The management of quality function deployment in a master's programme

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In

Assessment and Quality Assurance

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Declaration of originality

I hereby declare that this thesis is my own work and that, to the best of my knowledge and belief, I have acknowledged any work produced by others. I further declare that this thesis neither reproduces nor resembles material that has been accepted for the award of any other degree or diploma.

Signature

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Abstract

At attainment of independence in 1980 the Zimbabwe Government adopted an egalitarian approach to the provision of education. Primary education was made compulsory and by 2008, the number of primary schools had increased by 136.98% and enrolments by 1980.38%. At the secondary school level the number of schools increased by 1132.77% with enrolment galloping to a figure of 1155.74%. At pre-university level student enrolments shot to 1125.86%. The ripple effect propagated right into higher education, putting constraints on quality of academic staff, quality and supply of resources, and the content and processes of management, leadership and instruction. A gradual reduction in State funding and its total withdrawal for postgraduate level forced universities to device own self-funding strategies. To meet the multiplicity of demands from multiple stakeholders the Chinhoyi University of Technology Graduate Business School (CUTGBS) adopted a QFD approach.

The purpose of the case study was to assess and evaluate the response of a university business school (CUTGBS) to a QFD-based model for assuring quality in a structured master's degree programme. A multi-method approach that included in-depth interviews, focus groups, documents analyses and observations was used to assess and evaluate the response of staff in the CUTGBS to the model and to the manner in which the model was rolled out. Interviews involved academics, non-academic staff, students, alumni and senior managers within the CUTGBS. Interviews were also held with staff in the Ministry of Higher Education and Training, industry, and the Zimbabwe Council on Higher Education (ZimCHE), the national quality assurance agency.

The purpose of the study was to contribute to our understanding of how staff in the educational services sector respond to Business-based quality models by assessing and evaluating the adoption of QFD in a university Business School. A better understanding of quality management in terms of the tools and stages of the QFD model should create a new dimension of quality management in higher education against the domains of context, inputs, processes and market-orientation.

The CUTGBS took a structured and deliberative approach in the adoption of QFD. A core-team of permanently employed academics and non-pedagogic staff constituted the core QFD team which had the key strategic role for the CUTGBS. There were evidences of team-work-quality on the parameters proclaimed by Hoegl and Gemeunden (2001). The CUTGBS staff participated in running 'Voice of Customer' based on a Six Sigma paradigm. There was marginal use of Affinity Diagram, Tree Diagram and Kano's model in the treatment of Voice of Customer, a situation that has the danger of skewing decisions in favour of the domineering members of the team. However in situations of 'ideal speech situation' (Harbermas, 1995) and deliberative democracy (Gutmann and Thompson, 2004) it has the advantage of deep-going aspect-by-aspect deliberations. Much of the normative and regulative requirements of the quality assurer were treated as 'voice of market' and thus escalated to the CUTGBS policy regime.

Student Evaluation of Teaching Effectiveness (SETE) were used for Customer Satisfaction Performance evaluations, Goal Setting, and for scoping Target Value within the QFD paradigm. In essence QFD was adopted creatively and implemented on a selective incremental approach.

Being a case study, the findings of this study have an indicative rather than a conclusive value. However the validation study indicated the feasibility of using QFD as a quality assurance model within the higher education system.

Key words

Quality, deployment, function, constraint, strategy, noise, categorisation, interface-mapping, case-owner; target-value

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LIST OF ACRONYMS

AACSB Association to Advance Collegiate Schools of Business
ABET Accreditation Board for Engineering and Technology
APQN Asia-Pacific Quality Network
CUTGBS Chinhoyi University of Technology Graduate Business School
DFSS Design for Six Sigma

EQUIS	European Quality Improvement System
INQAAHE	International Network for Quality Assurance Agencies in Higher Education
IUC-EA	Inter-University Council of East Africa
KASUB	Knowledge Attitudes Skills Understanding Behaviour
MFSS	Marketing for Six Sigma
ODT	Optimal Distinctiveness Theory
PQA	Programme Quality Assurance
QA	Quality Assurance
QAA	Quality Assurance Agency
QFD	Quality Function Deployment
SSPD	Six Sigma Process Design
SBT	Strategic Balance Theory
TFSS	Technology for Six Sigma

LIST OF ABBREVIATIONS

M.Sc.	Master of Science

CHAPTER 1 – PROBLEM STATEMENT, RESEARCH RATIONALE AND RESEARCH QUESTIONS

1.1 Introduction

This chapter introduces the research in terms of its context and outlines the structure of the thesis document. The next section is a highlight of the post-independence expansion of the education system, which resulted in institutional and programme massification towards the end of the 1990s. A statement of the research problem is presented in terms of its four senses – source, primary source, context and action senses. The aims, rationale, research objectives and the research questions of the study are discussed. The chapter closes with a presentation of the structure of the thesis document.

1.2 Expansion of Zimbabwe Education

Upon their attainment of independence in 1980, the Zimbabwean government adopted an egalitarian approach to the provision of education. Primary education was made compulsory and by 2008, the number of primary schools had increased by 136.98% and enrolment had increased to 1 980.38% as compared to 1980 figures (International Conference on Education (ICE, 2008). In its efforts to avail education as a basic human right to the young and the old, access to secondary education was also made easier with the number of secondary schools increasing to 1 132.77% and enrolments to 1 155.74% by 2008, as compared to 1980. Pre-university or Advanced-level student enrolments increased by 1 125.86% (ICE, 2008:4). Of the deserving 8 000 applicants who had applied for admission to the University of Zimbabwe in 2000, only 3 242 (40%) were enrolled (Garwe, 2007:5). By 2006, the number of national universities had grown from one (1) in 1980 to thirteen (13) in 2006, an increase of 1 200% (ICE, 2008:4).

