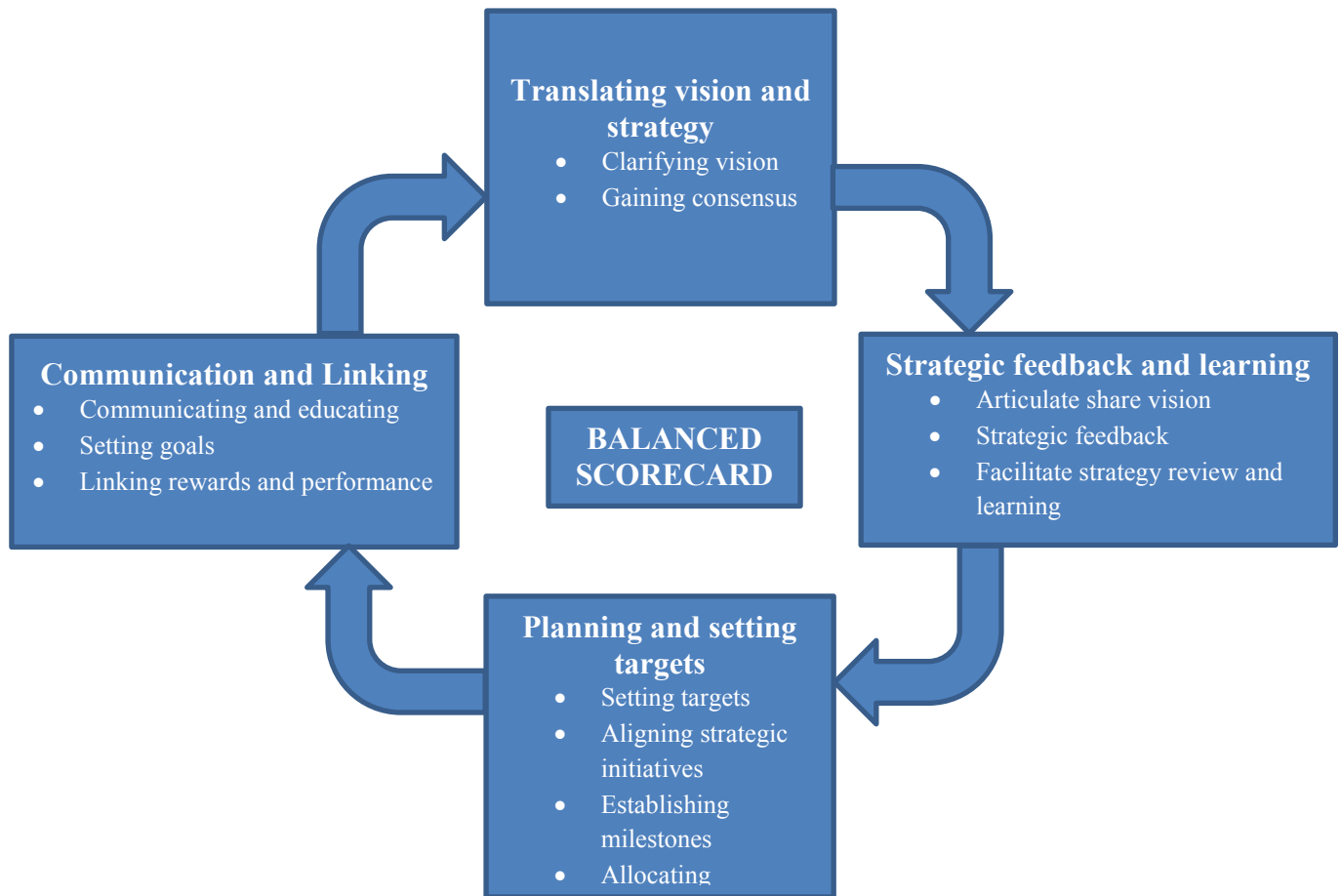


Figure 2.5.1. The balanced scorecard as a strategic framework for action (Kaplan *et al*, 1996)

Organisations tend to use financial indicators as a performance measure but these measures are not the only indicator of the critical success factors. Financial measurements look at past performances without explanations for how and why the events took place. “The balanced scorecard looks at four key perspectives:

- Financial perspective – How will the stakeholders be viewed? The measures indicate whether the strategy leads to improved bottom line results.
- Customer perspective – How will the customers be viewed? The target customers and the value proposition for the organisation have to be determined.
- Internal Processes – What internal processes must the organisation excel at? This looks at reengineering internal processes and structures which are deemed necessary to add customer value. Existing processes are reviewed and new ones implemented. Services and processes should be shared as far as possible to reduce costs and further add value.

- Learning and Growth – How can the organisation learn and improve? Gaps are identified in human, information and organisational capital. Training and development programs are introduced so that the outcomes can ensure a sustainable performance by the employees” (Sanger (1988) and Jantjes (2008)).

The four perspectives of the balanced scorecard have to be incorporated into a performance management system.

2.5.1. Balanced scorecard as a measurement system

The balanced scorecard was designed for managers who would have an overall view of the performance, not for factory operations at the operations level. The BSC also does not take into account all stakeholders like suppliers, competitors, regulators and community. But this can be accomplished where measurement can take place from the management level to the operations person on the floor, stating targets and the actions necessary for achieving them. This can be done for all levels of staff tying single actions to a section goal and ultimately all sections to the vision of the company (Metawie *et al*, 2005). Banker *et al* (2004) investigated the importance of linking strategy to performance measures; and their results suggest “that managers must understand the linkages between performance measures; and business unit strategy in order to benefit from the adoption of the balanced scorecard”.

The final link is transforming strategy into day-to-day actions. This can then be used to link the employee’s rewards program to the Balanced Scorecard (Metawie *et al*, 2005). The initial scorecard (Kaplan, 1992) measured top level management to give an overall understanding of the business. It also helps to focus on critical areas needed. The distinguishing feature of the BSC is the four perspective measurement system which draws from individual scorecards and feeds vertically to top management scorecards. “A performance scorecard is a selected set of measures that provides a balanced and timely view of business performance specific to an area of responsibility” (Seppala, 2010). The balanced scorecard is normally developed for an organisation but it can also be propagated down from managerial to one for a unit, team or individual. Robert Fulton of the Chatfield consulting firm says “when organisations adopt a strategic scorecard, the intent is to create excitement and commitment, communicate a share vision, stretch aspirations and risk-taking, and provide every employee with a scorecard”

(IOMA, 2004). There should be a cascading effect of the goals and objectives down through the various organisational levels to the individual balanced scorecards, which should then be linked to the strategic plans of the organisation. If the balanced scorecard is introduced institution wide then both the academic and supporting departments will be included in one measurement system, each having their own targets, but meeting the institution's overall vision. The customer (student), financial, learning and growth and internal processes will each have their own system of measurement linked to the individual scorecard. The balanced scorecard is both a measurement and a management system. The performance scorecard has to be continuously reviewed so that it is aligned to the strategy of the organisation. Both the strategic and business goals are used to create a range of key result areas (such as financial success or employee development). Once the scorecard is developed, measurement should be on-going with continuous monitoring and reviewing whether the data is useful or not. Individual scorecards should be linked to department or unit scorecards for each performance area. The effectiveness of these measures has to be constantly tracked, as movement in one area will affect results in another. This cyclical event starts with senior management ensuring that the information being collected is aligned to the strategic goals and objectives, and that the balanced scorecard is designed to accurately measure the performance targets. It is up to senior management to decide 'what' and 'how' it should be measured. In addition they should motivate staff to support and use the system. Translating a vision should be explicit and shared by all employees (Whittington-Jones, 2005).

2.5.2. Implementing strategy with the balanced scorecard

The balanced scorecard has a dual purpose as a measurement system and a strategic management system. It has to start with the education of the people executing it. Most organisations strategy is kept a secret with only the Chief Executive Officer (CEO) and top management having command and control of it. Organisations who wish to implement a successful strategy have to share the vision with their employees so that it can be embodied in the balanced scorecard. It should be a shared experience so that there can be an exchange of ideas between employer and employee for the attainment of the organisation's goals. Every employee from the boardroom to the back room should understand the strategy and carry out their day to day activities to support the "big picture". The scorecard starts with executive management but thereafter the individual and units goals feed into the top structure. The traditional management by objectives can be linked to the measures and objectives articulated

in the balanced scorecard. Staff have to be motivated through an incentive and reward system. Once education and communication programs are in place, compensation systems can be linked to the balanced scorecard. A communication program for large organisations has to be comprehensive and sustainable. Usually at the start of any program or system start there is a publicity splash like executive announcements, videos, town meetings, brochures and newsletters but over time they die down. These activities should occur on continuous basis where scorecard measures and outcomes are reported on bulletins, newsletters, groupware and electronic networks. By sharing information on an on-going basis employers gain the trust of their workers, and it also motivates them to achieve their individual scorecard goals (Kaplan *et al*, 1996).

Non-financial goals are still difficult to translate into local and operational measures. Measures like customer satisfaction and information systems availability are not easily translated into elemental actions. The balanced scorecard can play a distinctive role since it is based on a “performance model” that identifies the drivers of strategy from the highest to the lowest levels. The ‘cause and effect’ relationships can be used to select the lower level objectives and measures which are aligned to the higher levels. Tying incentive compensation to scorecard measures is highly motivating to the employees but it has some risks. Disadvantages occur when the actions improve the short term goals but it may not be consistent with the long term objectives. This is easily noticed when senior managers aim for being rewarded for short term financial gains, for example, gaining huge contracts to meet targets, but not being able to duplicate in the future. One way of linking compensation is to assign weights to the individual objectives, with incentives calculated by the percentage of achievement on each objective. This can also lead to unbalanced performance and substantial payment of compensation. To overcome this, minimum thresholds can be set, and incentives paid only when all objectives improve above this benchmark (Kaplan *et al*, 1996).

Strategic planning and operational budgeting are interlinked processes. Most companies have separate processes where senior executives define plans and targets for 3–5 years, but the financial planning is run by finance staff that sets targets for revenues, expenses, profits and investments for the next 12 months (or next fiscal year). The budget consisting of financial numbers bears little resemblance to the 3-5 year target in the ‘now-hibernating plan’ Operational budgeting has to link strategic planning to the vision. Resources and initiatives should be made available for the start of the performance management system in order to

close the gap between current performance and the targets set for the next 3-5 years. Managers cannot wait for 3-5 years to measure whether the vision is a success. There has to be short term targets for the scorecard measures. These targets and milestones are used as a measure of the speed and impact of the current system or programs on the strategic interventions of individual scorecards with the organisational scorecard. Short term financial measures like sales, operating expenses, gross margin, general and administrative expenses, operating margin, net profit, cash flow and return on investment are short term targets. These are important but the other three scorecard perspectives should also be included in the budgeting process. Finance needs to be allocated for training, communication, incentives and any activities that form part of the scorecard activities. Allocations of resources have to be adequately supplied to ensure that individuals are able to achieve their targets (Kaplan *et al*, 1996). For example, the introduction of an integrated software system to manage data, communication, reporting and feedback may initially require a large financial investment, but its ability to process data, communicate and feedback reports in real time can help tremendously in managing the balanced scorecard strategy. “By directing strategic initiatives and significant resources to achieving long term targets, and by specifying short term milestones, managers become committed and accountable to the long term vision of the organisation” (Whittington-Jones, 2005).

2.5.3. Implementing a balanced scorecard management program

“I tried to tell my boss that a balanced scorecard was about management not measurement” (Whittington-Jones, 2005). The goal of a scorecard project is to develop a new set of measures. The measurement framework should be used to develop a new management system that is aligned to the objectives of the organisation but individualised from managers to employees in a cascading balanced scorecard system. It should be a strategic management system implemented by the executives in order to gain feedback on their strategy. The measurement framework can be tailor-made to manage long term change and ensure sustainability. Financial frameworks modelled around the ROI are still vital but the investments in relationships, technologies and other capabilities have also been included in the balanced scorecard model (Whittington-Jones, 2005). The focus is retained on short term financial results but the value of intangible assets and competitive advantage is also recognised. Resource allocations, strategic initiatives and annual budgets are driven by strategy. “The balanced scorecard does not disregard the financial measurements; it just looks

at the management system as a balanced structure which links short term operational performance with long term strategic goals” (Kaplan *et al*, 1996).

2.5.4. Launching the balanced scorecard system

CEOs have adopted the balanced scorecard for a specific strategy (Kaplan, 1996). Figure 2.5.4.1. shows how the balanced scorecard can be used to drive each section of the management process. The strategy has to align to the balanced scorecard within a management structure. It has to be clear, focused, well communicated to the organisation, have strong leadership, be results orientated and have a feedback process to ensure alignment of all levels with the organisation strategy.

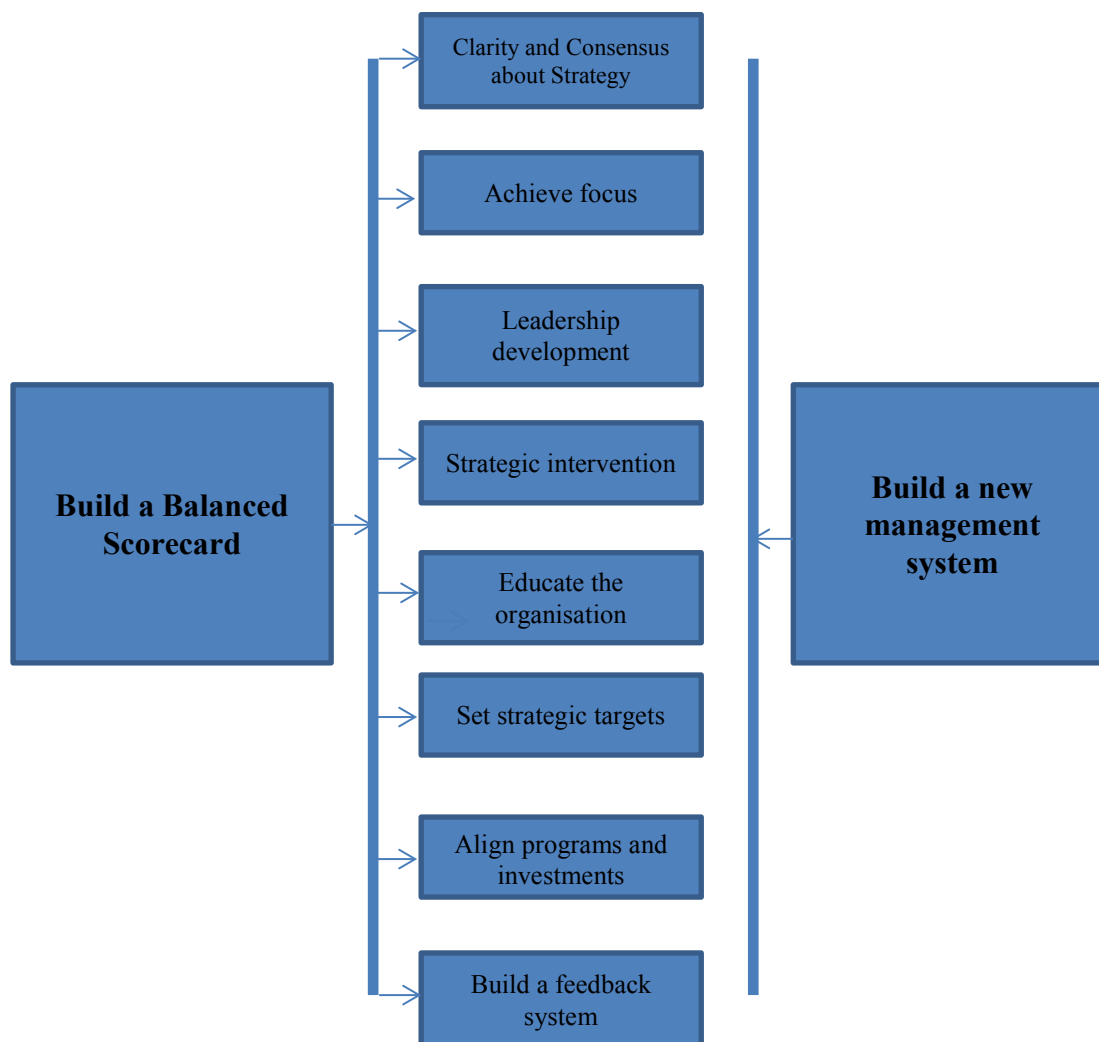


Figure 2.5.4.1. Introduction of the balanced scorecard to drive each section of the management process (Kaplan, 1996)

2.5.5. Cascading the balanced scorecard

Cascading the balanced scorecard is the development at the various levels in the organisation by aligning the strategic objectives and measures from the contributions at the lower levels. Each scorecard is tracked to ensure it ties in to the overall goals. The top level scorecards are used as templates for the lower levels. All employees have to understand the corporate goals and ensure that their individual scorecard objectives and measures are linked to activities that contribute to this end. There should be a constant communication of these measures and a review to ensure alignment at all levels. Clear processes for accountabilities and guidelines should be provided and communicated to all employees when developing the individual scorecards. Some employees may not understand the process; therefore information in the form of books, articles and newsletters should be shared. It is essential to communicate business plans to lower level employees so that they are familiar with the information on objectives, initiatives, costs and processes. Eventually when the balanced scorecard is an established tool it can replace the business plan (Jantjes, 2008).