By 2013, there were 15 operational universities in Zimbabwe, nine of which were state universities and the other six being private universities. The total number of state universities was projected to go up to 12 by 2015, bringing the total number of universities to 18 for a population slightly under 13 million. There were also three polytechnic colleges that were teaching undergraduate courses under the mentorship of senior universities: National

University of Science and Technology, University of Zimbabwe, and Midlands State University. There are currently more than ten polytechnic and 30 normal colleges that are affiliated to different universities, with their compound number of programmes running well into thousands.

Internationally, the accelerated increase in undergraduate output has been reported as having a ripple effect of creating an enormous demand for postgraduate education and triggering the proliferation of demand-absorbing (Lin et al, 2005; Bing, 2009; Wu, 2009) diploma and degree mills (Altbach et al., 2009:xii), garage universities (World Bank Report, 2000:32), and pseudo universities (Altbach et al., 2001:8) offering low-quality programmes (Lomas, 2002:1; Gamage, et al., 2008; Altbach, et al., 2009; Gregorutti, 2011). The Organisation for Economic Cooperation and Development (OECD) (2008) observed the doubling of higher education student population from 68 million in 1991 to 132 million by 2004 and today higher education qualifications are ubiquitous. In his prize-winning paper, Akerlof (1970) described poor-quality goods as 'lemons' and warned that they have the danger of replacing products and services of higher quality and of greater use to buyers and users. This amounts to low-quality, less rigorous, less relevant and unfit-for-any-purpose programmes replacing more rigorous, more relevant, value-adding and fit-for-purpose programmes. The long-standing debate on the quality of education appears to have gone thicker, with more voices and greater and more pronounced demands that HEIs must show what they are doing about improving the quality of their institutions, curriculum, graduates and everything in between (Shah and Nair, 2014:148; El-Khawas, 2014:183). The responses have been multiple in form and in content, with some HEIs adopting new structures, models, policies and strategies (El-Khawas, 2014:184). The results range from disappointments to something to write home about and to celebrate. Explanations about either success or failure are equally numerous.

1.3 The Statement of the research problem

The drivers and forces that have characterised the higher education landscape internationally have not spared Zimbabwe. Some of the forces and drivers of change that are transforming the higher education landscape include:

- massification (Brittingham, 2009:7; Stensaker and Harvey, 2011; Shah, 2013:359;

Altbach and Salmi, 2011:12 and Altbach, 2012);

- marketisation (Considine and Painter, 1997:5-6; Marginson, 2000:23; Bolland and Fowler, 2000; Szekeres, 2004; Dewi, 2011:209; Gopinathan and Lee, 2011:287);
- commoditisation as HEIs are selling education just like private enterprises sell a private good (Deem, 2001; Dixon, 2006; Clark, 2011:1; Mok and Cheng 2011:231);
- globalisation (Altbach and Knight, 2007:291; Altbach et al., 2009, 2011);
- diversification of the higher education market (Coaldrake, 1998:1), and
- increasing stakeholder quality literacy and stakeholder activism in driving changes in higher education (Organisation of Economic Cooperation and Development (OECD), 2008:3-4; Jones et al., 2012:68).

These forces are shaping higher education discourse and practice across the world (Krucken, 2011:1). In the fast transforming higher education landscape most business schools have been pressured to adopt business strategies in the hope that they would be more competitive by increasing stakeholder satisfaction (Crebert, 2000:74; Abdous, 2011; Zineldin and Vasicheva, 2012:65; Caspersen et al., 2014:195). The number of higher education institutions that have transcended from traditional bureaucratic management styles to adopt variants of the New Public Management (NPM) and managerialism (Shore and Wright, 2000; Strathern, 2000; Morley, 2003; Blackmore, 2009) has been increasing over the years. In spite of this increase, research publications have remained ambivalent on whether the relevance of education has improved over the years as a result of the adoptions (Nusche, 2008; Remler and Pema, 2009; Haggis, 2009; Coates, 2009 / 2010; and Trigwell, 2011). In actual fact, what has attracted some inquiry is the compatibility of the industry-based model with the education sector; whether management in higher education institutions would be willing and able to contextualise the models; how to mediate the differences between the industry-based nature of the models and the services sector-based environment; and dealing with project change management that is called for by most adoptions (Kohn, 1993; Owlia and Aspinwall, 1997:279; 541; Franceschini, 2002:117; Pompili, 2010:239; and Narang, 2012:359).

In Africa, such models have been applied in Ethiopia, Nigeria and presumably other countries (Mohamedbhai, 2008). While some researches assert that some of the successes of

higher education institutions are anecdotal, many authors feel that management should shoulder the blame for failure rather than the models they use (Keller, 1993; Ho and Wearn, 1995; Birnbaum and Deshotels, 1999; Crebert, 2000; Franceschini, 2002; Senge, et al., 2007; Stensaker, 2008; Chan, 2009; Ficalora and Cohen, 2009; Mukaddes et al., 2010; Bolden, et al., 2010).

QFD is not widely understood, let alone tested in higher education in its completeness. Driving it to the central core of institutional mental model and the institution's fabric of behaviour is not supported by dedicated theory and we live by the assumptions that it should call for sets of skills which need time to build and perfect. The adoption and roll-out of QFD should be further complicated by its multiple-stage nature and how people come to share visions around its governance, diffusion and strategic value in the contexts of previously established models of management and services delivery. Many find QFD tools numerous, too technical in their nature and unfamiliar to the discipline of education yet they find the philosophy of QFD beguiling.

In 2005 the Graduate Business School (CUTGBS) of the Chinhoyi University of Technology (Zimbabwe) adopted a QFD-based model as a strategic framework to guide its efforts of developing a high quality M.Sc. Programme in Strategic Management. It is in this backdrop that the research problem was to contribute to our appreciation of quality and quality assurance and to the growing but still limited understanding of the adoption and implementation of New Public Management (business) models by examining how the CUTGBS adopted and diffused the various stages and tools of QFD and its implication on the quality of the M.Sc. Programme. Plugging research findings with literature on QFD and models traditionally applied in higher education, theories of organisation management, education and institutionalisation should help us expand our understanding of the dynamics of quality management particularly using business models.

1.4 Research aim

In the light of the research problem, this thesis seeks to systematically interweave the three most common research dimensions: research and elaborate upon current knowledge on

Figure 1.1: The three aims of the study as synthesised from the literature

adoption of QFD, its diffusion, institutionalisation and performativity as a Quality Assurance model; densify our knowledge and understanding of QFD and its implementations by assessing data and literature; and lastly to evaluate (by systematically examining data, theory and how they plug into each other) the merits, spill-overs and externalities suffered or enjoyed by the CUTGBS as it implemented QFD. The three aims of this study are intimately interwoven to the extent that the best way to present the findings is by way of using a 'threshold' approach rather than a rigid code-by-code approach. Figure 1.1 shows the interweaving relationship between the three and how each one acts as a gear to rotate the others and move the study in ways that have meaning to policy, practice and knowledge development (Levin, 2013:3 / 4). QFD is a very self-contained model. It is a measurement, assessment and evaluation tool. The research also sought to discover to what depth CUTGBS staff were using QFD tools to measure, assess and evaluate self-efficacy or internal efficiency of the QFD model at doing the work for which it was adopted and therefore the construction of meaning of the model.

1.5 Research objectives

The study was driven by five main objectives:

- To explain the characteristics and nature of QFD
- To discover the motivation of the CUTGBS in choosing the QFD model
- To assess staff response to the QFD model and the way it was being institutionalised
- To evaluate the intensity of use of QFD tools and techniques and the implication on the level of adoption of QFD
- To discuss staff perceptions on the implementation and institutionalisation of the QFD model for purposes of quality assurance in the M.Sc. Programme.
- To evaluate the responses of management to results of application of the QFD model.

1.6 Rationale for conducting the research

A better understanding of programme quality management in terms of quality function deployment and market orientation should create a new dimension of quality management in higher education with respect to the dimensions of input, process, output and market needs. It also gives a perspective of quality management in terms of strategy planning, making the planned strategies work, strategy implementation through a project-and-change management portfolio and the strategic management of the accompanying risk interdependency field. Prior to this study, I had numerous conversations with staff in the Zimbabwe Ministry of Higher Education, Zimbabwe Council on Higher Education and other universities who confirmed that no prior research of this nature exists and that it would be most welcome to have such research.

1.7 Research questions

The main question driving this research is:

How did the CUTGBS adopt and manage Quality Function Deployment in the M.Sc. Programme?

The rest of the questions are structured around the strategy focus wheel and the 14 management best practice (also referred to as excellence) principles. The strategy focus wheel and the 14 principles both epitomise the QFD approach.

- What is the nature of QFD?

- What strategic planning issues motivated the choice and adoption of QFD in the CUTGBS?
- How did staff respond to the QFD model and its institutionalisation in the CUTGBS?
- How effective was the implementation of the QFD tools in the M.Sc. Programme?
- What were the perceptions of staff to both internal and external quality assurance interventions?
- How did management respond to the results of the implementation of QFD?

1.8 Structure of the thesis

The thesis consists of six chapters.

Chapter 1 has abstracted the research through an introductory exposition that covers the state of higher education in Zimbabwe, the 'case', quality assurance concerns and research accoutrements and elements.

Throughout chapters 2 and 3 I have reviewed literature mainly on new public management models, QFD, organisational management, organisational research and quality assurance. I discuss, synthesise and critically evaluate theories, propositions, and arguments by the authors. This way I have been able to position this study in respect to prior research, critique research approaches used, outline gaps in past research and those that can be filled in by future research. This process should help this study make a worthy contribution to knowledge and practice.

In sections 2.4; 2.8; 2.9; 2.10; 3.2; 3.3; 3.4, and 3.17 I variably discuss the variants of QFD and assess the pros and cons of each variant. In sections 2.3; 2.5; 2.6; 2.7; 2.11; 3.4 and 3.6 I variably explore the various factors that attract organisations to adopting new modes of doing their businesses. In sections 2.3; 3.1 and 3.18, taking a strong bias on the functional-goal orientation-conflict perspective I critique modes by which organisations respond to their environments and the propositions emerging from their interactions. In sections 2.11; 2.12; 3.1 and 3.12 I discuss contexts in which new frameworks are created and operated and how people transform their modes of evaluating what they do. In sections 2.7; 2.11; 3.5; 3.6; 3.9; 3.10; 3.11 and 3.16 I assess the literature on internal and external quality management systems and their resultant impact on organisational dynamics. Lastly I have looked at how management can respond to models and the results particulars from offshoot ventures in

semi- or fully federated institutions-an emergent configuration in traditional universities. Throughout the two chapters the analysis of literature has been hinged on the theoretical perspective that risks are commonplace in organisational infrastructures but what is especially uncommon is the ability to fully control your organisation's risk interdependency field collaboratively, cooperatively and communicatively. The conceptual framework created a galaxy of lenses through which success or failure can be owned through a choice of doing well or not the deployment of resources, rules, interfaces and everything that creates the unique quality the customer expects.

Chapter 4 discusses the research methodology and makes a case for the choice of qualitative research and the case study approach.

Chapter 5 presents the findings and their analysis based on the stages of the QFD's House of Quality. The interesting thing is to plug data and theory and evaluate whether QFD could offer a new and more coherent epistemology of doing quality and assuring it within education.