2.5.6. Individual scorecards

Individual goals must be clearly communicate to all employees as their success impacts on the company's success. The compensation plan and personal development plan forms part of the balanced scorecard measures. "There are benefits for developing individual scorecards as follows:

- Awareness is created
- Employees are exposed to the principles and techniques
- Trust and commitment is generated
- Support is gained
- Increase in understanding of the scorecard system
- Understanding of their individual scorecards and its link to all preceding scorecards
- Links employee and organisation goals
- Employee contributions are recognized when results are measured
- Goal setting processes are supported
- Review and feedback keeps the process 'alive'" (Jantjes (2008) and Niven (2002)).

2.5.7. Building a balanced scorecard

Senior management has to gain consensus and support the company's strategic objectives. They have to understand that the balanced scorecard translates strategy into objectives and measures. They need to be convinced that there are shortcomings in using a limited financial model to measure success. Senior management should identify and agree on the main objectives of the program to:

- Monitor the development of the objectives and measures of the scorecard
- Gain trust and commitment of all employees at all levels
- Agree on the framework for the implementation and management of the process of building the scorecard (Kaplan *et al*, 1996 and 2001).

The following process should be used:

Design structure

- Select the appropriate organisational unit
- Identify unit or corporate linkages

Build consensus 1st round strategic objectives

- Conduct 1st round interviews
- Synthesis session
- Executive workshop round 1

Select and design measure

- Sub-group meetings
- Core financial, customer and learning and growth measures
- Executive workshop round 2

Build the implementation plan

- Develop the implementation plan
- Executive workshop round 3
- Finalise the implementation plan

A time frame for the implementation should be proposed and is usually determined by senior executives' availability for interviews, workshops and sub group meetings. A suggested period is 16 weeks to contemplate and reflect on the evolving structure of the balanced scorecard. The more the senior executives interact in the sub group meetings and workshops,

the more likely that the balanced scorecard project will culminate in a new system for managing the organisation (Kaplan *et al*, 1996 and 2001).

2.6. Application of the balanced scorecard in higher education institutions

Change management has been an integral part of corporate success, capturing the critical need of organisations to remain competitive. Those who do not embrace change interventions will always remain at risk of failure and surviving in a dynamic and competitive environment will be challenging. Some change efforts are bound to fail due to incorrect and incomplete diagnosis of the internal and external environment. But if appropriate change frameworks are deployed in an integrated manner by aligning the organisation's goal and vision with the internal and external issues, and by installing adequate measurement systems to track and review changes, the risk of failure is minimised (Jayashree *et al*, 2011). The BSC has been widely used in manufacturing, service, government and non-profit organisations. Financial measurement is not the only measure that reflects the mission of an organisation, but the mission should be placed at the top of the BSC to measure the success of the organisation. "Both the financial and customer perspective would have to be used to enhance the internal processes and learning and growth. Financial success may not be the main target; therefore the customer perspective can be moved to the top" (Kaplan *et al*, 2001).

2.6.1. Balanced scorecard in South African institutions of higher education

Very little work has been done on implementation of the balanced scorecard at HEIs. Information obtained from the financial, customer, internal business processes and learning and growth was used to design a curriculum for management accounting at the University of South Africa (UNISA) (Botes, 2009). In the case of HEIs they can focus on other key perspectives which form part of their strategy, e.g. social responsibility perspective or cultural perspective. Schultz (2010) carried out a study in the human resources department at Tshwane University of Technology to investigate whether human resources competencies could be used to manage at merged institutions. The human resources balanced scorecard was used to develop a questionnaire. Knowledge, business, personal and management skills were found to be essential for a merged higher institution. At HEIs in South Africa, community engagement and research forms part of their strategy and can be incorporated into the BSC. The balanced scorecard, a management accounting tool, was used as a tool to measure the

viability of performance management of academic staff in higher education institutions. Evidence gathered through the responses from the questionnaires suggested great dissatisfaction with the current performance management system and that the academic staff were willing to investigate other methods of performance management implementation. The findings also suggested that the balanced scorecard should be investigated further to give more conclusive findings (Weyers, 2010).

2.6.2. Balanced scorecard in Iran's institutions of higher education

It has been suggested that the BSC be used in educational institutions for reinforcement of the significance of managing rather than monitoring performance. HEIs worldwide are facing declining student numbers and decreasing funding grants therefore it is necessary to re-strategise and market themselves to the public. (Farid *et al*, 2008a). Excellence in HEIs can be determined by academic measures instead of financial performance. Easily quantifiable academic variables such as student numbers (ratios), demographics, pass rates, class rank, graduation rates, percentage graduates employed, faculty teaching load, publications, statistics on physical resources (library, computer laboratories, etc.) and others can be measured and monitored. "Attracting and retaining the best talent/people is one of the primary goals and critical success factors for institutions of higher learning, therefore more attention should be focused on measuring student, faculty and staff satisfaction levels" (Rubin, 2004). In the past HEIs were not readily accepting of quality improvement procedures and measures. "Failure to attract or satisfy students can impact negatively on student enrolment and retention, funding, job security and sustainability of a university or an educational institution" (Rubin, 2004).

Service quality can lead to excellence in business education. Accreditation and institutional quality audits are usually imposed by government and other external bodies. Accountability, audit and assessment are more about the control of quality than the people who control quality (Becket *et al*, 2008). If the BSC is implemented, then faculty staff and the institution as a whole will require all stakeholders to work together. Senior supervisors who are responsible for policy making and execution have to work closely with the faculty to achieve their common vision. "The five principles of the BSC: translating strategy to operational terms, aligning the organisation to the strategy, making strategy part of everyone every-day,

making strategy a continuous process and mobilising change through leadership will form part of the strategic core of the HEI” (Farid *et al*, 2008a).

“Most HEIs have a similar vision to prepare students to become professionals and leaders who will add value to their organisations and communities and create sustainable development in their society through:

- High quality graduate and undergraduate programs
- Training creative and innovative entrepreneurs and managers
- Supporting research” (Farid *et al*, 2008b).

Based on the above mission the BSC strategy map can be developed for an institution.

2.6.3. Balanced scorecard in United Kingdom institutions of higher education

Institutions engage in a range of activities in addition to their teaching. Short courses are run and research projects are undertaken with postgraduates, post-doctoral fellows and industry partners. In traditional HEIs research reports and minutes of meetings are the only evidence of performance. Philbin (2011) reported on the implementation of the BSC at a HEI in the United Kingdom. “The scorecard perspectives were adapted in the following manner:

- Financial perspective: remained finance
- Stakeholder perspective: modified to people development to emphasise the stakeholder interest in education and training
- Internal process perspective: changed to institute capability to reflect the development of internal resources
- Learning and growth perspective: modified to research output to reflect the published articles and technical outputs” Philbin (2011).

The institute used Microsoft Access to create a database of scorecard reports which can be downloaded and sent to core members of the institute’s operations board. These scorecards have become standard items at board meetings. Only management and administrative staff have access to ensure accuracy and validity of the information. Academic staff have embraced this process as the software is easy to use and the capturing of data is rigorous and comprehensive. All research outputs are collated in a single system: references for published journals, conference presentations, invited lectures, book/book chapters and posters are

captured in a central database. The following are specific benefits from the operational use of the BSC at the institute:

- “Access to a central location of data and information that was formerly dispersed throughout the institute.
- Scorecard reports provide specific information on research and teaching competencies. This has enhanced decision making, e.g. which short courses to present.
- The monetary value of financial leverage enabled industry partners to justify their investment.
- Performance is tracked and measured, while considering finance, people, development, institute capability and research output. This contributes to the sustainability of the institute and provides evidence for ongoing support” (Philbin, 2011).

2.6.4. Balanced scorecard in Singapore’s institutions of higher education

Yek *et al* (2007) has presented lessons learnt from the adoption of the BSC at the Institute of Technical Education (ITE) in Singapore. The authors have highlighted that if the BSC is applied correctly, dedicated channels and procedures can ensure effective communication throughout the organisation. Active communication helps each staff member to understand the organisational vision, strategies and goals and propels them towards achieving the desired outcomes. ‘Buy-in’ of everyone brings about consistency and organisational coherence. Sustained, active and effective communication is the hallmark of success and this is endorsed by the famous quotation by Albert Einstein “Nothing is so simple that it cannot be misunderstood”. All staff from all levels and senior management at the ITE were engaged in the long term planning (5-year) and the annual corporate planning. “Without the active endorsement and support of managers using it (scorecard), it is unlikely that a management system (BSC) will be able to drive changes within an organisation” Yek *et al* (2007). Staff have also been included in the planning and review processes. ITE have also conducted annual graduate employment surveys, biennial employer satisfaction surveys, annual student (customer) satisfaction surveys and triennial Brand Equity studies which were used as input in the planning and review stages. In the initial implementation stage (2 year period) ITE aimed too high and tried to track too many Key Performance Indicators (KPIs). With

experience it was reduced to approximately 10 for the strategic objectives (two or three per perspective) and 30 measures (two or three KPIs per strategic objective). Both quantitative and qualitative data were assessed independently. The BSC model was adapted to reflect the ‘bottom line’ priorities as stakeholder rather than the financial perspective since ITE is not a commercial business. In ITE the BSC was found to have contributed positively to quality and its performance management system is referred to as a “highly integrated and aligned framework”. The BSC succeeded at ITE because it formed part of the existing planning framework, it was consultative and engaged all staff to develop scorecards, strategic objectives and measures which promoted teamwork as well as the establishment of ‘buy-in’ and alignment (Yek *et al*, 2007).

2.6.4. Balanced scorecard in Taiwan’s institutions of higher education

Universities are constantly under pressure to provide high quality education thus prompting universities to focus on:

- Efficient and controlled use of resources
- Value for money
- Increased productivity
- Measurement of achievements by comparison with similar institutions Chen *et al* (2009).

A study conducted by Chen *et al* (2009) at a private university in Taiwan highlighted the benefits of an HEI adopting the BSC. “The main benefits are presented:

- Registration rate reached above 92% in three years
- Customer satisfaction reached above 87.3 %
- E-teaching ranked first among all universities in central Taiwan
- Performance management was linked to a purpose fit budget to inspire and motivate faculty members
- Passed ISO9000 in education management and training
- Clear communication of the mission and vision were effectively communicated culminating in the attainment of the strategic goals by both staff and students” (Chen *et al* (2009).

2.7. Summary

The literature review has highlighted the benefits of implementing a BSC in any organisation. The vision and mission of an organisation have to be linked to strategic goals and objectives but in order to achieve this it has to be aligned to a framework which managers and staff of the organisation can align themselves to, to achieve the outcomes. The BSC framework has proved successful in major corporations and non-profit organisations. Organisations need to be effective, efficient and appropriate in their operations but this can only be determined by a system that measures the performance of its managers and all staff at all levels. The BSC as a PMS has been adapted to fit into the HEI framework. The four KPIs: finance, customer, business; and learning and growth have been adapted to focus on HEI perspectives which are mainly; students, research, teaching environment and finance. The benefits of implementing the BSC specifically to HEIs have been presented in this chapter. This study will look at the feasibility of implementing the BSC in the Faculty of Engineering at DUT. The outcome will be used as a basis to formulate a model BSC for adoption.

CHAPTER 3

RESEARCH METHODOLOGY

3.1. Introduction

Research in the business domain is influenced by the nature of the business, its management and its employees as well as the intellectual traditions of the social sciences. Research design refers to the overall plan of how the research is conducted. It is a blueprint or a set of instructions that paves the way the research will be carried out. Research design is thus a set of guidelines for the sample selection, the type of instrument and experimental conditions followed, data collection measures and techniques utilised to carry out the data analysis (Fawcett *et al*, 2009). An organisational problem or opportunity can propel one to research in that field (Bryman *et al*, 2007). The BSC is a tool used for performance measurement of PMSs using the four perspectives: financial, customer, learning and growth and internal processes (Philbin, 2011). A PMS is essential for all staff to ensure that the objectives of the institution are met and that a measurement of its effectiveness and efficiency are highlighted to students, external stakeholders, donors and its major provider of subsidies, the Department of Higher Education and Training (DOHET). This chapter will cover the background of the institution and the research methodology used to investigate whether the balanced scorecard can be implemented in the Faculty of Engineering at DUT. The aim of the study, the participation, the research approach, sampling, data collection, development of the research instrument and the data analysis techniques will be incorporated into the methodology.

3.2. Aim of the Study

There is currently no formal performance appraisal system at DUT, but there are systems which provide some means of monitoring aspects of both an individual's performance and organisational performance. A Performance Management System (PMS) will benefit both the individual and the institution. In order to achieve corporate goals, well trained and high performing employees have to be strategically drafted into key positions. For the employee it will give a clear indication to the employee that the organisation is committed to staff development needs and opportunities while offering a secure and fair treatment. A key part of the strategic management of change deals with the adoption of new behaviours and the monitoring and reinforcement of the new culture. This is not an easy task to achieve but the desired behaviours have to be included into performance management plans of individuals

(Mackenzie, 2000). The aim of this study was to investigate the feasibility of implementing the BSC in the Faculty of Engineering at DUT.

3.3. Participation and Location of the Study

DUT offers a wide range of academic qualifications at the National Diploma and Bachelor of Technology level. Students are also able to pursue a postgraduate qualification which is the Masters in Technology and Doctor of Technology. The university is required to undertake a range of activities in addition to its undergraduate program. In addition, research projects are undertaken by academic staff, postdoctoral research associates are supported and staff participate in community engagement programs and numerous other activities. There is a monthly meeting of all Head of Departments (HODs) in the Faculty of Engineering and quarterly Faculty Board meeting that comprises all academic staff and support department representatives. The outcomes of these two forums feed into the Senate and thereafter to the Council of university. In addition there are individual advisory boards for each academic program, which comprises of academic and industrial representatives. The outcomes of these meetings are included in the academic program reports which feed into Faculty reports, and eventually into Annual Reports of the institution. Even though there are numerous reports generated at various sub levels in the areas of management, facilities, research, teaching and external links, this information still exists in a dispersed format. Although this set of governance and reporting structures are effective in most HEIs, it still lacks the element of centralisation where all information can be collated thus giving a single perspective of the whole university. The establishment of a Performance Measurement tool like the Balanced Scorecard would not only serve as a single source of data and information on the institution's progress but would also highlight that DUT's objectives have been met. It can also be used to predict long term sustainability of the university (Philbin, 2011).

A policy for a performance management system was developed and approved by the Council of DUT on 21 June 2008. The purpose of the performance management policy is to ensure that DUT employees perform in terms of quality standards, procedures, policies and guidelines as set out by the Senate and Council of DUT. The review date was set as 2011 and the manager responsible for the policy review is the Director of Human Resources and the Manager of Organisational Development (www.dut.ac.za). To date this policy has not been communicated or implemented at DUT. The quality of the academic program is currently

overseen by the Centre for Quality Promotion and Assurance (CQPA). The professional body for engineering, the Engineering Council of South Africa (ECSA) is mandated by DOHET to oversee the accreditation of engineering programs at all higher education institutions in the country. These accreditations are based on an academic program but the infrastructure, allocation of resources and support departments are also audited as part of these accreditation processes. For example, the adequacy of library resources, computer laboratories, practical laboratories, the academic support department, student service and numerous other elements are audited.

The Executive Dean oversees the management of the faculty which includes heads of departments appointed per program, academic teaching staff and administrative and technical support staff. The Dean reports to the deputy vice-chancellor (academic sector) who then reports to the executive management. Executive management comprises of Deputy Vice Chancellors (DVCs) for Academic programs; Institutional Support; and Technology, Innovation and Partnerships (TIP) (includes research) (Figure 3.3.1.). The Council of the university is tasked with all final decisions.