Chapter 6 discusses the research findings and suggested recommendations as well as implications of the study. The important question is why has poor quality education dogged us this long? Do we need to transform our epistemological positions to see the weakness in our practice so that we may adopt new models for insuring quality in education?

1.9 Conclusion

Post-independence adoption of an egalitarian educational approach led to a massification of higher education in the decades of the 90s upward. The case study examines how the CUTGBS adopted a QFD model in its structured Master of Science degree Programme and the response of staff thereto. Research objectives and questions have been explained. The next chapter presents the theoretical perspective, conceptual framework and a description of QFD.

CHAPTER 2 – THEORETICAL FRAMEWORK, CONCEPTUAL FRAMEWORK AND A DESCRIPTION OF QUALITY FUNCTION DEPLOYMENT

2.1 Introduction

This chapter discusses the theoretical and conceptual frameworks undergirding the study. It also discusses the QFD model. In section 2.2 the theoretical perspective for this study is explicated. The set of assumptions underlying the research is that the success or failure of an organisation reflects the ability of those in it to manage the organisation's risk interdependency field. In section 2.3 the conceptual framework is discussed. A five-strand Strategy Focus Wheel, with each strand supported by some management best practice principle(s) is discussed. These best practice, also called excellence principles are the vehicle and media of deployment of quality throughout the organisation's structures, functions, interfaces, processes and the mental models that design and put the principles to work.

In section 2.4 the three perspectives of QFD are presented and I argue that it matters a lot to be unambiguous about 'quality', about how to pursue it and about the most favourable organisational culture. From section 2.5 through 2.8 I discuss the use, growth and philosophy of QFD. By means of a handful literature reviews (section 2.9) I show that the use of QFD in education is no longer numinous. In section 2.9 the quality-innovation helix is presented. The core of the helix is that in QFD quality is a practice that hinges on protracted improvements and innovation and not on inspections and compliances designed by a few. This perspective calls for a huge change in the ways the professoriate should carve their place and define their roles within the totality of university actorhood. See next section for an explication on actorhood. Section 2.10 presents QFD as a high-level strategy planning tool with 2.11 discussing how this role can be constrained by poor relationships, policy, resources and their interfaces. This point is reiterated in the Theory of Constraint which is the theoretical perspective underpinning this study. .

2.2 The underlying theoretical perspective

QFD is a methodology which in itself embodies a number of powerful and popular perspectives. The fundamental perspective informing this research is fundamentally the

'Theory of Constraint' which assumes that until and unless an organisation identifies its risk factors and key constraints it can never be able to optimise its performance on any of its goals and objectives (Scheinkopf, 1995). The Theory of Constraint is a set of concepts and methodology directed mainly at achieving the most effective and efficient flow of organisational resources through continuous process improvement (Institute of Management Accountants (IMA), 1999:3).

Achieving the most effective and efficient way of transforming resources into goals is also the sublime aim of QFD. So why deploy the theory of constraint when you are already using QFD? In the early stages of the adoption of QFD, it is important to have a thorough strategic plan in place to identify risks / constraints and to detail and profile them. Such action helps us to understand the organisation's risk interdependence field and its mobility. QFD offers the methodology of embedding the risk-response strategies into the processes of the organisation. The basic assumptions of the Theory of Constraint also apply to QFD, Six Sigma and other management models, and include the following:

- The view of an organisation as a mobile network of interdependent structures, functions and processes (Moscovic, 1998; Elias, 2000; Flick and Foster, 2007; and Flick, 2007:19). Elements of the phenomenological figuration perspective are adopted in this study.
- The view that there is an interdependence relationship between policy, structure-structure; structure-function and function-function relations and their interfaces and that a mosaic of cause-effect relations exist among these organisational factors (Pearce and Robinson, 2009).
- The sublime aim of organisational management is to optimise organisational performance and be out front (Bryson and Alston, 2005:47; Bevington and Samson, 2012:49). The study assumes that the adoption of QFD in the CUTGBS was done with some conscious goal relating to enhanced quality performance in the minds of management and staff.
- Each organisation has at least one major constraint and ignoring or disregarding the distinction between constraint factors and non-constraint factors inevitably leads to wrong decisions. When a model is adopted it is important to be sure that no constraints are brought in with the model apart from the many others that may already exist or will arise due to the numerous adoption activities (Oakland et al., 2002:1126).

- High-performance organisations are fundamentally 'systems' genomes that leverage performance on a 360-degree vision of everything and they consider everyone as equally important (Dougherty, Barnard and Dunne, 2005:38; Bevington and Samson, 2012:172).
- Different organisations experience different risk interdependency fields characterised by multiple and complex cause-effect relationships (Roberts et al., 2005:9).
- Humans think and act according to how they live and shaping relations and perceptions and garnering stakeholder engagement is a critical success factor for any strategy and its implementation (Jauch and Orwig, 1997:280; King, 2004:11; Temtime and Mmereki, 2010; Jones, 2014:13).

The view of the Theory of Constraint held in this study is that an organisation like the CUTGBS is a purpose-oriented and ever-evolving organic entity constituted by a plethora of factors that form a web of interdependent relationships in which a change with one factor ripples some modification throughout the web of the relationships. This new view of the higher education institution, like the CUTGBS as an actor (Steenkamp et al 2012:380) alongside other actor-institutions in society pervades this study. This view fits in with the three fundamental sociological perspectives: structural-functional, symbolic interactionism, and social conflict. Conjointly they view an organisation as multiple complex structures, each with sets of functions and the inequality among the structures and the diversity of functions continually generating conflict and change. Any such change is likely to improve or constrain performance of the organisation. In the ultimate instance success and failure of an organisation can be explained in terms of the organisation's ability to manage both positive and negative constraints – the risk interdependency field. This is the idea embedded in the discussions that follow through to chapter 6 of this thesis, the idea of organisational actorhood.

Thomas (2007), Whitley (2008) and Macfarlane (2012) think the professoriate ought to be more involved in strategy formulation at both the national and institutional levels. This is the quintessence of actorhood: participation, inclusion and social responsibility. Actorhood in QFD is about doing these with the goal of improving the organisation's customer satisfaction performance. The ideas of participation (and more so presencing), inclusion and social

responsibility (feeling beholden to fulfil the Voice of the Customer and the mission of the organisation) pervades all future arguments on customer satisfaction performance and the value of QFD. Crotty (1998:3) conceptualises a theoretical perspective as the philosophical position or stance that informs the methodology and thus provides a context for the research process. Broido and Manning (2002:434) and Meloy (2008:141) reinforce Crotty by arguing that the method cannot be disengaged from theory and other accoutrements of pre-understanding which in their core influence the hermeneutics of interpretation and representation of what is studied. Figure 2.1 below captures these positions and will create a basis for future understanding of how QFD can work as a method for programme quality assurance (PQA). Most models for quality assurance are input-based and focus on the presence of sets of inputs without interest on assessing and evaluating how the inputs are actually transformed to meet the needs and wants of the various customers. QFD conceptualises quality in terms of those inputs, their interfaces, as well as in terms of how they get transformed and delivered. This characteristic of QFD should give it an edge over the other quality models. But how well it will do it depends on the perceptions and competences of those adopting and working the QFD model.

The successes of the Theory of Constraint and QFD within public, private, manufacturing and service sectors including education are widely ventilated in literature (Nutt, 2002; Vora, 2002 and Bernasconi, 2011). My discussion of figure 2.1 below should help to show the incremental adoption of the Theory of Constraint and elements of QFD in education. With this we should be able to assess and evaluate how HEIs ought to manage constraints to quality and the QFD model. The Theory of Constraint and QFD cover similar areas of management: operations-production management; strategy and tactics; distribution and supply chain management; finance and measurement management; sales and marketing management; project management and people management (Srinivasan et al., 2005). An overemphasis of one aspect or sticking with archaic assessment tools can become a hindrance to quality improvement within higher education institutions. Figure 2.1 show the evolution of the focus of quality assurance models. In its infancy (per Figure 2.1) the control for quality was centred on the process of doing the job and this was the prerogative of the craftsman.

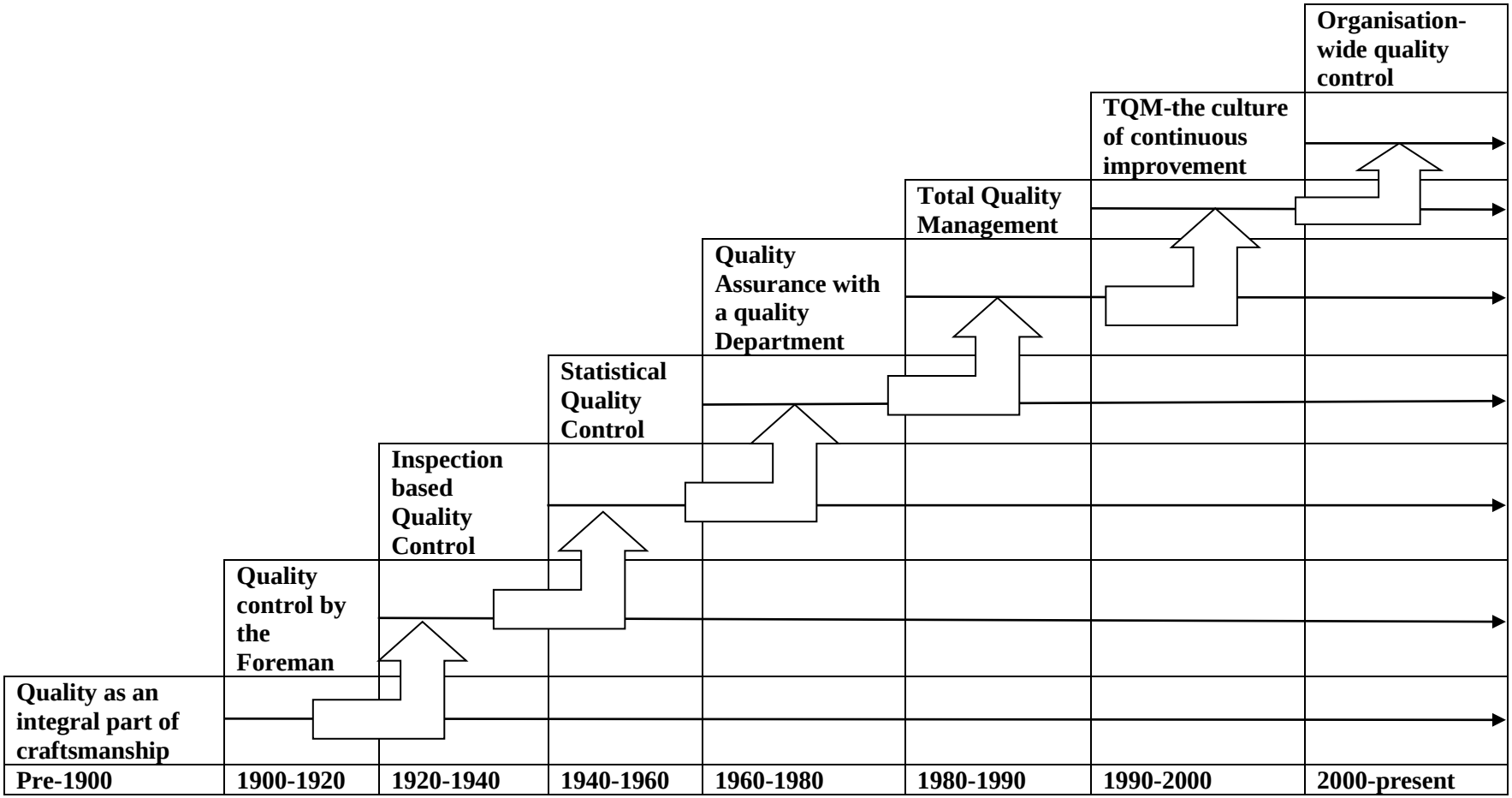

Figure 2.1: Evolution of the idea of quality assurance (Dale, 1999 and Sallis, 2012)