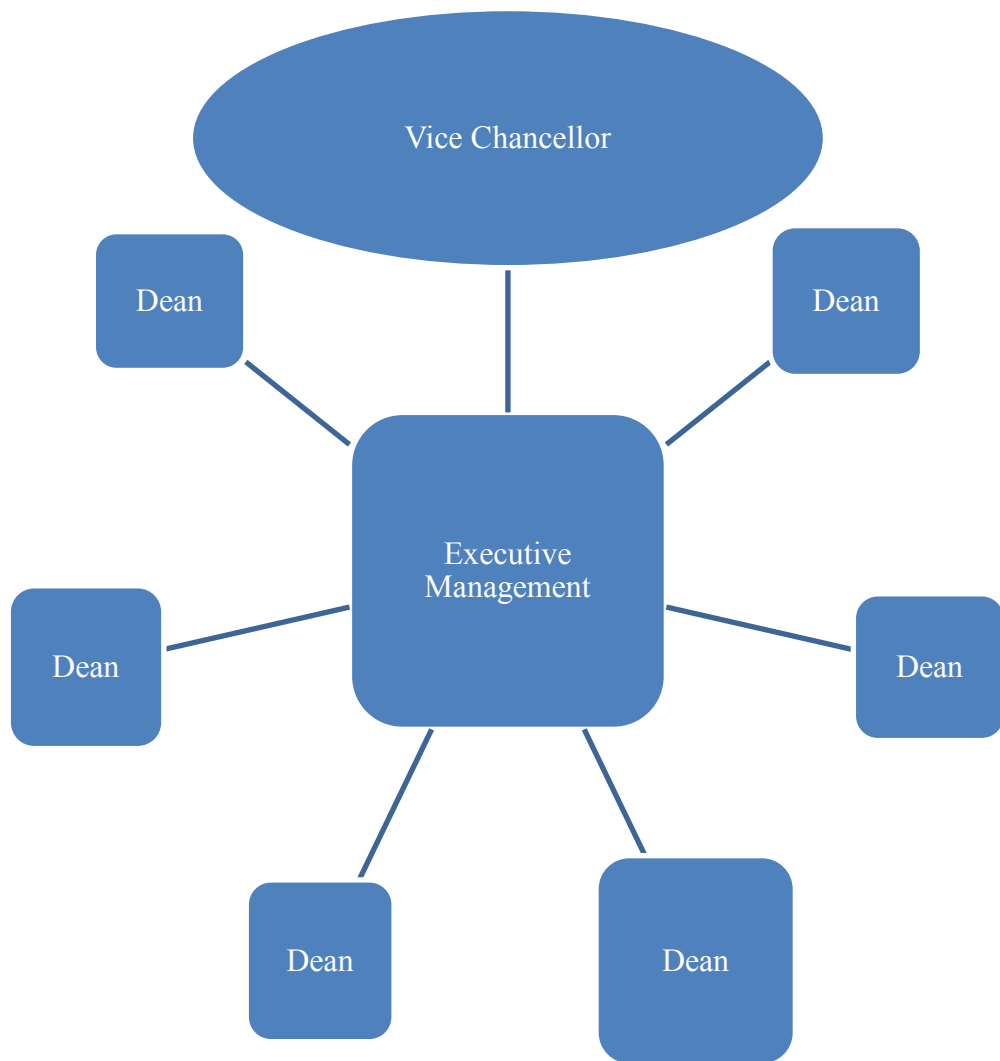


Figure 3.3.1. DUT executive and middle management structure

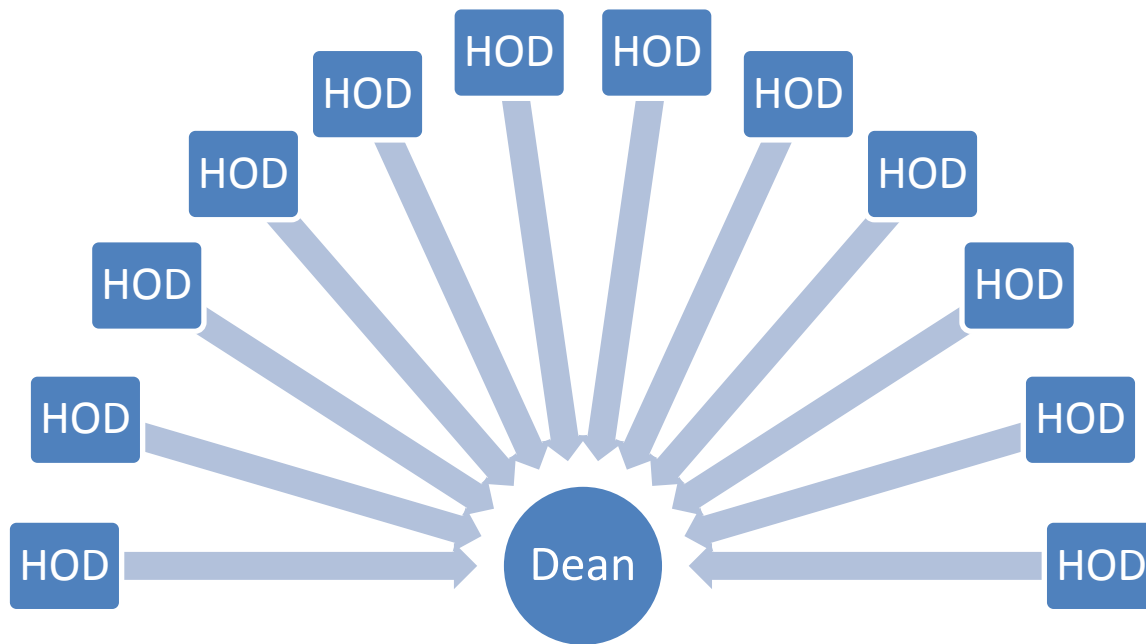


Figure 3.3.2. DUT middle level management and lower level management structure

This study was carried out in the Faculty of Engineering where the researcher is currently employed as the head of an academic department. There are six faculties at DUT and all have a similar structure (Figure 3.3.2.). Using the Faculty of Engineering as a representative sample is expected to provide enough evidence on the feasibility of implementing the balanced scorecard at a faculty level in DUT.

3.4. Research Approach

The chosen topic is the chief determinant in the choice of the methodology. It can further be influenced by the various stakeholders such as the supervisor, the funding agency and the professional environment of the student. In this thesis a case study method has been found to be suitable in understanding whether the balanced scorecard can be implemented in the Faculty of Engineering at Durban University of Technology. Ngcelwane (2008) states that when the goal of research is to understand the outcome rather than to predict, to interpret the data rather than to manipulate the subject matter being investigated, the case study as a research approach is debatably the most applicable. Bryman *et al* (2007) argues that a case study can be of a single organisation, a location, a person or an event. The case study research method also answers vital questions in management science, viz., ‘who, how and why’. In a case study the real-life actions can highlight the complex interactions of variables and events

being studied. Research designs are divided into two distinctive categories - quantitative and qualitative. The special features of each type of research design are highlighted in Table 3.4.1. below. The differences with respect to the methodology utilised in the two techniques is shown in Table 3.4.2. These differences will be further alluded to in this chapter. The research method adopted for this research is the questionnaire method base on quantitative research. Questionnaires contain a preformulated written set of questions which respondents have to answer. They are an efficient data collection method when the researcher knows what is required and how the variables will be measured. Questionnaires can be conducted by personal invitation, mailed or sent electronically to the respondents (Sekaran *et al*, 2009). There are limitations to this method as response rates can be low but the deductive method allows for a comparison between theory and practice. The term survey research refers to a descriptive and quantitative method where information from the respondents on their opinions and attitudes can be solicited using questions. The answers can then be tabulated and manipulated as necessary for data analysis. This method was chosen for the following reasons: simple to administer, reasonable costs, an abridged version of the information is obtained, responses based on structured questions and anonymity of the respondents ensures truthful responses (Sparrow, 2010).

Table 3.4.1. Differences between Qualitative and Quantitative Research Methods (Fawcett *et al*, 2009)

Qualitative	Quantitative
<ul style="list-style-type: none"> • “Associated with naturalistic paradigm • Data are words • Reality is viewed from the research participant’s perspective • Approach is holistic • Focuses on understanding the whole of people’s experiences • Small number of participants used • One or more concepts identified, each made up of several themes or categories • Research participants are in their natural settings • Data collection and analysis may occur simultaneously 	<ul style="list-style-type: none"> • Associated with post positivist paradigm • Data are numbers • Reality is viewed from the researcher’s perspective • Focuses on parts rather than the wholes • Targeted to particular aspects of people’s-related experiences • Large number of participants used • Few concepts/study variables usually involved • Research participants are in their natural or contrived settings • Data collection typically precedes data analysis”

Table 3.4.2. Qualitative versus Quantitative Research Design (Johnson *et al*, 2012)

	Quantitative	Qualitative
Method	Top – down or deductive approach	Bottom - up or inductive approach
Objectives	Explanation, prediction or description	Discovery, exploration and description
Focus	Specific hypothesis tested	Wide focus
Observation	Controlled conditions	Behaviour studied in context
Forms of data collection	Precise measurement	Data obtained via open ended questions, interviews, etc.
Data	Based on variables	Based on images and words
Data analysis	Formulation of statistical relationships	Identification of themes and patterns
Results	Generalised onto population	Multiple viewpoints
Reporting	Statistical derivations	Narration of responses

3.5. Sampling

A sample is a subset of a population. In this research the Faculty of Engineering is used a representative sample of DUT's management structures. There are 12 HODs in the faculty and all 12 were sampled. There is one Dean to which the HODs report to in the faculty. The deputy vice-chancellor for research formed part of the sample as research forms one of the perspectives on the scorecard. Attributes or characteristics of the population are normally distributed, thus the sample chosen must follow the same pattern for normal distribution as the population. If a second sample is drawn from the population then the results must mirror the initial results to ensure that it is representative of the population. In probability sampling the elements have some known, non-zero chance or probability of being selected. This type of sampling is used when a generalised representativeness is sought. In non-probability sampling the elements do not have a known or pre-determined chance of being selected as some factors like time become critical in determining the outcome (Sekaran *et al*, 2009). The research objective is to look at the feasibility of implementing the balanced scorecard in the Faculty of Engineering at DUT. This faculty has the largest student population of all six faculties. The research objective, confidence interval, risk, amount of variability in the population, cost and time constraints and the population size are factors used to determine the sample size.

The target population was executive management, middle management and lower level management, as they are responsible for reporting and accountability in the academic structure of the university. Using the latter as a guide the chosen faculty is one of 6 with a similar management structure and sample size. Variability in the population is minimal as the number of HODs average 8 per faculty and the time and cost is minimised by concentrating on a single faculty. From the sample tables (Sekaran *et al*, 2009), if $N=10$ then $S=10$ and if $N=15$ then $S=14$. There are 12 HODs in the faculty and all 12 were sampled (Table 3.5.1.). The HODs were the respondents in the survey because if the balanced scorecard is implemented then they would have to manage the process in the Faculty together with the Dean. From the executive management level (Figure 3.3.1), the DVC (TIP) was chosen as one of the scorecard perspectives for the Faculty is research. The Dean of the Faculty of Engineering is at the middle management level and the HODs form the lower level management (Figure 3.3.2.). This approach for the balanced scorecard perspectives is based

on the case studies by Yek *et al* (2007), Chen *et al* (2009) and Philbin (2011). The BSC was adapted to fit into the academic goals of a higher education institution.

Table 3.5.1. Management levels for balanced scorecard perspectives

Management level	N	S
Executive management (DVC)	1	1
Middle management (Dean)	1	1
Lower level management (HOD)	12	12

3.6. Data Collection

A questionnaire was developed using a performance management self-assessment tool to determine the extent to which the faculty has the components of a performance management system (Appendix A). The four components of performance management: standards, measurement, reporting progress and improvement of process were considered in this model. For each component the questions asked served as an indicator of performance capacity. The questions cover elements of resource availability, skills, accountability and communications which are deemed to be effective in each component.

3.7. Development of the Instrument

“The balanced scorecard is a conceptual framework which translates an organisations strategic goals and objectives into a set of performance indicators distributed among four perspectives: financial, customer, internal processes, and learning and growth” (Hopf, 2012). Some indicators are used to measure long term progress in accomplishing the organisational vision and other indicators are used as drivers of success. The balanced scorecard is used to “monitor an organisation’s current performance (finance, customer satisfaction, and business process results) and its labours to improve processes, motivate and educate employees, and enhance information systems – its ability to learn and improve” (Hopf, 2012). A performance management self-assessment tool (www.phf.org) was used to identify the extent to which components of a performance management system were in place. This test allows one to identify the necessary systems essential to achieve results and improve performance on a continuous basis. The four basic components of a performance management model are

performance standards and measurements, progress reporting and performance improvement procedures. For each component a series of questions elicited responses to the organisation's capacity with respect to essential resources, skills, accountability and communications. The questionnaire was divided into six sections:

Section one: Question 1 to 7

- Biographical details

Section two: Question 8 to 20

- Assessment of current performance management processes or models

Section three: Question 21 to 25

- Performance standards

Section four: Question 26 to 30

- Performance measurement

Section 5: Question 31 to 37

- Reporting of progress

Section 6: Question 38 to 44

- Quality improvement process

A cover page with the aims and objectives of the study were attached. It included a request to the respondents to participate in the study with assurances given that confidentiality and anonymity would be maintained. Ethical clearance was obtained from the university ethics committee to carry out the research. Permission was also granted by the research office of the Durban University of Technology. This allowed the researcher to conduct the survey, and the staff to participate in responding to the questionnaires. A scale is a tool used to distinguish differences between variables. There are four basic types of scales: nominal, ordinal, interval and ratio. An interval scale allows for mathematical operations to be performed on the data collected. It groups individuals according to certain categories and measures the differences between respondents. The following scale was used:

- 1 – No
- 2 – Somewhat
- 3 – Yes fully operational
- 4 – Not applicable

The respondents were expected to choose the response that is closest to their stage of development as follows:

- “Yes” (fully operational): The respondent explicitly does this activity or has this capacity in place.
- “Somewhat”: The respondent explicitly does this activity but still has a way to go.
- “No”: The respondent barely does this or not at all. Activities are not based on any explicit strategy.

The following definitions used in the questionnaires indicate the scope of the study and the context under which the responses were expected to be derived from:

- **“Performance management:** It is the practice of actively using data to improve the organisation. This involves the strategic use of performance measures and standards to establish performance targets and goals. It can also be used to prioritise and allocate resources, inform managers about modifications or variations in policy or program direction to meet goals, to structure reports on the success of meeting goals and to improve the quality of practice
- **Performance standards:** It is the establishment of organisational or system performance standards, targets and goals to improve practices
- **Performance measure:** It is the development, application and use of performance measures to assess accomplishments of such standards
- **Reporting of progress:** It is the documentation and reporting of progress on meeting standards and targets and sharing of such information through feedback
- **Quality improvement:** It is the establishment of a program or process to manage change and achieve quality improvement in policies, programs and infrastructure based on performance standards, measurements and reports
- **Performance management system:** It is the continuous use of all practices so that they are integrated into an agency’s core operations. Performance management can be carried out at multiple levels; including program, organisation, community and state levels
- **Performance standards:** These are objective standards or guidelines used to assess an organisation’s performance. Standards may be based on national, regional or scientific guidelines; by benchmarking against similar organisations; based on the public or leader’s expectations or other methods

- **Performance indicators:** They summarise the focus, e.g. workforce capacity, customer service, of performance goals and measures. It is often used for communication purposes and precedes the development of specific measures
- **Performance measures:** These are quantitative measures of capacities, processes or outcomes relevant to the assessment of a performance indicator, e.g. the number of trained academics or the percentage of students who rate the teaching as ‘good’ or ‘excellent’
- **Performance targets:** These are specific and measurable goals related to an agency or system performance. If a relevant performance standard is available. The target may be the same as, exceed or be an intermediate step toward that standard” (www.phf.org).

The survey was conducted using an online access program, QuestionPro. The questionnaire was developed within the program and emailed to the respondents. Only 50% responded to the survey. This poor response rate has been highlighted by Sexton *et al* (2011) who stated that online surveys are lower on average than mail and telephone surveys. Sharp *et al* (2011) found that the “speed with which online panellists respond to a survey does not seem to be related to their demographic, attitudinal or behavioural characteristics”. “An online survey with a short data collection period is just as representative as one collected over a longer time period, such as a few weeks” Sharp *et al* (2011). A Microsoft Word version was also attached and sent via email to all respondents. Responses were received via QuestionPro, the email system and by internal post. The results were collated for data analysis.

3.8. Pretesting, Validity and Reliability

Reliability infers that the outcomes of the research are supported by adequate and convincing substantiation. In quantitative research it refers specifically to measurement repetitively giving the same result so as to be consistent when reliability tests are carried out. Reliability in this sense is associated with procedural accuracy. To achieve reliability responses should be ‘sufficient’, ‘evidence compelling’ and there should be ‘rigour’ in the collection of data. Validity is a test of how well the instrument that is developed, e.g. a questionnaire, measures a certain concept that it is proposed to measure. There was no pretesting of the questionnaire since the assessment tool used as been well established in the field of performance

management systems (www.phf.org). Sekaran *et al* (2009) groups validity under three broad categories:

- “Content validity: the measures include an acceptable and representative set of responses that meets the objectives of the research. In this research an established tool was used and the supervisor of the project concurred with the questionnaire developed for the survey
- Criterion related validity: variations in the responses by individuals are established. With concurrent validity the scale discriminates individuals who are known to be different. For example, ethics and morals can influence the responses of individuals exposed to the same environment. In predictive validity the instrument is able to distinguish amongst respondents with reference to future measures
- Construct validity: refers to how well the responses comply with the theory around which the objectives were designed” (Sakaran *et al*, 2009).

Reliability and validity is vitally important in research methodology as the measures have to be valid representations of the concepts or theory being investigated (Bryman *et al*, 2007).

3.9. Analysis of the Data

The aims and objectives of research undertakings are met only after the data is analysed. The results obtained from quantitative research needs to be coded, keyed in and edited. Thereafter statistical correlations can be applied to give meaning to the data which in turn answers the research questions and gives value to the research objectives. Results are valid under conditions which research was undertaken. In order for this to be inferred on the population or be repeated then, all conditions have to be simulated or duplicated as per the original research environment. The raw data was extracted from QuestionPro and the handwritten surveys are exported to Microsoft Xcel for analysis.

The simplest form of quantitative analysis is descriptive frequency analysis. This is particularly useful when comparing response patterns for different groups of people. “For example, if gender is asked, how many of the respondents answered that they are men and how many answered that they are women? A frequency distribution is being reported when your results show that 40% of respondents are men and 60% are women” (Sparrow, 2010).

Data was also presented in the form of bar graphs and tables for visual presentation and understanding.

3.10. Summary

The research methodology for this study was presented. The objectives, research design and approach, instrument development, sample selection, data collection and analysis methods were discussed in this chapter. A quantitative approach was chosen as it seeks to quantify human behaviour, through numbers and observations. In this study the respondents' answers helped the researcher to identify the extent to which the faculty had the necessary components for the implementation of a performance management system. The chosen methodology was followed to ensure that the data was relevant, reliable and accurate. Meaningful results have reinforced theory and achieved the objectives of this study. The results of the study and the discussion will be presented in the next chapter.

CHAPTER 4

RESULTS AND DISCUSSION

4.1. Introduction

This empirical study was undertaken to investigate the feasibility of implementing the balanced scorecard in the Faculty of Engineering at DUT. The following objectives were pursued in this investigation:

1. To investigate the current performance management processes or models used at DUT.
2. To assess the institution's readiness for a performance management system.
3. To determine an effective framework for a performance managements system within an HEI to ensure that the institution is results-oriented.
4. To evaluate whether performance management systems fit in with the culture of an HEI.