After the 1890's the assumption was that quality should be controlled from outside by the foreman. There were no modifications that could be featured on products and services without prior approval by the foreman. As from the 1920s quality began to be inspected by teams and the inspection would be based on some pre-determined criteria. Workers would receive training and apprenticeship and would be trusted to produce goods and products that would meet the wants and needs of the customers. Products with minor defects (rejects) would be sold at give-away prices. The worst ones would be reworked or salvaged and destroyed. As industrial production increased and science and technology advanced bringing new and innovative ways on the market there arose mathematical and statistical ways of controlling for quality. By the 1960s quality departments began to emerge in companies with the roles that included studying competition and their products' sales points with the idea of building a body of knowledge that would be used to improve and innovate on own supply and production chains. Up to this point quality assurance had a front-end character.

It was with TQM that quality began to be pushed upstream and focus on both the quality of inputs as of the throughput processes. A factor that continued to be overlooked was the philosophy of quality. The value of the non-technical, the human dispositions and mental modelling were apparently neglected. QFD began to gain prominence with its advocacy for Voice of the Customer. But still many did not understand what Voice of the Customer was supposed to mean and today it still remains for most organisations an end in itself to gather Voice of the Customer.

In thick QFD, Voice of the Customer is but a means, a point of departure and a premise for escalating the expectations of the various customers into the organisation's management and production strategies. In more innovative QFD cultures Voice of the Customer is a means to understanding the market, not an end in itself or a show of blind compliance. Voice of the Customer should be translated into Six Sigma roadmaps and escalated to Product Planning Matrix. Doing this aligns the creation of products and services to the needs of those who will use the products and services. In deed the strategic value of Six Sigma within QFD is to enhance the market-orientation of products and services. Having discussed the elements of the Theory of Constraint the next section looks at the conceptual framework that facilitates

the organisation of the assumptions and ideas so that the research objectives are accomplished.

2.3 Conceptual framework underpinning the study

2.3.1 Introduction

QFD is a broad and quite inclusive model. Some of the elements of QFD can be used within other methodologies and in such case QFD or more precisely the particular constituent element will be referred to as a tool. When QFD uses constituent elements of other models then those elements are referred to as tools or techniques within the QFD methodology. QFD is generally used as a measurement, assessment and evaluation tool. It is also a generic strategic planning framework and for these reasons a conceptual framework that scopes QFD in its wholeness should be broad and inclusive of all structure-structure, structure-function and function-function relationships that manifest in organisations. I have just mentioned that the thesis embodies a structure-function-conflict triad perspective to organisational research. This understanding justifies this thesis's inclusion of an in-depth discussion of QFD, its links with the 14 management Best Practice Principles and programme quality assurance (PQA). The 14 Excellence Principles are also referred to as Best Practice Principles (see Sahle et al., 2004b; Bevington and Samson, 2012). QFD has been variably used in education but mainly as its stages or tools. This is a first research (to the best of my knowledge) to focus on an organisation that has tried to use QFD in its totality on an educational programme.

2.3.2 Strategy focusing through the 14 Best Practice Principles

To implement change that transforms an institution, the workforce must have a forensic knowledge of the landscape of the institution: its task, market and broader macro-environment (Bertolin and Leite, 2008 and Bevington and Samson, 2012). In a QFD context, a Six Sigma approach can be used to gather this information through:

- Voice of Customer (VoC);
- Voice of Employee (VoE);
- Voice of Market (VoM), and
- Voice of Business (VoB) and the organisation's other knowledge generation processes and intelligence processing systems.

Without this knowledge, the workforce will not know where they are, why they must change, how they should do 'the change' and where 'the change' will take them. Fourteen major management principles have been seen to facilitate the implementation of change initiatives in organisations (Bevington and Samson, 2012:30). The 14 principles, shown in Table 2.1 except 'profiling positive and negative' can be distributed into a model of the 'Strategy Focus Wheel' developed by academics at the Edinburgh Business School and it has been validated over the years as a consultancy model (Roberts and MacLennan, 2006:10). The modified model is shown in Figure 2.2 below. The original model has the following four strands:

- Strategic Planning;
- Making Strategies Work;
- Change-Project Management; and
- Strategic Risk Management.

The four strands together complete the picture of an organisation that is primed for success in its markets. However in this research it is critical that the strand 'continuous improvement' be added because the idea of being out front, and never-endingly work to continuously improve products and services is not as common in former public services institutions even so with most HEIs that have long been stand-alones.

A mental model that believes in never-ending improvements must be anchored in a broad forensic understanding of the gaps among the organisation's structure-structure, structure-function and function-function relationships. People will commit to organisational goals and sector objectives to a measure commensurate with their own understanding of what needs to be done better, how and why that is a necessity (Roux, 2011). Figure 2.2 below shows the structural and operational relationship among the five strands. The inter- and cross connectivity among elements of the inner and outer rings makes the Strategy Focus Wheel a powerful model in explaining organisational dynamics. Organisations cannot be fully represented by simple, straight forward cause-effect models. This is consistent with the organisational theories that portray organisations as complex, mobile, unequal co-adaptive organic entities. Case study organisational research would do a disservice by trying to repudiate the complexity of organisations. Equally complex is the effort to link quality

excellence principles with management excellence principles. I now turn to describing the key aspects of Fiugre 2.2 below.