The first two objectives were met by the responses of the survey. The last three objectives were met by using the outcomes of the survey as a basis. To achieve these objectives, a survey was conducted with executive management, middle management and lower level management. The results were used to assess the readiness of the management, its current practices, its capacity and the availability of resources to implement a performance management system like the balanced scorecard. The outcome of the survey was used as a basis to propose a framework for the implementation of the balanced scorecard in the faculty. The responses of the survey were analysed using the statistical tool within the survey software, QuestionPro. The results of the survey are presented in the form of graphs and tables. The discussion is divided into the sections in which the survey was conducted: biographical, assessment of current performance management processes, performance standards, performance measurement, reporting of progress and the quality improvement process. The DVC (TIP) is referred to as E for executive management, the Dean as M for middle management, and the Heads of Departments (lower level management) as HODs in the following chapter.

4.2. Survey Responses

4.2.1. Biographical

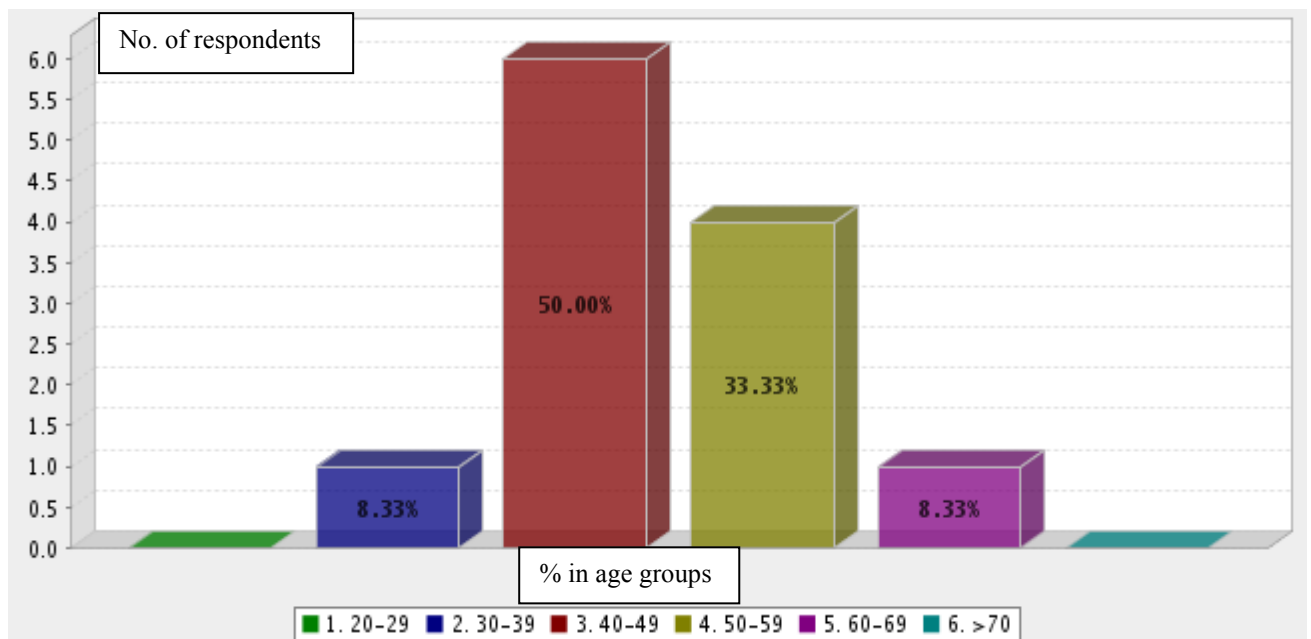


Figure 4.2.1.1. Age Profile

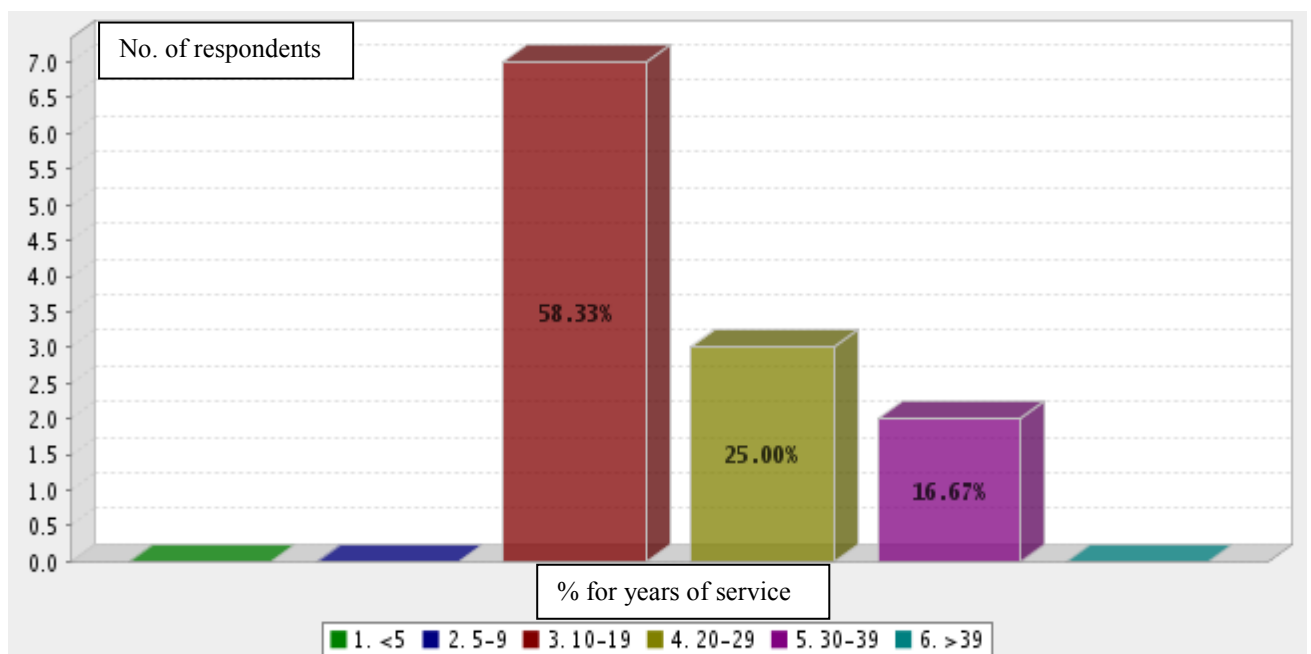


Figure 4.2.1.2. Profile of years at institution

50 % are in the 40-49 age group and 33.33 % in the 50-59 age group. E and M are in the 50-59 age group and have been at the institution for less than 5 years. At the executive management level the contract period is usually 5 years. There have been numerous changes in headship over the past 5 years at the E, M and HOD level. Continuous policy changes, restructuring, pressure to pursue research and challenging student issues have discouraged staff to take on senior positions. The faculty had to appoint staff on a temporary basis for continuity and persuade staff to take on positions on a more permanent basis. Older and more experienced staff could not be persuaded to take on these positions in some instances, thus the majority of HODs are between the ages of 30 and 49. An analysis was done of the individual surveys external to QuestionPro. 58 % have been at the institution for 10-19 years, 25 % for 20-29 years and 16.67 for 30-39 years. The majority of the HODs have less than 20 years of service at the institution. Age and experience will impact on decisions made if a performance management system is implemented. It is hoped that staff training in all areas will aid in ensuring that sound decisions are made.

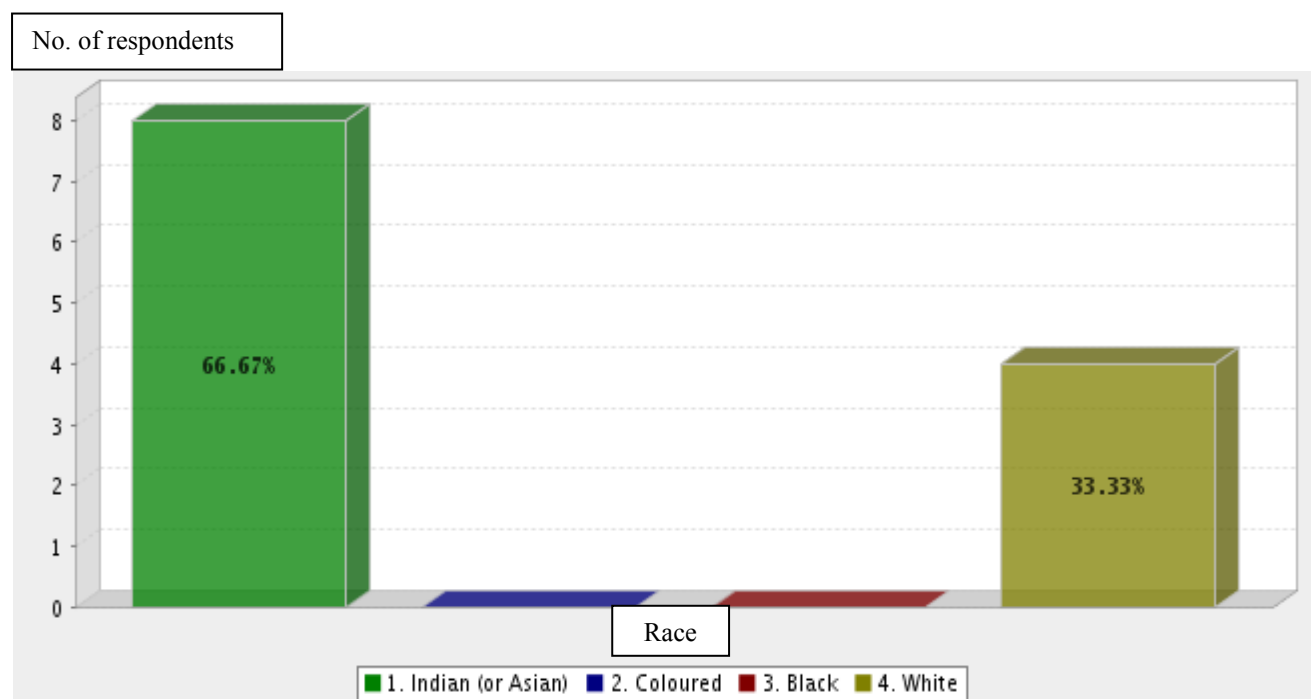


Figure 4.2.1.3. Race profile

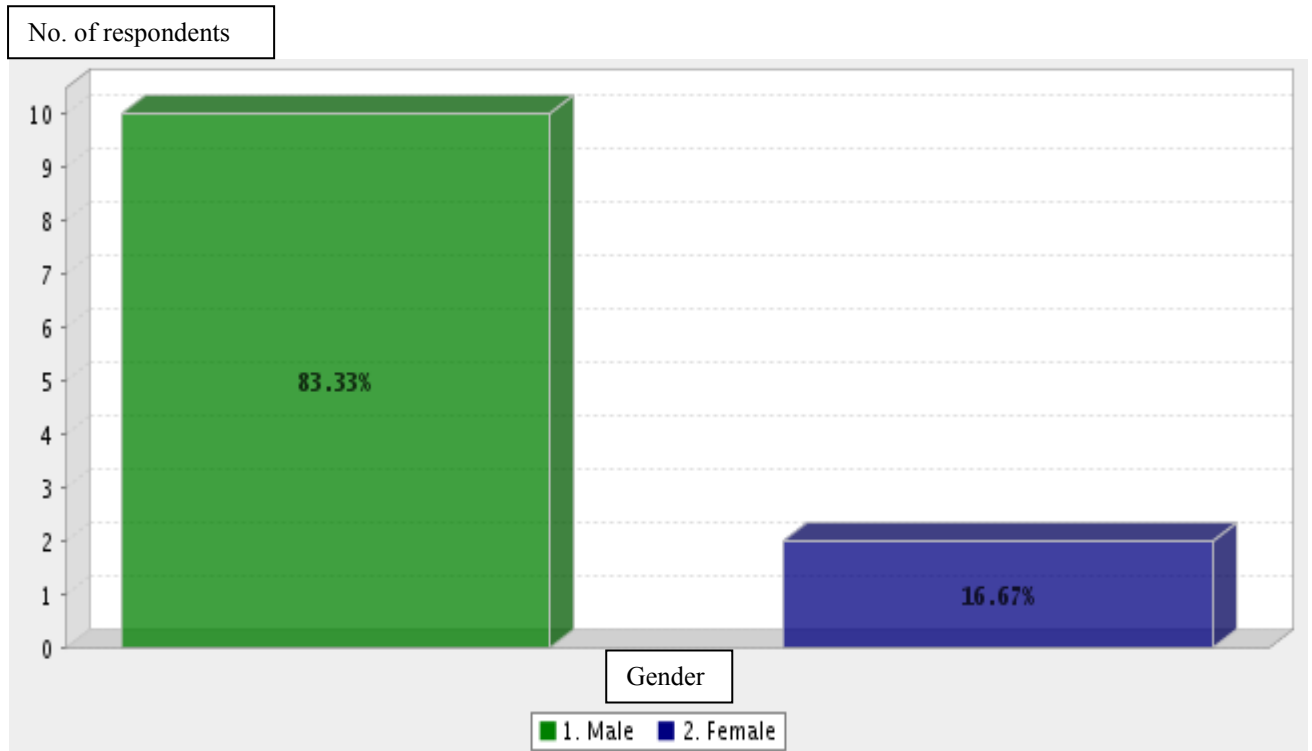


Figure 4.2.1.4. Gender profile

83.33 % are males and 16.67 % are females. 66.67 % are Indian and 33.33% are white. E is a non-South African black male and M is an Indian male. The history of higher education has limited the entry of blacks and coloureds into the fields of science and engineering in South Africa. Graduates from these fields are focused more on earning to support their families than pursuing postgraduate qualifications. Success rates of both undergraduate and postgraduate African students are less than the national average, and even lower of all population groups (Indian, coloured, and whites). Some of the reasons quoted for this state of affairs include “township and rural area poverty traps”; poor infrastructure in schools and the community, and parents or guardians not being educated or poorly educated (Odhav, 2009). Postgraduate research was not a strong point. Just an undergraduate degree is sufficient for entrance into the job market. A single graduate became a breadwinner for mostly extended families. The government has tried to increase higher education’s basic and applied research funding, but the high cost of higher education has still eluded many from gaining higher degrees even though they meet the entrance requirements. There have been various initiatives to increase higher education access for blacks and women to higher level research training, and to increase productivity. There have been huge spurts of growth in higher education but the

government has not been able to keep up with the demand. This is an on-going problem for students hoping to gain access to HEIs.

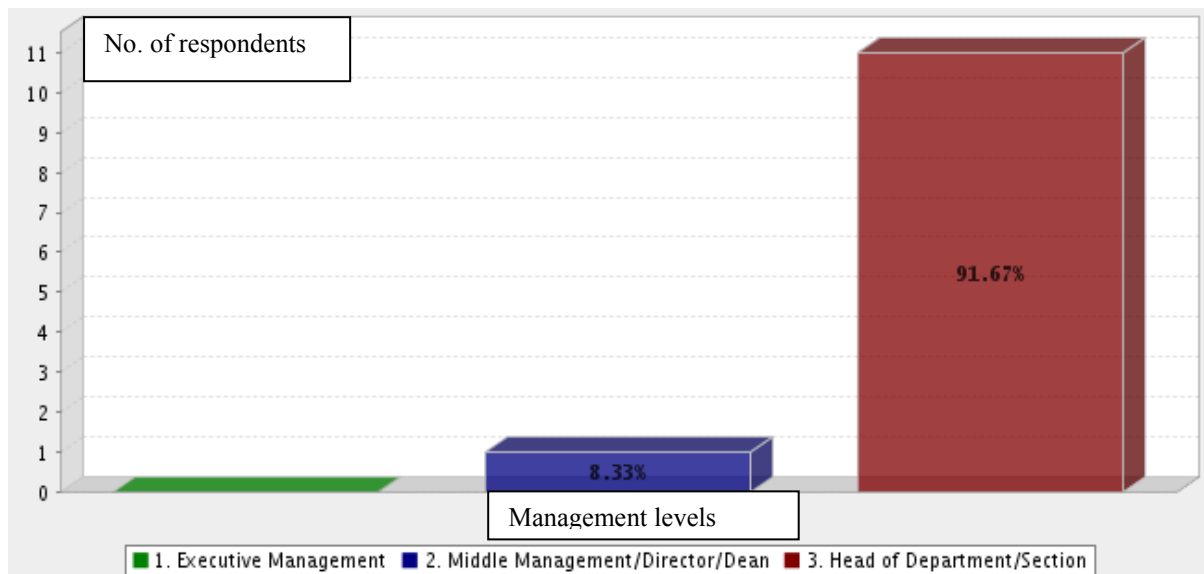


Figure 4.2.1.5. Management Profile

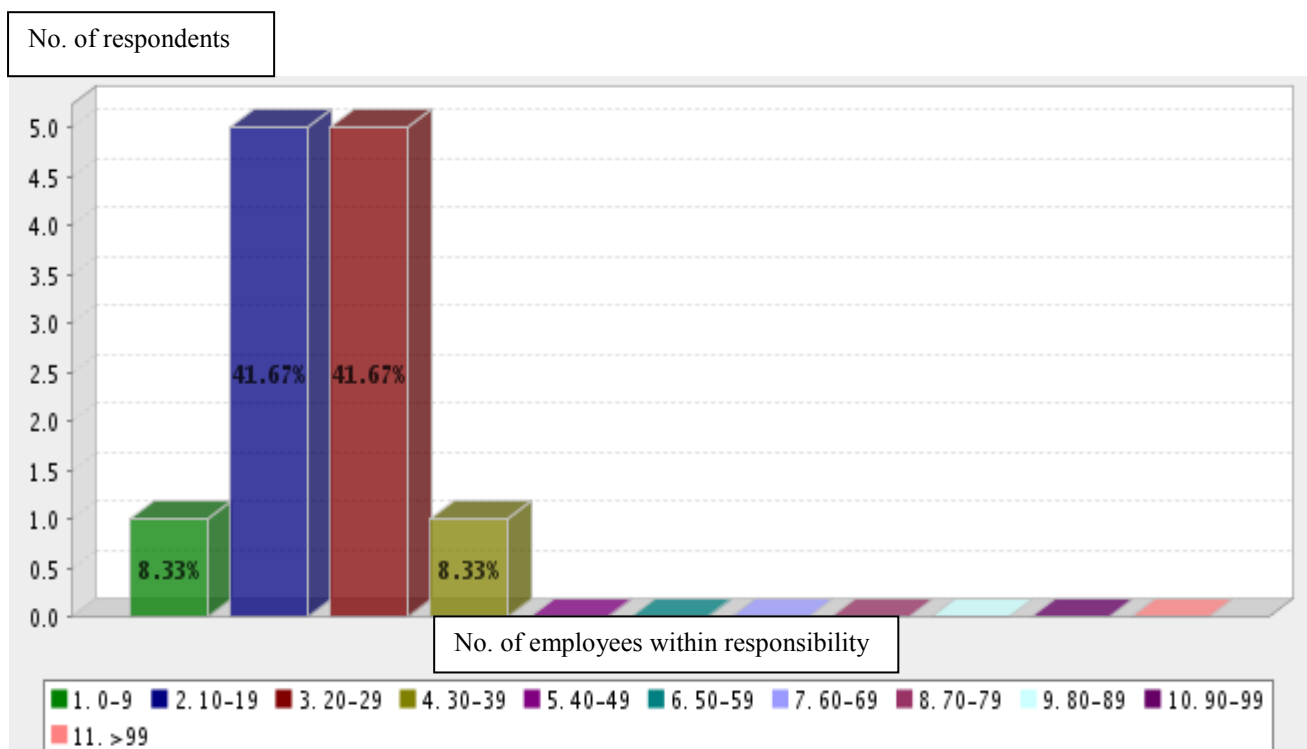


Figure 4.2.1.6. Staff Complement

91.67 % of the respondents were HODs and 8.33 % were middle management. E's response should have been executive management instead of middle management for this question. 41.67 % of the respondents are responsible for 10-19 employees and 41.67 % are responsible for 20-29 employees. 8.33 % of the respondents are responsible for 0-9 employees and 8.33 % are responsible for 30-39 employees. Both E and M oversee a staff of complement of > 99 employees. All respondents in the faculty survey were heads of departments. One respondent chose middle management. These numbers are determined by the number of courses offered per program and the number of students enrolled. This survey only took into account full-time staff. All staff need to have one vertical postgraduate qualification above which they teach. This is quite challenging for most departments which results in a large number of part-time staff being employed in the faculty. The institution is unable to match the salary scales of professional engineers in industry thus staff attraction and retention is quite low. The quality of the program becomes compromised if there are constant changes in teaching staff.

4.2.2. Assessment of current performance management processes

Table 4.2.2.1. Responses to current management processes by E (N=1, S = 1)

Question	No	Somewhat	Yes fully operational	Not applicable
1. Do you have a process to improve performance of staff?		X		
2. Are you aware that DUT has a Performance Management Policy in place?		X		
3. Is performance managed in Financial areas?	X			
4. Is performance managed in areas related to Customers/Students?	X			
5. Is performance managed on areas related to internal processes?		X		
6. Is performance managed in areas related to organisational learning?				X
7. Is there a commitment from high level leadership to a performance management system?		X		
8. Do leaders foster an organisational culture on performance?		X		
9. Is there a process or mechanism to align your performance with the institution's strategy?		X		
10. Is there a process or mechanism to align your performance with the institution's budget?	X			
11. Are managers trained to manage performance?	X			
12. Are managers trained to develop and improve performance?	X			
13. Are personnel and financial resources assigned to performance management functions?	X			

Table 4.2.2.2. Responses to current management processes by M (N = 1, S = 1)

Question	No	Somewhat	Yes fully operational	Not applicable
1. Do you have a process to improve performance of staff?		X		
2. Are you aware that DUT has a Performance Management Policy in place?			X	
3. Is performance managed in Financial areas?			X	
4. Is performance managed in areas related to Customers/Students?		X		
5. Is performance managed on areas related to internal processes?			X	
6. Is performance managed in areas related to organisational learning?	X			
7. Is there a commitment from high level leadership to a performance management system?			X	
8. Do leaders foster an organisational culture on performance?			X	
9. Is there a process or mechanism to align your performance with the institution's strategy?			X	
10. Is there a process or mechanism to align your performance with the institution's budget?		X		
11. Are managers trained to manage performance?	X			
12. Are managers trained to develop and improve performance?		X		
13. Are personnel and financial resources assigned to performance management functions?	X			

Table 4.2.2.3. Responses to current management processes by HODs (N = 12, S = 12)

Question	No	Somewhat	Yes fully operational	Not applicable	μ	σ	σ^2
1. Do you have a process to improve performance of staff?	16.67%	83.33%	0.00%	0.00%	1.83	0.39	0.15
2. Are you aware that DUT has a Performance Management Policy in place?	33.33%	66.67%	0.00%	0.00%	1.67	0.49	0.24
3. Is performance managed in Financial areas?	41.67%	41.67%	16.67%	0.00%	1.75	0.75	0.57
4. Is performance managed in areas related to Customers/Students?	41.67%	41.67%	8.33%	8.33%	1.83	0.94	0.88
5. Is performance managed on areas related to internal processes?	33.33%	50.00%	8.33%	8.33%	1.92	0.90	0.81
6. Is performance managed in areas related to organisational learning?	25.00%	66.67%	0.00%	8.33%	1.92	0.79	0.63
7. Is there a commitment from high level leadership to a performance management system?	8.33%	83.33%	8.33%	0.00%	2.00	0.43	0.18
8. Do leaders foster an organisational culture on performance?	16.67%	83.33%	0.00%	0.00%	1.83	0.39	0.15
9. Is there a process or mechanism to align your performance with the institution's strategy?	58.33%	41.67%	0.00%	0.00%	1.42	0.51	0.27
10. Is there a process or mechanism to align your performance with the institution's budget?	58.33%	25.00%	16.67%	0.00%	1.58	0.79	0.63
11. Are managers trained to manage performance?	75.00%	25.00%	0.00%	0.00%	1.25	0.45	0.20
12. Are managers trained to develop and improve performance?	83.33%	16.67%	0.00%	0.00%	1.17	0.39	0.15
13. Are personnel and financial resources assigned to performance management functions?	83.33%	8.33%	0.00%	8.33%	1.33	0.89	0.79

Question 1: Do you have a process to improve performance of staff?

Managers at all levels have responded that they do ‘not’ have a process to improve performance of staff or they ‘somewhat’ do. This could be an informal system devised by the individual manager to motivate his staff to meet the academic program requirements.

Question 2: Are you aware that DUT has a Performance Management Policy in place?

E knew there was ‘somewhat’ of a system but not specifically about the policy on PMS. Only M was aware that there was a PMS in place. All other managers were unaware of DUT’s PMS policy which was approved in 2008. The policy is available on the DUT staff portal in the Human Resources section for all staff to access, even though it has not been implemented as yet. This information should be communicated on an annual basis from executive management level to staff on the ground. Even though it is not implemented, all staff should have been made aware that a policy exists and that it is going to be implemented at a later date. This could have a positive influence on motivating most employees to start looking into ways of improving their performance and eventually accept the process when it starts.

Question 3 (Is performance managed in Financial areas?) and Question 4 (Is performance managed in areas related to Customers/Students?)

As can be seen in Table 4.2.2.3, between 25% and 41.67% of HODs do not manage performance in financial and student areas, while 41.67% to 66.67% have their own system to manage this process. 1 or 2 managers have their own fully operational system to manage their staff. E and 41.67% of HODs do not manage performance in areas related to students, M and 41.67% of HODs have ‘somewhat’ of a process and 1 HOD has a ‘fully operational’ process. A percentage of government funding is obtained per student on registration and the remainder on graduation. At the E level postgraduate scholarships are awarded but there is no process to ensure that students complete their qualification in a minimum time. At the faculty level it is part of the strategic plan for both M and the HODs to increase the graduation, pass and throughput rate. The faculty uses the Department of Higher Education benchmarks for individual programs as a guideline. Discussions on various interventions are held at the Faculty Executive Committee (EXCO) and Faculty Board meetings but it is not linked to

individual performance. The Centre for Quality Promotion and Assurance (CQPA) monitors best practice as part of its academic audit but once again there is no link to staff performance and organisational performance.

Question 5: Is performance managed on areas related to internal processes?

33% of HODs and E responded that there is no management of performance in relation to internal processes, while 50% responded there was. M and 1 HOD have a full operational system to manage their internal processes. For all levels of management in this survey, academic qualifications are the only requirements for appointment and promotion. Management qualifications are not a requirement for any of the posts surveyed. Perez *et al* (2011) stated that vice chancellors, deans, heads of academic departments and even administrators at HEIs are usually elected by their scientific community. At executive management level a PhD and a publication track record forms the main criteria for appointments. M is considered to be an executive position. Both E and M would have KPIs written into their contracts. At the departmental level the minimum requirement is a tertiary qualification in the profession. This position is usually filled by nomination and election within the department. A PhD and a publication record is usually a deciding factor in most appointments. In some instances the academics that are highly qualified prefer to concentrate on their teaching and research, thus leaving the lesser academically qualified and experienced staff to fill these positions. This is in contrast to industry where positions are filled on the basis of expertise, skills and capabilities. Academics as managers have to manage the curriculum and student matters which form the core of their business, but they also have to manage their academic and support staff. In addition institutional matters, finance, research, industrial liaisons and community engagement also forms part of their responsibilities. Academic accomplishments have always taken precedence over managerial skills and capabilities. The introduction of managerial tools is therefore necessary to manage strategically with long-term perspective.

Question 6: Is performance managed in areas related to organisational learning?

In response to organisational learning E, M and 25% of HODs answered 'no', and 66.67% answered 'somewhat'. The responses are in line with current practices at DUT. Internal

processes are based on various policies, e.g. finance, procurement, human resources, etc. These are approved by various board and committees, and final documents are loaded onto the institution website. On appointment individuals are not inducted into organisational procedures and structure. Individuals are expected to learn 'in situ' when a task needs to be completed. At a faculty level M has introduced a sharing of information and concerns between support departments and academic departments. A finance, research and human resources representative is invited to the monthly EXCO meetings as matters arising from these departments are a 'standing'. Support departments like procurement, student admissions, information technology and other departments that affect the academic program and the operation of the faculty are invited when issues arise. The faculty aims to improve processes for the smooth operation of its departments. This process of constant engagement and communication breaks down barriers and stimulates discussions that lead to viable solutions. Constant review and feedback of processes, e.g. online registration has seen a tremendous change in streamlining the process for the 2013 academic year.

Question 7 (Is there a commitment from high level leadership to a performance management system?) and Question 8 (Do leaders foster an organisational culture on performance?)

E and 1 HOD did think that there is a commitment from high level leadership to a PMS, M and 1 HOD thinks that there is, while 83.33% of HODs think that there is 'somewhat' of a commitment. E and 16.67% of HODs felt that leaders do not foster a culture of performance, M thinks that they do, while 83.33% of HODs think that there is 'somewhat' of a culture. The organisational structure revolves around the successful delivery of the academic program. Even though the human resource policy aims to employ the most highly qualified and experienced people at the institution there is no link to the management of their performance after employment. At all levels it is the concerns related to the quality of the academic programs that are addressed. Staff performances are only discussed with immediate managers if issues arise. These are usually resolved within the faculty and unresolved matters in consultation with the labour unions.

Question 9: Is there a process or mechanism to align your performance with the institution's strategy?

E and 58.33% of HODs responded that there is no process to align the institution strategy with performance; M thinks that there is, while 41.67% of HODs think that there is 'somewhat' of a process. Strategic planning occurs at executive management and faculty level. Implementation is filtered from the top to the lower levels in the form of revised policies and procedures. Managers are expected to follow new processes and procedures for operational reasons. There is review and feedback on processes but no link to individual performance. Once again it is the quality of the academic program which is used as a measurement of successful strategy.

Question 10: Is there a process or mechanism to align your performance with the institution's budget?

From Table 4.2.2.1. to 4.2.2.3. responses by E and 41.67% of HODs show that they do not manage performance in financial areas; M and 1 HOD have a 'fully operational' process while 41.67% of HODs having 'somewhat of a process. With respect to alignment of performance to the institution's budget, E and 58.33% of HODs responded with a 'no', M and 25% of the HODs said 'somewhat' and 1 HOD had a 'fully operational' process. In response to alignment of performance to the institutional budget E and 58.33% of HODs responded with 'no', M and 25% of HODs said 'somewhat' and 16.67% had a fully operational process. Budgets are allocated on the previous financial year spending and a certain percentage for inflation. The research output of the institution is used in a formula to allocate government funding for research. Academics apply for funding as per the institution research policy on an 'ad hoc' basis. Staff performance is not measured on how they manage the budget at all levels. Part of the budget is also used for postgraduate scholarships from BTech to DTech level. The Faculty budget is managed at the M level. The HODs are allocated an operating budget based on the student enrolment. If extra funding is required, a motivated request is sent to M, thus the response by M that there is a "fully operational" system. HODs have to monitor their spending as per their allocation, but they are not limited to this amount. If the account is depleted then M will approve spending if there is a strong motivation. Any spending that is directly related to teaching and learning takes priority as the successful completion of students is paramount. The increase in the number of students has

led to a rise in totals costs. This is heightened by the reduction of government funding which places a strain on the allocation of finances and resources at HEIs (Turk, 2007).

Question 11 (Are managers trained to manage performance?) and Question 12 (Are managers trained to develop and improve performance?)

E, M and 75% of HODs responded that there is no process to train managers while 25% of the HODs responded that there was ‘somewhat’ of a process. E and 83.33% answered that there is no process for managers to develop and improve performance, while M and 25% of HODs responded that there is ‘somewhat’ of a process. Perez *et al* (2011) stated HEIs usually appoint from their professional community. Vice chancellors, deans, heads of academic departments and even administrators are appointed more for their academic and qualifications and research track record than their professional work experience. At DUT like most other HEIs employment of academics from PhD to Professorship level in executive management and middle management positions is favoured. Their management training is guided by what was learnt in their professional qualifications and careers. Once in their positions there is no formal training on managing performance, nor are their mechanisms in place to develop and improve performance. Skills training only funds training based on the academic program of the department where the individual is employed. Industry seeks increased standards and performance therefore the need for institutions to develop organisational excellence (Turk, 2007).

Question 13: Are personnel and financial resources assigned to performance management functions?

E, M and 83.33% of HODs responded that personnel and financial resources are assigned for performance management functions while 1 HOD responded that there are financial and personnel allocations. There are no mechanisms available for managing performance at DUT. Management functions are based on the job description of the section head. The main function of the manager is to manage the academic program and the performance of staff is linked to pass rates in the individual’s course that is taught. If pass rates are lower than faculty averages and DOHET benchmarks then it is discussed at a department level and interventions are made for improvements, e.g. appointment of tutors, more tutorial sessions,

etc. There are no personnel and financial allocations to manage performance. In the faculty of engineering managers are overwhelmed with academic matters as there are 2 semester programs per academic year. Each 6 month period involves registration, delivery of lectures, assessments and publishing of results. The large student numbers per course also provide many challenges. A performance management system would add to the workload. Historically academics judge their performance by pass rates and throughputs. If a PMS is implemented managers have to be trained, resources have to be allocated and incentives have to be available for the success of the process.

4.2.3. Performance standards

Table 4.2.3.1. Responses to performance standards by E (N = 1, S = 1)

Question	No	Somewhat	Yes fully operational	Not applicable
1 Do you use performance standards that are relevant to your activities?		X		
2. Do you set your own targets with a timeframe?			X	
3. Have individual performance expectations been communicated to you?		X		
4. Are staff trained to understand and implement performance measures?	X			
5. Is there sufficient personnel and financial resources to ensure that activities are guided by performance standards, indicators and targets?	X			

Table 4.2.3.2. Responses to performance standards by M (N = 1, S = 1)

Question	No	Somewhat	Yes fully operational	Not applicable
1 Do you use performance standards that are relevant to your activities?		X		
2. Do you set your own targets with a timeframe?			X	
3. Have individual performance expectations been communicated to you?			X	
4. Are staff trained to understand and implement performance measures?		X		
5. Is there sufficient personnel and financial resources to ensure that activities are guided by performance standards, indicators and targets?		X		

Table 4.2.3.3. Responses to performance standards by HODs (N = 12, S = 12)

Question	No	Somewhat	Yes fully operational	Not applicable	μ	σ	σ^2
1. Do you use performance standards that are relevant to your activities?	16.67%	66.67%	16.67%	0.00%	2.00	0.60	0.36
2. Do you set your own targets with a timeframe?	8.33%	50.00%	41.67%	0.00%	2.33	0.65	0.42
3. Have individual performance expectations been communicated to you?	91.67%	8.33%	0.00%	0.00%	1.08	0.29	0.08
4. Are staff trained to understand and implement performance measures?	83.33%	16.67%	0.00%	0.00%	1.17	0.39	0.15
5. Is there sufficient personnel and financial resources to ensure that activities are guided by performance standards, indicators and targets?	83.33%	8.33%	0.00%	8.33%	1.33	0.89	0.79

Question 1: Do you use performance standards that are relevant to your activities?