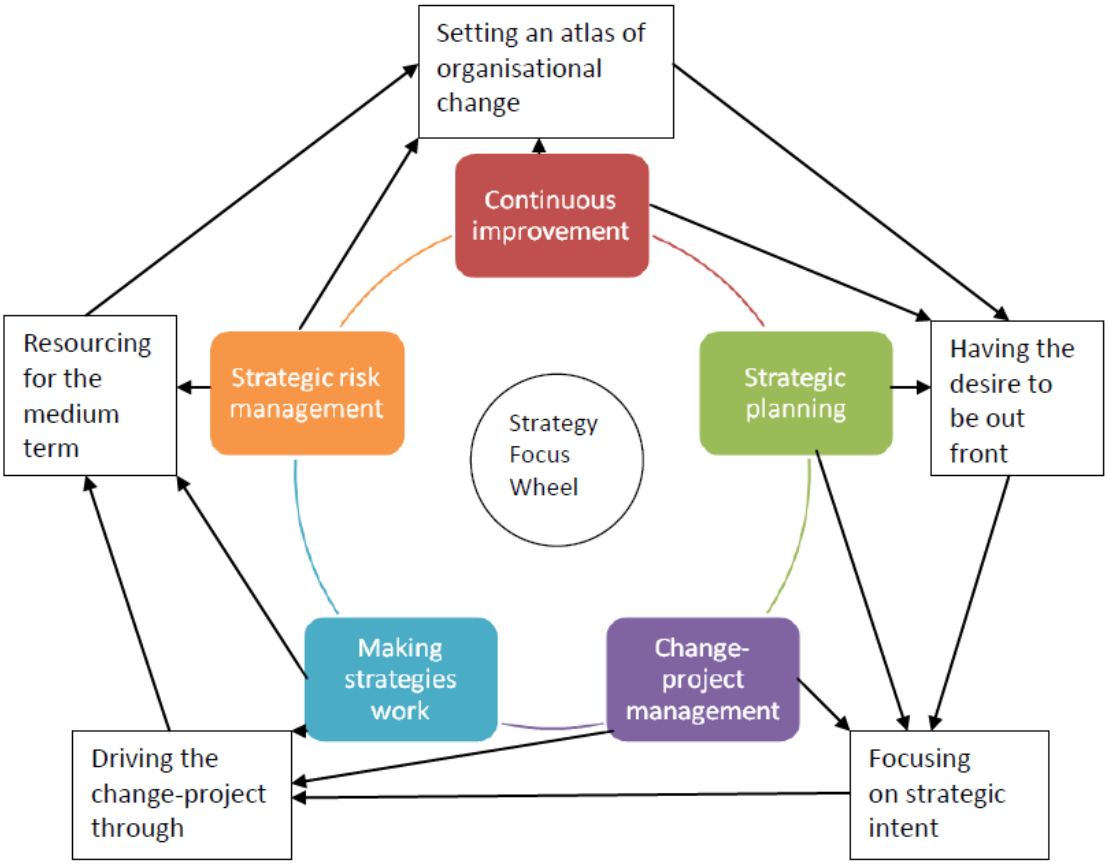

Figure 2.2: Modified Strategy Focus Wheel (Roberts and MacLennan, 2006:11)

A mentality for continuous improvement leads to mapping an organisational atlas for goal-based change which feed the organisation's desire to be out front (the best or leader in the business). A desire for continuous improvement creates the impetus for a new mode of strategic planning aimed at market excellence. But market excellence is a function of the organisation's excellence in leadership. Consequently market, leadership and production excellence must be cast within the organisation's actorhood. This implies framing these within the organisation's strategy and every strategic planning activity. The change-project management infrastructure should roll-out the organisation's focus on its strategic intent, show which strategies have priority and how the projects that bring about the desired changes should be driven through.

Making the desired improvement-focused strategies work while focusing on driving the desired change creates an infrastructure of resources for the near and far future. However the futuristic nature of part of this effort calls for a robust approach to strategically manage strategic level, management level, operational level and unforeseeable risks (contraints). Strategically managing the organisation's risk interdependency field should help the organisation set favourable conditions for future improvements and current performativity. This makes visible the positive and negative constraints within the organisation's landscape allowing thus a more richly informed atlas of organisational change. I discuss each strand of the Strategic Focus Wheel to much greater profundity below.

2.3.3 Continuous improvement

In any educational institution programmes, curricular, structures, processes and behaviours need to be continuously improved in ways that enhance relevance of the institution to its stakeholders. The mentality that precedes the strategy planning process will have a huge impact on the rendition of the adopted strategy. A mental framework for *kaizen*, never-ending improvements, instils learning in the routine and regular processes of the organisation. Organisation-wide continuous improvement effort must be based on sets of developmental vectors. These vectors of development must be premised on a balanced scorecard of all strategic issues in all functional areas of the organisation. This process of organisational analysis must precisely say what needs be improved and the amount and direction of the improvement, why it should be improved and how it will be improved.