The responses from Table 4.2.3.1. to 4.2.3.3. show that E, M and 67.67% of HODS follow performance standards, 16.67% do not, and 16.67% follow a ‘fully operational’ set of standards. An organisation establishes performance standards which are linked to their targets and goals to improve practices. Current standards of staff performance are based on observation while being employed in the higher education sector. Each institution has its own criteria for performance management based on what degree each of following forms part of their strategic plan: finances, student centeredness, internal processes or organisational learning. At DUT, department and senate reports highlight academic performance of the program and achievements of the staff in general. DOHET has benchmarks for research outputs per academic which the faculty has to manage. A collective output is submitted per faculty and not per individual. When the government funding for the institutional research output is received, a formula is adopted for allocation of research funds per academic that has produced an output. Accounts are drawn up for each member. These funds can be used to fund any research related activity. The funds cannot be claimed by the academic as a salary.

Awards for extraordinary teaching are also awarded on a yearly basis at DUT. These policies and procedures guide managers in motivating their staff to pursue research and excel in teaching.

Question 2: Do you set your own targets with a timeframe?

When asked if they set their own targets and timelines; E, M and 46.67% of HODs responded that they did, while 1 HOD said 'no' and 50% stated that they 'somewhat' did. Their professional training and their positions in the institution dictates the extent to which they attain these targets and timelines. As managers at DUT the academic year and program dictates the timelines and targets. The academic calendar is set in the previous year as it follows a process of approval at various committees and boards. Enrolment figures, registration dates, start and end date of lectures, assessment and examination dates are some of the institutional operational activities that are pre-set. Managers have to work within these limits to achieve their targets for the year. National benchmarks for engineering faculties are used as benchmarks to compare DUT graduation, pass rates, throughput rates, etc. At the faculty level income and expenditure is guided by the full-time equivalent ratio (FTE). This ratio averages 20 students per academic (CHE, 2009). This is an average but most classes have a far greater student to academic ratio. The institution uses this as a guideline in budgeting, and generally as a performance indicator for a department. Current practice in HEIs requires economic efficiency even though resources are constrained and class sizes continue to grow. Academics are required to 'do more with less' while being accountable for the scarce resources. Some authors argue that teaching and learning decreases if institutions adopt business models for HEI management. The two approaches have to be integrated to improve teaching and learning as well as the administrative and service functions (Becket, 2008).

Question 3: Have individual performance expectations been communicated to you?

Responses to communication of performance measures to managers was positive for M, negative for E and 91.67% for HODs, while 1 HOD had some type of communication. At the faculty level M understood from his strategic planning meetings what standards were expected from him and his staff. This would be related to the management of research outputs, finance limitations and student performance per program.

Question 4 (Are staff trained to understand and implement performance measures?) and Question 5 (Is there sufficient personnel and financial resources to ensure that activities are guided by performance standards, indicators and targets?)

E and 83.33% of the HODs stated that staff are not trained to implement performance and are there no personnel and financial resources allocated for this function. M and 2 HODs responded that 'some' training is available. 1 HOD and M responded that there was 'some' allocation of personnel and financial resources for ensuring that activities are guided by performance standards, indicators and targets. Once again staff will be guided by their professional training. Even though there are no measurements of HOD performance, quantitative statistics are highlighted at EXCO meetings, and HODs are expected to adopt interventions to improve the statistics if necessary. The CQPA also guides the performance of the academic program. When an internal audit is carried out for a program the management of the department and its staff are one of the criteria that is scrutinised. This is also audited when the Engineering Council of South Africa (ECSA), and other professional bodies affiliated to programs run in the faculty visit the institution for accreditation of qualifications.

An organisation's strategy which is based on its vision and mission is used to develop goals and objectives. All employees within the organisation should work together to determine performance standards to achieve those goals (Shafudah, 2011). Targets set for each set of goals should be should be S.M.A.R.T. (specific, measurable, achievable, realistic, and time specific). Teaching is not about what is covered in the syllabus but how it was done. Academics have to obtain higher degrees and pursue research in order to gain a promotion. Academic staff value independence and flexibility as job characteristics so highly that most remain in the profession despite the declining conditions (Turk, 2007).

4.2.4. Performance measurement

Table 4.2.4.1. Responses to performance measurement by E (N =1, S = 1)

Question	No	Somewhat	Yes fully operational	Not applicable
1. Do you have specific measures for your established performance standards and targets?	X			
2. Are the measurements selected in conjunction with the institution to prevent duplication?	X			
3. Are there methods and criteria for selecting performance measures?	X			
4. Is training available to help staff measure performance?	X			
5. Are personnel and financial resources assigned to collect performance measurement data?	X			

Table 4.2.4.2. Responses to performance measurement by M (N = 1, S = 1)

Question	No	Somewhat	Yes fully operational	Not applicable
1. Do you have specific measures for your established performance standards and targets?		X		
2. Are the measurements selected in conjunction with the institution to prevent duplication?		X		
3. Are there methods and criteria for selecting performance measures?			X	
4. Is training available to help staff measure performance?		X		
5. Are personnel and financial resources assigned to collect performance measurement data?			X	

Table 4.2.4.3. Responses to performance measurement by HODs (N = 12, S = 12)

Question	No	Somewhat	Yes fully operational	Not applicable	μ	σ	σ^2
1. Do you have specific measures for your established performance standards and targets?	50.00%	41.67%	8.33%	0.00%	1.58	0.67	0.45
2. Are the measurements selected in conjunction with the institution to prevent duplication?	50.00%	33.33%	0.00%	16.67%	1.83	1.11	1.24
3. Are there methods and criteria for selecting performance measures?	66.67%	25.00%	0.00%	8.33%	1.50	0.90	0.82
4. Is training available to help staff measure performance?	75.00%	16.67%	0.00%	8.33%	1.42	0.90	0.81
5. Are personnel and financial resources assigned to collect performance measurement data?	75.00%	16.67%	0.00%	8.33%	1.42	0.90	0.81

Question 1: Do you have specific measures for your established performance standards and targets? And Question 2 (Are the measurements selected in conjunction with the institution to prevent duplication?)

Managers were asked if they had specific measures for established performance standards and targets (See Tables 4.2.4.1. – 4.2.4.3.). E answered ‘no’ together with 50% of HODs, M and 41.67% of HODs answered ‘somewhat’ and 1 HOD had a ‘fully operational’ set of measures. Managers were then asked if the latter was aligned to institutional measurements. E and 50% of HODs responded with ‘no’, M and 33.33% of HODs said ‘somewhat’ and 2 HODs responded that it was ‘not applicable’. A performance measurement system is a set of metrics used to measure both the efficiency and the effectiveness of activities (Cheerskul, 2010). Measures are drawn from strategy which is used to formulate goals and objectives. Each goal will be aligned to an objective, and it would be linked to targets and timelines. There are no institutional performance measurements. There are guidelines and benchmarks for research outputs, academic qualification targets, teaching loads and related academic activities. All data is usually assessed at a faculty level even though each department varies in student numbers, research activities and external engagements. All positions have job descriptions which immediate managers use as guidelines when allocating duties or workload. Academics have to fill in the South African Post- Secondary Education (SAPSE)

forms which are used in the funding formula by DOHET for the government subsidy of the institution. Academics have to account for their working hours by reporting on the hours spent teaching, consulting with students, assessing, pursuing research, engaging with the community, administration, consulting and other institutional duties. The department and the faculty have a research output requirement which is 0.565 outputs per academic per year. This is used again for the funding formula by DOHET for the allocation of research funds. This is used to determine the performance of the department and faculty, but not individuals. Staff are encouraged to engage in research both at a departmental and faculty level, but normal academic workload, lack of research experience and limited research funding are some of the challenges that have resulted in a low output.

Question 3: Are there methods and criteria for selecting performance measures?

When asked if they had methods or criteria for selecting performance measures; E and 66.67% responded with 'no', M had a 'fully operational' process, 25% of HODs answered 'somewhat' and 1 HOD responded that it was 'not applicable'. The department compiles a report on student performances, staff activities and highlights of the academic year. These are compiled into a faculty report which is submitted to executive management for compilation into an institutional report. M has a monitoring system which is reviewed at EXCO meetings. Concerns are raised if there are deviations from institutional benchmarks, e.g. pass rates. Intervention methods are suggested and monitored. All student data from registration to graduation is captured on the Integrated Tertiary Software (ITS) system or ITSS. All staff have a login into the ITSS system. There is controlled access which only allows staff members to access web pages which they have been given authority for. For example, only managers can approve requisitions and staff leave. Each academic staff is only able to access student data for the courses taught. The database can be used to generate student, program, department and institutional reports. Staff members can make a request for subroutines to be written on the ITSS if a specific set of data analysis is required. Currently all financial transactions are processed on the ITSS system with limited access to authorised staff only. The Research Integrated Management System (RIMS) has been merged with the ITSS system. This database is being used to record and track all research activities, including postgraduate students at DUT. The icon for the Performance Management System is currently loaded on to the ITSS. CQPA has the PeTALs software which is linked to the ITSS

for quality matters. This system is not currently operational. When the policy is implemented the ITSS would be used to record and track staff, student and financial performance. DUT has the management information system in place to implement any measurement system. The system can only work if the correct information is captured and staff are rigorous in data capture.

Question 4 (Is training available to help staff measure performance?) and Question 5 (Are personnel and financial resources assigned to collect performance measurement data?)

The responses to whether training is available to help staff measure performance was 'no' by E and 75% of the HODs, 'somewhat' by M and 16.67% of HODs and 'not applicable' by 1 HOD. E and 75% of HODs responded that personnel and financial resources have not been assigned to collect performance measurement data, M and 16.67% of HODs responded with 'somewhat' and 1 HOD stated that it was 'not applicable'. There is no rating or measurement of staff performance. Each manager has an individual system of judging the performance of their staff. The focus is constantly on student and program performance. Staff engage in research and with students, but the only measurements of value are student success rates, graduation rates and research outputs. This does not benefit the individual financially. The publication fund allocated to the staff member can be used for further research activities. Lecture evaluations are performed and the outcomes are discussed at the departmental level, with interventions if necessary. Narrative reports on the performance of staff, in general, are drawn up during internal audits by CQPA and professional accreditation committees (e.g. ECSA). The Human Resources department has the capability together with the managers for collecting performance data if the system is implemented. The ITTS system can be used for tracking the PMS.

4.2.5. Reporting of progress

Table 4.2.5.1. Responses to the reporting of progress by E (N = 1, S = 1)

Question	No	Somewhat	Yes fully operational	Not applicable
1. Do you document your progress according to your performance standards and targets?		X		
2. Is this information communicated to managers and leaders?	X			
3. Are managers at all levels accountable for reporting performance?	X			
4. Is reporting part of your strategic planning process?	X			
5. Is training available for staff to effectively analyse and report performance data?	X			
6. Are your reports communicated effectively to ensure that the results can be used for decision making?	X			
7. Are personnel and financial resources allocated for performance analysis and reporting of progress?	X			

Table 4.2.5.2. Responses to the reporting of progress by M (N =1, S = 1)

Question	No	Somewhat	Yes fully operational	Not applicable
1. Do you document your progress according to your performance standards and targets?			X	
2. Is this information communicated to managers and leaders?			X	
3. Are managers at all levels accountable for reporting performance?			X	
4. Is reporting part of your strategic planning process?			X	
5. Is training available for staff to effectively analyse and report performance data?			X	
6. Are your reports communicated effectively to ensure that the results can be used for decision making?			X	
7. Are personnel and financial resources allocated for performance analysis and reporting of progress?			X	

Table 4.2.5.3. Responses to the reporting of progress by HODs (N =12, S = 12)

Question	No	Somewhat	Yes fully operational	Not applicable	μ	σ	σ^2
1. Do you document your progress according to your performance standards and targets?	41.67%	33.33%	25.00%	0.00%	1.83	0.83	0.70
2. Is this information communicated to managers and leaders?	33.33%	41.67%	25.00%	0.00%	1.92	0.79	0.63
3. Are managers at all levels accountable for reporting performance?	41.67%	41.67%	16.67%	0.00%	1.75	0.75	0.57
4. Is reporting part of your strategic planning process?	25.00%	41.67%	33.33%	0.00%	2.08	0.79	0.63
5. Is training available for staff to effectively analyse and report performance data?	91.67%	8.33%	0.00%	0.00%	1.08	0.29	0.08
6. Are your reports communicated effectively to ensure that the results can be used for decision making?	33.33%	25.00%	33.33%	8.33%	2.17	1.03	1.06
7. Are personnel and financial resources allocated for performance analysis and reporting of progress?	91.67%	8.33%	0.00%	0.00%	1.08	0.29	0.08

Question 1: Do you document your progress according to your performance standards and targets?

When asked questions on reporting of progress, E responded with a ‘no’ to all except for ‘somewhat’ for documenting progress according to performance standards and targets (Table 4.2.5.1.). M responded that there was a ‘fully operational’ system for reporting of progress (Table 4.2.5.2.). The following refers to the HOD’s response to questions on reporting as shown in Table 4.2.5.3. 41.67% do not document progress according to performance standards and targets while 33.33% ‘somewhat’ do. Individual managers would have a strategy plan which would include performance goals for their staff. There are no quantitative measures, only narrative reports. There are no institutional quantitative standards or targets for general staff. Only executive managers have KPIs in their contracts which are usually drawn up over a 5 year period. Managers are guided by Human Resources (HR) policies and job descriptions as applied to their department. If staff do not adhere then disciplinary procedures are followed as laid out by the HR policy.

Question 2 (Is this information communicated to managers and leaders?) and Question 3 (Are managers at all levels accountable for reporting performance?)

With respect to communication of information to managers and leaders, 50% responded with 'no', 33.33% with 'somewhat' and 1 with 'fully operational'. This response follows from the previous question. 41.67% answered 'no' to managers being accountable for reporting progress, 41.67% answered 'somewhat' and 16.67% answered that they were.

Question 4: Is reporting part of your strategic planning process?

25 % responded that reporting was part of their strategic planning, 41.67% 'somewhat' and 33.33% 'fully operational'. Financial reports are audited according to legislation requirements. All reports, infrastructure, student resources, and general operational procedures and policies are audited on a cycle by the relevant bodies appointed for maintain higher education quality. CQPA has monitoring and reporting requirements for academic programs. Departments have to comply with their reporting requirements which include surveys of students and staff, quality reports and internal reviews.

Question 5: Is training available for staff to effectively analyse and report performance data?

91.67% answered 'no' to availability of training for staff to analyse and report performance data and 1 answered 'somewhat'.

Question 6: Are your reports communicated effectively to ensure that the results can be used for decision making?

33.33% communicate effectively to ensure results are used for decision making, 25% responded with 'somewhat', 33.33% had an effective reporting system and 1 answered 'not applicable'. All managers are expected to have regular meetings with their staff and keep minutes of the proceedings. Action items have to be acted upon and feedback given at the next sitting or earlier if requested. At the department level all operational matters and academic activities are discussed at least once a term at a full sitting of all staff and minutes

are drawn up. Issues needing addressing are then tabled at the Faculty EXCO or Faculty Board meetings. A representative of each institutional committee and support department has a seat in the Faculty Board. This allows for a two way discussion when matters arise. Unresolved matters and academic issues may go to Senate, and finally to the Executive of Senate (SENEX). Yearly reports are compiled on departmental (not individual) and program performance. Research output guidelines and DOHET benchmarks guide the reporting process. This is integrated into a faculty report and finally into an institutional report.

Question 7: Are personnel and financial resources allocated for performance analysis and reporting of progress?

91.67% responded that there were no personnel and financial resources allocated for reporting, while 1 responded that there was 'some' allocation. Minutes are recorded at all meetings. This forms part of the normal duties of all managers. Individual departments compile a report which feeds into the institution annual report.

4.2.6. Quality improvement process

Table 4.2.6.1. Responses to the quality improvement process by E (N =1, S =1)

Question	No	Somewhat	Yes fully operational	Not applicable
1. Do you have a process to improve quality?	X			
2. Are the performance procedures, timeframes and benchmarks or targets communicated to you?	X			
3. Are the staff evaluated for their performance improvement?		X		
4. Is there capacity to take action to improve performance when changes are required in policies, programs or infrastructure?		X		
5. Is there a process or mechanism to develop performance improvement with timelines, actions and responsible parties?		X		
6. Is there training available for quality improvement for managers and staff?	X			
7. Are personnel and financial resources allocated for the quality improvement process?	X			

Table 4.2.6.2. Responses to the quality improvement process by M (N =1, S =1)

Question	No	Somewhat	Yes fully operational	Not applicable
1. Do you have a process to improve quality?			X	
2. Are the performance procedures, timeframes and benchmarks or targets communicated to you?			X	
3. Are the staff evaluated for their performance improvement?		X		
4. Is there capacity to take action to improve performance when changes are required in policies, programs or infrastructure?			X	
5. Is there a process or mechanism to develop performance improvement with timelines, actions and responsible parties?			X	
6. Is there training available for quality improvement for managers and staff?			X	
7. Are personnel and financial resources allocated for the quality improvement process?			X	

Table 4.2.6.3. Responses to the quality improvement process by HODs (N =12, S =12)

Question	No	Somewhat	Yes fully operational	Not applicable	μ	σ	σ^2
1. Do you have a process to improve quality?	0.00%	25.00%	75.00%	0.00%	2.75	0.45	0.20
2. Are the performance procedures, timeframes and benchmarks or targets communicated to you?	16.67%	66.67%	16.67%	0.00%	2.00	0.60	0.36
3. Are the staff evaluated for their performance improvement?	33.33%	50.00%	16.67%	0.00%	1.83	0.72	0.52
4. Is there capacity to take action to improve performance when changes are required in policies, programs or infrastructure?	50.00%	41.67%	8.33%	0.00%	1.58	0.67	0.45
5. Is there a process or mechanism to develop performance improvement with timelines, actions and responsible parties?	41.67%	50.00%	8.33%	0.00%	1.67	0.65	0.42
6. Is there training available for quality improvement for managers and staff?	66.67%	33.33%	0.00%	0.00%	1.33	0.49	0.24
7. Are personnel and financial resources allocated for the quality improvement process?	66.67%	33.33%	0.00%	0.00%	1.33	0.49	0.24

Question 1: Do you have a process to improve quality?

Quality improvement is the establishment of a program or process to manage change and achieve quality improvement in policies, programs and infrastructure based on performance standards, measurements and reports. The final section of the survey required responses on quality improvement processes. E did not have a process to improve quality, M and 25% of HODs had ‘somewhat’ of a process, and 75% of HODs had a ‘fully operational’ process. Professional qualifications are offered in the Faculty of Engineering and there are legislated requirements which are audited both internally and externally to the institution, thus the response ‘fully operational’ by the majority.

Question 2: Are the performance procedures, timeframes and benchmarks or targets communicated to you?

When asked if the performance procedures, time frames and benchmarks are communicated to managers, E and 16.67% of HODs answered ‘no’; 66.67% answered ‘somewhat’; and M

and 16.67% of HODs answered ‘fully operational’. Previous institutional annual reports and DOHET benchmarks are used as guidelines when compiling quality reports. Information is loaded onto the DUT website and DOHET information has to be accessed via the internet. It is up to the managers to keep abreast of policy requirements and overall quality and performance. Institutional timelines are available for managers to follow.

Question 3 (Are the staff evaluated for their performance improvement?) and Question 4 (Is there capacity to take action to improve performance when changes are required in policies, programs or infrastructure?)

The response to whether staff were evaluated for performance improvement was ‘no’ by 33.33% of HODs; ‘somewhat’ by E, M and 50% of HODs; and ‘fully operational’ by 16.67% of HODs. DUT has a Centre for Quality Promotion and Assurance (CQPA) whose purpose is to oversee and maintain the quality of all undergraduate and postgraduate qualifications offered by the institution. One of their requirements is a lecturer evaluation form which has to be filled annually by students for each academic. The relevant department administers the survey; CQPA does the analysis and sends the evaluation results to the relevant department. The academic has to take into account the results when compiling a subject review report for the relevant exam session, and has to plan interventions for improvement if there were any shortcomings. This is usually done through subject review sessions which departments have to schedule annually. These improvements have to be implemented in the following year. HODs compile a program report annually which is used to manage performance within a program. Staff that have shortcomings would have to show evidence of improvements in the next registration of the course. This process is reviewed and audited by a CQPA program audit and an accreditation process by the professional body that oversees the quality of engineering academic programs at HEIs. Quality in HEIs is defined as the difference between what a student is expected to receive and the actual delivery of the knowledge (O’Neill *et al*, 2004). Watty (2006) stated that academics define quality as knowledge transfer, good academic training and being in a good learning environment. Governments use throughput rates and pass rates as measure of quality. Students look at quality in terms of the knowledge and skills they learn and develop. Students are the customers and they expect three types of service expectations: desired, adequate and predicted service. The quality of the service offered will lead to business excellence. High quality education is a key element in attracting

and retaining students. The failure of institutions to attract and placate students would negatively influence enrolment, retention, funding, job security and sustainability of the institution (Farid, 2008b).

Question 4 (Is there capacity to take action to improve performance when changes are required in policies, programs or infrastructure?) and Question 5 (Is there a process or mechanism to develop performance improvement with timelines, actions and responsible parties?)

The response to availability of capacity for performance improvement and alignment with change in policies, programs or infrastructure was that 50% of HODs answered 'no'; E and 41.67% of HODs answered 'somewhat'; and M and 1 HOD answered 'fully operational'. When questioned about the process or mechanism for the latter, E and 41.67% of HODs answered 'no', 50% of HODs answered 'somewhat', M and 1 HOD answered 'fully operational'. The academic staff in the Faculty of Engineering have professional qualifications in the field they teach in. Their professional training meets the minimum requirements necessary for matters related to their academic program. There is sufficient capacity within departments and the faculty to deal with changes in policies, programs and the infrastructure. Whether there is an improvement or not in the performance of the individuals cannot be quantified except where there are statistical requirements in the reporting process. Qualitative reporting is usually the norm. Responses to performance improvement are channelled through the meeting and reporting structures of the institution. Skills and training should be carried out on a continuous process in an institution to allow employees to grow and gain knowledge so that they can make informed decisions. This is vital in managerial positions as their decision making has consequences in the performance of the program, the department and ultimately the institution.

Question 6 (Is there a process or mechanism to develop performance improvement with timelines, actions and responsible parties?) and Question 7 (Are personnel and financial resources allocated for the quality improvement process?)

Availability of training is essential for quality improvement in an organisation. The responses to this question was 'no' from E and 66.67% of HODs; 'somewhat' from 33.33 % of HODs and 'fully operational' from M. The response to the question on allocation of resources and financial resources mirrored the previous question. There are skill funds available for training

but the budget is limited at the institution. Within the faculty the skills budget is also limited which means that 1 or 2 people per department can go on training per academic year. Usually training to increase academic skills takes precedence. The assumptions made at higher education institutions is that as one gains higher qualifications and participates in research activities then it makes them more qualified to manage. Academic growth in the professional field required for academic programs is supported. Support for training in managerial skills and quality improvement has to have a strong motivation for support by a manager. The availability of funds in the budget will also inform the decision making.

4.3. Summary of Discussion

The summary of the discussion will be presented in this section. The conclusions and recommendations will follow in Chapter 5. An effective framework for performance system within DUT will be proposed in Chapter 5 to ensure that the institution is results-oriented. The results of the survey were used to ascertain whether the objectives of the research were met.

4.3.1. Current performance management processes or models used at DUT

The reason for a business to exist is to make a profit. Both financial and non-financial businesses aim to profit while delivering the best possible service to their customers. Therefore the success of the organisation is dependent on its human resources, procedures and policies. The work done has to be assessed to ensure that it is of a good quality and that the goals and objectives of the organisation are met. It has long been recognised that performance whether at the organisation or individual, or any level in between has to be managed (Weyers, 2010). The Faculty of Engineering offers qualifications which can be professionally registered once the graduate has met the relevant educational and industrial training requirements. E, M and the HODs (83.33%) responded that they have ‘somewhat’ of a process to improve process. Performance is managed by the HODs to a certain extent with respect to finance (41.67%), students (41.67%), internal processes (50%) and organisational learning (66.67%) with similar responses by M and E. Student success rates and research output of the institution are used in a formula by DOHET to fund HEIs. Finances are allocated to the faculties and M oversees the spending. Departments are allocated budgets as per their full time equivalent (FTE) ratios and their historical budget. Meetings, forums and

committees form the basis of all decision making at the institution. The quality of the academic program is administered by the CQPA with cyclical internal reviews. Student surveys are completed for each exam session to measure academic performance with respect to teaching and learning. The results are used to compile subject and program reports at the departmental level. In addition the professional bodies are responsible for the accreditation of all professional qualifications offered in the faculty. All processes follow the department, Faculty, Senate and Council route for approval. Once policies, rules or systems are approved and signed off, the support departments implement them. There is no performance management system which is linked to the individual's performance at the institution. The quality of the academic program together with student success rates and research outputs are used as a measure of successful strategy.

4.3.2. The institution's readiness for a performance management system

M and the HODs have 'somewhat' of a performance standard (66.67%) and sets time frames and targets (50%). There were negative responses ('no') to individual performance expectations (91.67%), staff training for implementing performance measures (83.33%) and allocation of personnel and financial resources for activities related to standards, indicators and targets (83.33%). DOHET and national benchmarks are used to guide institutional student success rates and research outputs. There are no measurements for individual success but quantitative statistics for students, research outputs and budgets are managed at a department level and overall by M in the Faculty (response of 'fully operational'). One of the reasons that the institution is results orientated; is its dependence on partial funding by DOHET, but there is no system to tie all the data timeously and effectively. There are multiple systems like PETALS for CQPA, RIMS for Research and the ITSS for students, staff and finance. In addition there are various committees and forums from where data is collected. This is collated into Faculty, section and executive reports. These then form the basis of the institution's annual report.

E, M and the HODs responded either 'no' or 'somewhat' to a performance measurement process. Measurements are based on goals and objectives of the institution. These have to be linked to targets with a timeline for measurement. All staff have job descriptions which

supervisors and managers have control over. Performance at the departmental and Faculty level is based on the quality of the program offered, the research output and the student success rates. There were negative responses by HODs to specific performance measures with standards and targets (50%), training of staff for measurement (75%) and allocation of finances and personnel for measurement processes (75%). Student, staff and financial data are captured on the ITSS. The RIMS has been implemented and staff are encouraged to record their research outputs on the system. E has 'no' reporting of progress system, M has a 'fully operational' system and the HODs gave varied responses to the reporting of progress. Reports are generated at the department and the Faculty level. The department, faculty and the institution are audited by internal reviews and professional accreditation committees. Concerns are raised both at the department and faculty level if there are deviations from the benchmarks. Interventions are minuted, implemented and monitored within the faculty.

4.3.3. Performance management systems fit with the culture of the HEI

There are competing views on quality within HEIs in South Africa. University management and the government look at value for money and efficient use of resources as a measure of good performance and high quality. Academics argue that this type of efficiency means achieving 'more with less' thus compromising the quality of teaching, learning and research. Academics have demonstrated diverse responses to the changing landscape of higher education. They have engaged with quality policies, extending from approval and adaptation to opposition, and from agreement to internalisation (Brown, 2010). DUT has procedures monitored by CQPA and professional bodies for quality standards of academic programs, infrastructure and organisation procedures and policies. Academics are responsible for implementing quality assurance policies. 75% of HODs and M have a 'fully operational' system for quality improvement. They are ultimately responsible for the quality of the graduate and the skills imparted to them. Universities are under pressure to produce and reproduce knowledge and develop a highly skilled workforce especially in the field of engineering. Research and human capacity building are key to addressing the serious economic and social challenges facing the country. There are still large gaps between the skills needs of the economy and the skills and expertise of university graduates. The engineering sector experiences vast skills shortages. Organisational excellence and cost effectiveness of organisations can use performance management systems to manage

performance with respect to finance, customer, internal processes and organisational learning perspectives, both at the individual and organisational level (Barnes, 2007). These measures can be adapted to HEIs. Financial viability is key to the sustainability of the institution in the light of limited funding by the government and the rising student debt of the institution. The funding formula is dependent on student success rates and research output, and high quality is demanded with limitations in finances and resources. The customer perspective is related to student, parent and industry satisfaction of graduates. The internal perspective deals with producing high quality graduates and top class research. The organisational learning perspective is linked to the benefits for students and staff. Performance based on the learning outcomes, retention of students, and the development of highly skilled academic and support staff would ensure that HEIs are aligned to the national strategy.

4.3.4. Linkage between individual performance and organizational performance

There is 'somewhat' of a performance management process followed by E, M and the HODs (83.33%). E responded 'no', M and 75% of the HODs responded that they had 'fully operational' quality improvement process. The institutional strategy is based on its vision and mission which is followed through at the Faculty and department level. The institutional vision statement is: "A preferred university for developing leadership in technology and productive citizenship". The institutional mission statement is: "to excel through a teaching and learning environment that values and supports the university community, promoting excellence in learning and teaching, technology transfer and applied research and external engagement that promotes innovation and entrepreneurship through collaboration and partnership" (www.dut.ac.za). A PMS plays an important role in organisational strategy. Industry seeks increased standards and performance therefore the need for institutions to develop organisational excellence (Turk, 2007). The responsibility for the quality of the academic programs lies within the departments and the Faculty. Organisational performance is judged by student success rates, research output and financial sustainability. All three of these factors have to be managed at a departmental level and a Faculty level. Individual lecturers are responsible for the subjects they teach, the HOD is responsible for the program together with M, who is responsible for all the professional qualifications offered in the faculty. Organisational culture is seen as a system of mutual principles, philosophies, understandings and standards. It forms and directs the attitude and behavior of all employees

therefore its significance in the implementation and use of a PMS determines its successes and failures (Bititci *et al*, 2006). The faculty has a ‘fully operational’ process down to the department level to manage quality. DUT adopts an organisational culture which ‘does not punish peoples’ error, but encourages discussion and analysis around performance measures or quality issues (Mbanjwa, 2011). This is the hallmark of a PMS and this culture is in existence at DUT, thus making the implementation of a PMS feasible for linkage to individual performance.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

Universities have been governed by professors for many centuries. Professors are public servants. They are respected by the community and have been entrusted to manage HEIs and produce highly skilled graduates for the workforce. Quality was assured by the senior professors, senate and heads of programs. New quality procedures have been articulated by the Higher Education Quality Committee (HEQC) and documentation is vital for record keeping. Academics show strong commitment to their career since with their higher degrees they can command top salaries and positions in industry, but they choose to teach and pursue research for a much lower salary and benefits (Mbali, 2006). The purpose of this research was to assess the institution's current performance management models and develop a framework for a PMS to ensure that the institution is results orientated. Conclusions from the research:

- The institution has procedures, policies and measures in place for quality of the academic programs, research outputs and student success rates.
- The integrated electronic database systems can ensure updating and reporting of performance indicators.
- Performance indicators can be linked to the financial, student, internal processes and organisational learning perspective.
- The organisational culture of the HEI was surveyed together with the link between individual and organisational performance.
- It has been noted from the surveys that individual performance impacts on the organisational performance.
- The program quality, student success rates and research outputs from individuals in academic departments do impact on the organisational performance.
- Outputs from individuals are collated in the department into faculty and institutional data which is then used for the DOHET institution subsidy.

5.2. Implications of this Research

Most HEIS have a similar vision to prepare students to become professionals and leaders who will add value to their organisations and communities; by creating sustainable development in their society through high quality graduates and undergraduate programs, training creative and innovative entrepreneurs and managers and supporting research. Based on the above mission the BSC strategy map can be developed for an institution. Students are customers of provided services and partners in the process of learning. HEIs need to adopt the “practice what you preach approach”. The HEIs major goal is to prepare graduates for the working world. Students will learn from their environment and if they learning about their profession in an institution then the values, work ethic and behaviours practiced by the institution will be taken as part of their training (Becket, 2008). The BSC has succeeded at the Institute of Technical Education because it formed part of the existing planning framework; it was consultative and engaged all staff to develop scorecards, strategic objectives and measures which promoted teamwork as well as the establishment of buy-in and alignment (Yek *et al*, 2007). An institution that is results orientated can ensure that its’ financial, student, internal processes and organisational learning measures are constantly reviewed and adapted with the changing internal and external environment.

5.3. Recommendations to solve the research problem

5.3.1. Performance management processes or models used at DUT

- A policy has been drafted in 2008 for a performance management system but it has not been implemented. The BSC framework can be used to pursue organisation excellence. Current management processes have to be integrated or improved into the new performance management system.
- Economic success has to be linked to quality improvement strategies. Management has to communicate the balanced scorecard process, outcomes and application clearly to all employees in the organisation. There has to be an institutional plan for the sustainability of the performance management system to ensure it surpasses its employees and the environment. If the balanced scorecard is implemented then every action, choice and decision will be driven by the values of this management tool

(Rollins, 2011). The institution's vision will have to be used to link individual scorecards with the institutional goals and objectives. A successful institutional plan will ensure that the metric and trend data will endure past the current management of the institution. There has to be periodic assessment by the institution, and if it values continuous improvement it will lead to organisational excellence. There are dynamic changes in the higher education sector therefore the PMS must be resilient to endure changes, and be flexible and adaptive to move into the future.

5.3.2. Institution's readiness for a performance management system

- Finances and resources have to be allocated for the developing, implementation and maintenance of the performance management system. The institution has sufficient expertise and should develop the system in-house with all individuals employed at the institution.
- Individual strategies that are formulated by the individuals in line with the organisation's strategy is more likely to be successful than one formulated by external consultants.
- Management positions at all levels should require both academic or technical qualifications, together with management and commerce related qualifications.
- Staff will have to have on-going training on the measurement of performance. 'How' to measure and 'what' to measure is challenging as it needs to be operationally possible, inexpensive and relevant to targets and benchmarks.
- The institution's current management information systems have to be adapted to include performance measures from the individual to the institutional level.
- Dynamic communication will ensure that all employees engage in significant activities and identify with performance targets established for the institution.

5.3.3. Proposed framework for an effective performance system within the HEI to ensure that the institution is results-oriented

“There is little argument about the value of assessment, measurement, and the use of information that results therefrom, but the question of what should be measured and how that information should be used has been more problematic” (Ruben, 1999)

- The institutional vision statement is: “A preferred university for developing leadership in technology and productive citizenship”. The institutional mission statement is: “to excel through a teaching and learning environment that values and supports the university community, promoting excellence in learning and teaching, technology transfer and applied research and external engagement that promotes innovation and entrepreneurship through collaboration and partnership” (www.dut.ac.za). The vision and mission is to be used as a basis to develop the institution and Faculty strategic plan.
- The following broad strategic objectives will be used to develop a scorecard for the faculty: teaching and learning, research and external engagement. The four perspectives of the balanced scorecard will be applied to the above objectives: finance, student or customer, internal processes and organisational learning.
- Based on the vision and mission a strategy map can be drawn and used to develop the goals and measures for each perspective. Farid (2008a) and Mikhail (2004) have applied the balanced scorecard to HEIs and used the following strategic goals as a guideline: academic excellence, service excellence, strategic partnerships, organisational development and balanced budget.
- The framework “implemented should gain commitment from all levels, develop department and faculty goals to be in line with institutional goals, allow for employee training, reward and recognise staff by incentivising for better performance, ensure organisational barriers to are broken down and co-ordinate responsibilities in the management chain” (Hopf, 2012).

5.3.3.1. Financial Perspective

Table 5.3.3.1.1. Financial perspectives goals and measurements

Type	Goal	Measurement
Revenue from operations	Research funding	Number of research grants
		Number of postgraduates
	Student fees	Number of students enrolled
	Government subsidy	Number of graduates
		Number of first year entries
		Retention rate
		Throughput rate
Financial management	Financially viable	Balanced budget
		Rate of increase in fee paying students

- Undergraduate success rates need to be improved. The institution gains its revenue from student fees, government subsidy and research grants. Part of the subsidy is paid on the first enrolment of the student for a single subject. The balance of the subsidy is paid on graduation. Students that fail are not subsidised and this places a huge strain on existing resources of the institution. Students take more than the minimum prescribed period for a qualification thus the low throughput rates which are used in the funding formula by the government. A student enrolment plan has to be submitted to DOHET for financial planning. The institution is bound by the number as any enrolments over the planned intake does not get funded. Also the higher level enrolments and postgraduate students carry a higher weighting in the funding formula. The institution should grow its postgraduate program in line with its research goals. Each postgraduate graduation is considered a research output that is used in the funding by DOHET.

- Academics need to take steps to improve student success and boost performance in contrast to this efficiency factor. Student pass rates drive the government subsidy income. Academics are challenged that the government has imposed a funding framework around performance indicators which accepted educational disadvantaged students at University of Western Cape (UWC) (Brown, 2010). These sentiments are echoed in most South African institutions. The benchmark by DOHET is 80% for first year passes. Drop rates are in the range 40% to 60% at institutions across the country. Experiential learning at University of Technologies (UOT) is a huge contributing factor to low throughput rates. The primary undergraduate qualification comprises of 2 years of lecture based learning at the university and 12 months non-consecutive experiential learning in professional practice or industry. The student obtains the diploma on completion of the assessment of experiential learning. All students do not start training in January after completion of the 2nd year. The institution helps in the placement of the student in a workplace, but this is limited, therefore there has to be greater intervention from industry partners. The burden lies with the student to find suitable placement so that the assessment requirements can be met. Late placement in the 3rd year leads to completion of the qualification after the graduation date for that cohort of students. This reduces the graduation rate and hence the funding received from DOHET.
- HEIs and DOHET need to strategise and rethink the structure of the funding formula. Rising student debt means that cross subsidisation occurs with the institution's reserve funds and dependency on financial loans. There are procedures in place to recover student fees but they cannot function as the majority of the students do not have any income nor do their parents and guardians.
- Promotion of research needs to be taken into account in the funding structure. Research funding is limited in a competitive environment. Publication track record and postgraduate supervision are the main requirements for the awarding of research grants. Research did not form part of the history of university of technologies whose priority was producing undergraduates for the workforce. The pressure to do research is prompted by the subsidy formula. Most staff do not have PhDs nor do they engage in research. Those that do engage in research find it challenging to attract grants because of the stringent requirements.

5.3.3.2. Student Perspective

Table 5.3.3.2.1. Student perspective goals and measurements

Type	Goal	Measurement
Student	High quality students	Entrance requirements
	Graduate high quality students	Monitor pass rates
	Student satisfaction	Graduate surveys
		Access to courses
		Student evaluation of courses
Employers	Form links and partnerships	Employer surveys and ratings
	Student placement	
Community	Address needs and expectations	Community surveys
		Focus groups

- Measures have to be taken to increase graduation rates. There has been a 39% increase in engineering graduates (CHE Monitor, 2009). Decrease in pass rates may be related to an increase in research output, therefore a balance has to be created. Staff do attend teaching, learning and assessment workshops and conferences, but there is very little interest by some academics to change their current practices of ‘chalk and talk’. There are individual pockets of excellence in teaching but this needs to be applied to the whole qualification offered by a department. Academics are constantly under pressure to increase pass rates with existing staff complements and limited resources.
- Staff need to be compensated for excellence in teaching and research. Universities are under pressure to broaden access to the fields of science and engineering, therefore entrance requirements have been lowered in the past few years. Poorly prepared students pose a challenge to academics that are already under pressure to increase pass rates, provide high quality teaching with limitations on faculty staff and

resources. Employers are also seeking high quality graduates to be productive on day one of employment.

- Individuals need to be held accountable for performance measures. They can be motivated if they are rewarded financially and given incentives for meeting targets.
- Regular feedback through advisory boards and various forums should be communicated to all stakeholders.
- The institution and graduates must benefit society. One way is to give back to the underprivileged or needy communities.

5.3.3.3. Internal Processes perspective

Table 5.3.3.3.1. Internal processes perspective goals and measurements

Type	Goal	Measurement
Teaching and Learning	Excellence in teaching learning and assessment	Student satisfaction Employer satisfaction Course evaluations Pass rates
Curriculum	Relevant to profession Full accreditation	Quality audits Student and employer surveys
Employees	Highly skilled staff	Pass rates Research output
Student support	Financial aid Student facilities and resources	Student debt Student satisfaction surveys

- Instructor training and upgrading is necessary for ensuring that the qualifications offered are relevant to industry and that a high standard is set in skills training of students. Staff that complete postgraduate qualifications from Masters to Doctorate level are most likely to embark on research activities and supervise postgraduate students in the future.
- There should be awards for teaching and research excellence. Recognition should be tied to financial incentives for bonuses and financial support for research activities.
- Feedback from alumni and employers should be communicated as it is an indication of the level of satisfaction with productivity in the workplace.
- The institution needs to constantly align its goals with changing student needs.
- Student support in the form of residences, healthcare, library, computer, financial aid and study facilities attract students to universities.

5.3.3.4. Organisational Learning Perspective

Table 5.3.3.4.1. Organisational learning perspective goals and measurements

Type	Goal	Measurement
Teaching and learning -excellence and innovation	Development	Research Assessment methods Technology integration
Academic infrastructure	Physical facilities	Number of teaching venues Computer and laboratory facilities
Task orientated Reward system	Measure, reward and evaluate goals Strategy planning process	Evaluation or audit processes Evaluation of strategy and alignment with PMS

- Industry relevant graduates should be trained for the working world. The organisational learning perspective deals with the skills and processes that

organisations build and develop to ensure growth. Academic and support staff have to pursue higher degrees in their related fields and supported in their skills training.

- The faculty has to ensure that the latest software and training equipment are available to impart the necessary skills to its students. Innovative teaching and use of technology, especially in the faculty of engineering, is vital as its graduates are employed in a dynamic industry with daily advancements in technology.
- Goals of the institution have to be linked to individual activities and tasks. Measurements have to be evaluated and rewards provided for in the budget.

5.3.4. Performance management systems fit in with the culture of HEI

- An integrated performance management system which promotes data capture and analysis at all levels would ensure that 'live' data is readily available to track, monitor and review financial, student, internal processes and organisational learning.
- Electronically generated reports and access to 'live' data can inform managers in their day to day decision making.
- Key performance indicators should be regularly discussed at all levels from the department to Council level so that target levels are met to ensure the goals and objectives are aligned to the institution strategy.

5.3.5. Individual performance is linked to organizational performance

- The institution should look at sub-venting academic staff salaries, offer bonuses for postgraduate qualifications up to PhD level, offer seed funding for research and incentivise their staff that produce outputs from their research.
- If the balance scorecard is implemented then performance management, standards and measurements can be incorporated into the appraisal process for all full time staff.
- Finances and extra personnel would have to be allocated to implement, monitor and modify the performance management system to fit into the organisational plan of the institution. Measures would have to be formulated, to fit in with the goals of each department which in turn would have to be aligned to the institutional vision and mission.

- Staff training will be essential on an on-going basis. Those not performing according to their targets would have to be up-skilled to meet them. There are no consequences for zero research output or poor performance. The institution should explore this further.
- Research integrated management systems (RIMS), the research database can be integrated with the web based PMS system which currently forms part of the ITSS at DUT.
- The success of a system is dependent on the process and the resources available. If staff have simple procedures to follow and information is easily tracked then the institution's goal is easily achieved.
- Quantitative techniques should be followed to measure improvements in performance.
- General salary increases comprise of a notch increase plus a yearly increase which is linked to the Consumer Price Index (CPI) and negotiations with management. Some staff have worked for at least 30 years and over at the institution. Currently older staff who have not furthered their studies earn the maximum of the salary scale for the position they hold. Once on the maximum there are no yearly notch increases. If a performance based measuring system is implemented then it must be linked to a rewards program.

5.4. Limitations of this study

- The target groups were predetermined as managers in the faculty and executive management that was directly linked to the academic program and institutional output used for funding. The survey was carried out at E level for research, M for the Faculty and HOD level for the academic departments.
- The performance of support departments have not been investigated even though they impact on the procedures and policies required for academic quality and research outputs.
- Currently there is no performance management system for the institution.
- Quality policies are followed by academic departments. There are policies formulated for support departments and institutional operation, and these impact on the success rate of academic programs, but these departments and sectors are not assessed for quality. Policies are used as guidelines in the daily activities of a HEI.

- The Faculty of Engineering is unique as its qualifications are accredited by a professional body, thus ensuring that the academic programs are quality controlled even though there is no formal performance management system.

5.5. Recommendations for future studies

- This research can be used as a basis for further investigations in the other 5 faculties and academic support departments.
- Support departments, e.g. finance, student admission, etc., need to be surveyed together with other faculties. The global study of all 6 faculties can be used to look at the feasibility of implementing the balanced scorecard across all departments and sectors at DUT.
- Future research should focus on increasing student success rates, increasing research outputs of the institution and reducing student debt. The institution is dependent on the government subsidy, student fees and research grants for financing.

5.6. Summary

- The faculty does have performance models that can be integrated for the implementation of a balanced scorecard.
- Quality improvement and reporting processes are currently followed to record program quality, student success rates and research outputs which are the key variables in the funding formula used by DOHET to subsidise the institution.
- The implementation of the balanced scorecard would result in a structured framework for aligning the institutional goals and performance targets.
- Performance measures from the financial, student, internal processes and organisation learning perspective can have targets that align individual scorecards with the institutional scorecard.
- A generic scorecard is proposed for the faculty. This can be adapted to all faculties and broadened to include specific requirements for each qualification.
- Communication of the performance management system and its link to the institutional strategy is a key factor for its success.

The key objectives of this research were achieved.

- The institution was found to be in readiness for a performance management system.
- There are policies and processes in place which measure performance and quality of programs and students, finances are managed at a faculty and department level, and there are audit processes in place.
- Individual performance was found to be linked to organisational performance.
- There is an extensive management information system which is used for student, staff, finances, quality and research data storage and analysis. This will strongly support the adoption of a balanced scorecard in the Faculty of Engineering and the wider organisation if it is adopted across all departments.
- The proposed balanced scorecard framework will have to be developed with the faculty goals and objectives which are aligned to the institutional strategy.

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APPENDIX A1

Informed Consent Letter 3C

UNIVERSITY OF KWAZULU-NATAL GRADUATE SCHOOL OF BUSINESS AND LEADERSHIP

Dear Respondent,

If you have completed the survey on Question Pro, Thank you. If not please fill in and return to:

Dept of Chemical Engineering, S4 level 1

MBA Research Project

Researcher: Dr Manimagalay Chetty (0837841079)

Supervisor: Dr Abdul Kader (0829010225)

Research Office: Ms P Ximba 031-2603587

I, **Manimagalay Chetty** an MBA student, at the Graduate School of Business and Leadership, of the University of KwaZulu Natal. You are invited to participate in a research project entitled: **IMPLEMENTATION OF THE BALANCED SCORECARD IN A HIGHER EDUCATION INSTITUTE: A CASE STUDY OF DURBAN UNIVERSITY OF TECHNOLOGY**. The aim of this study is to solicit information from employees regarding performance management systems at Durban University of Technology (DUT). The information and ratings you provide us will go a long way in helping us understand current practices at DUT. Through your participation I hope to review current practice in performance management and help develop a framework for the implementation of a performance management system at DUT. The results of the focus group are intended to contribute to the development of a framework for the proposed performance management system.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequence. There will be no monetary gain from participating in this survey/focus group. Confidentiality and anonymity of records identifying you as a participant will be maintained by the Graduate School of Business and Leadership, UKZN.

If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me or my supervisor at the numbers listed above.

The survey should take you about **10-15** minutes to complete. I hope you will take the time to complete this survey.

Sincerely



Investigator's

Date _____

signature _____

This page is to be retained by participant

APPENDIX A2

UNIVERSITY OF KWAZULU-NATAL GRADUATE SCHOOL OF BUSINESS AND LEADERSHIP

MBA Research Project

Researcher: Dr Manimagalay Chetty (0837841079)

Supervisor: Dr Abdul Kader (0829010225)

Research Office: Ms P Ximba 031-2603587

CONSENT

I.....(full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project.

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

SIGNATURE OF PARTICIPANT

DATE

.....

This page is to be retained by researcher

BIOGRAPHICAL DETAILS

Mark with an X in the relevant boxes.

What is your age?

1. 20-29
2. 30-39
3. 40-49
4. 50-59
5. 60-69
6. >70

1.	2.	3.	4.	5.	6.
----	----	----	----	----	----

What is your Race?

1. Indian (or Asian)
2. Coloured
3. Black
4. White

1.	2.	3.	4.
----	----	----	----

What is your gender?

1. Male
2. Female

1.	2.
----	----

How many years have you worked for DUT?

1. <5
2. 5-9
3. 10-19
4. 20-29
5. 30-39
6. >39

1.	2.	3.	4.	5.	6.
----	----	----	----	----	----

What position do you hold at DUT?

1. Executive Management
2. Middle Management/Director/Dean
3. Head of Department/Section

1.	2.	3.
----	----	----

How many employees are within your responsibility?

1. 0-9
2. 10-19
3. 20-29
4. 30-39
5. 40-49
6. 50-59
7. 60-69
8. 70-79
9. 80-89
10. 90-99
11. >99

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
----	----	----	----	----	----	----	----	----	-----	-----

Which section do you work in? Academic/Academic support/Administrative

1. Academic
2. Academic Support
3. Administrative
4. Other

1.	2.	3.	4.
----	----	----	----

ASSESSMENT OF CURRENT PERFORMANCE MANAGEMENT PROCESSES OR MODELS USED AT DUT

Do you have a process to improve performance of staff?

1. No
2. Somewhat
3. Yes full operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Are you aware that DUT has a Performance Management Policy in place

1. No
2. Somewhat
3. Yes full operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is performance managed in Financial areas?

1. No
2. Somewhat
3. Yes full operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is performance managed in areas related to Customers/Students?

1. No
2. Somewhat
3. Yes full operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is performance managed on areas related to internal processes?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is performance managed in areas related to organisational learning?

1. No

2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is there a commitment from high level leadership to a performance management system?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Do leaders foster an organisational culture on performance?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is there a process or mechanism to align your performance with the institution's strategy?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is there a process or mechanism to align your performance with the institution's budget?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Are managers trained to manage performance?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Are managers trained to develop and improve performance?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Are personnel and financial resources assigned to performance management functions?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

PERFORMANCE STANDARDS

Do you use performance standards that are relevant to your activities?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Do you set your own targets with a timeframe?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Have individual performance expectations been communicated to you?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Are staff trained to understand and implement performance measures?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is there sufficient personnel and financial resources to ensure that activities are guided by performance standards, indicators and targets?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.

PERFORMANCE MEASUREMENT

Do you have specific measures for your established performance standards and targets?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
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Are the measurements selected in conjunction with the institution to prevent duplication?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Are there methods and criteria for selecting performance measures?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is training available to help staff measure performance?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Are personnel and financial resources assigned to collect performance measurement data?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

REPORTING OF PROGRESS

Do you document your progress according to your performance standards and targets?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is this information communicated to managers and leaders?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Are managers at all levels accountable for reporting performance?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is reporting part of your strategic planning process?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is training available for staff to effectively analyse and report performance data?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Are your reports communicated effectively to ensure that the results can be used for decision making?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Are personnel and financial resources allocated for performance analysis and reporting of progress?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

QUALITY IMPROVEMENT PROCESS

Do you have a process to improve quality?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Are the performance procedures, timeframes and benchmarks or targets communicated to you?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
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Are the staff evaluated for their performance improvement?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is there capacity to take action to improve performance when changes are required in policies, programs or infrastructure?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is there a process or mechanism to develop performance improvement with timelines, actions and responsible parties?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Is there training available for quality improvement for managers and staff?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----

Are personnel and financial resources allocated for the quality improvement process?

1. No
2. Somewhat
3. Yes fully operational
4. Not applicable

1.	2.	3.	4.
----	----	----	----