In continuous improvement every action / strategy must be premised in organisational analysis, justified for improvement and the improvement effort measured, reported on and documented. This whole process of mapping the field of continuous improvement is like setting an atlas of organisational change. The proposition represented in Figure 2.2 is that the organisation departs from a desire to continuously improve the way it plans, designs, manages and delivers value in its products and services. This mental model sets the premise for organisation-wide improvements on any organisational aspects that have a bearing on Customer Satisfaction Performance. One example is the relevance of a curricular and the amount of educative interaction among students and among students and teachers. According

to Senge et al (2007:48 / 2010a) the quintessence of a mentality for continuous improvement is the realisations that change initiatives that deliver to the marrow should be focalised on learning about learning in settings that matter and:

- are intricately connected with real work goals and processes;
- are connected with improving performance rather than process or institutional visibility;
- selectively involve people who have the clout to take action regarding the particular goals;
- seek to balance action and reflection, connecting inquiry and experimentation in reflexive and proactive ways;
- afford people an increased amount of white space and opportunities to think and reflect without pressure to make decisions or of being beholden to some alien demands; and
- are intended to increase the organisation's portfolio of strategic capabilities at individual, team, sector and organisational levels.

Doing the above would help the organisation develop the collective knowledge, skills, understanding and behaviours that are critical for on-going instructional improvement and the curriculum's Customer Satisfaction Performance.

Continuous improvement sits at the heart of successful innovation and improvement (Al-Kassem et al., 2013) as it can build a firm foundation on which to edify an innovative organisation (McAdam et al. 1998). One of the problematic issues with continuous improvement is that most management think they can demand continuous improvement from their workforce and that they can tie it in with employee employment contracts. True continuous improvements must focus on the improvement of each worker, of all processes, structures and their interfaces. Ignoring workforces' personal mastery skills, their understanding of their individual capacity to produce results and mastering the principles undergirding the way one produces results is a fatal mistake in leadership seeking innovative change. Management must focus on enhancing a desire for presencing, and a feeling for effortless and joyousness in every assignment undertaken (Senge et al., 2005; 2010b).

An important aspect of qualitative case study research is the emergency of a theoretical perspective that reflects on all the nuances of the case issues and be able to blend with a

corpus of articulated theories and concepts that saturates the study with insightful analyses. In this understanding the thesis finds such a link between the Strategy Focus Wheel and the 14 Best Practice Principles of Bevington and Samson (2012). Table 2.1 show the relationship among the elements of the theoretical perspective and the conceptual framework. Every principle in the framework relates with every other strand of the Strategy Focus Wheel. However the strength of the relationship may vary. I have therefore arbitrarily, based on literature reviews, assigned each management best practice principle to a particular strand. I further discuss how each management best practice principle facilitates the purpose of the particular strand of the Strategy Focus Wheel.

Each principle is effectively the vehicle, the rule and resource that deploys quality within the strand it belong. For instance strategic planning is deployed throughout the organisation by a workforce that is pushed by their intrinsic penchant desire to see their organisation emerging as a reckoned quality performer and an innovative organisation. The basic unit of structure and functionality of organisational / university actorhood is the staff. It cannot be denied that staff and academics in well reckoned HEIs equally gain in terms of social status when their organisation takes on the public limelight. Cognisant of this spill-over gain, staff and academics can purse strategies that will balance innovation, improvement and quality. This is the essence of the Strategic Balance Theory (SBT). They too will seek to create organisational elements that will distinguish it and them from others. This is the essence of the Optimal Distinctiveness Theory (ODT) (Galvin, 2009). Strategy balancing and optimal distinctiveness tendencies are not at variance with QFD. I hope we appreciate how staff can be incentivised to improve the lot of themselves and their institutions by the SBT and ODT.

In figure 2.1 above I said that change-project management help the organisation focus on its strategic intent or what it needs and wants achieved. In table 2.1 I show that this effort is deployed throughout the organisation through the management / excellence principles of: integration of effort; being disciplined; creating customer value; being time-based and creating strategic capabilities. From figure 2.1 we observe that making strategies work is a special endeavour directed at getting the proposed change-projects work. This process is resourced and catalysed by a set of rules or principles that guarantee structure-structure,

structure-function and function-function alignment; embracement of change; establishment of a learning culture; relating the micro to the macro; measuring and reporting; supporting distributed leadership and being up front (honest, trustworthy, moral and ethical). Strategic risk management is about creating the resources that will support the organisation's prosperity. This is about watering, fertilising and ensuring the desirable characteristics grow and spread whilst weeds are removed. Resourcing for the medium term is one vehicle that deploys this quality.

Table 2.1 expands on Figure 2.1 by embracing the principles or rules by which each of the Strategy Focus Wheel's strands and each of the segments by Bevington and Samson (2012) is deployed across the organisation. Notice how the brief descriptions relate vertically and horizontally. I explain each level below, however using only strands of the Strategy Focus Wheel.

2.3.4 Strategic planning

Strategic planning concerns the identification of all strategic issues, the options available to the organisation and selecting the most befitting alternative. Strategic planning is crucial in aligning programmes and curricular to the expectations of the markets. Crebert (2000) however reported that strategy development and planning were little appreciated by the professoriate in higher education. Yet around the same time Alexander (2000) had observed that strategic planning was key to student satisfaction, with Stella and Bhusan (2011) pointing out that failed strategies penalise students and stakeholders. It must be realised that a strategy is an ongoing endeavour that builds the organisation's capability for high-quality conversations for action (Conti, 2002 and Senge et al., 2007:515).

Of the 14 management Best Practice Principles the one that best plugs in with the 'Strategic Planning' strand of the Strategy Focus Wheel is ''Having the desire to be out front'' and being the best in the park (see Table below). A desire to be out front with every strategic element of higher education like staff quality, programme relevance, delivery modes and rigour of content creates a set of strategic capabilities that matter the most in market-oriented education.

Table 2.1: Relation between Strategic focusing and the Best Practice principles as synthesised from literature

Strand of the Strategy Focus Wheel (Roberts, 2008)	Segments of the Best Practice Principles (Bevington and Samson, 2012)	Principles / Rules and Resources (Dougherty et al, 2005; Bevington and Samson, 2012)
Strategic planning	**Having the desire to be out front**	**Enabling principle / rule**
Managers engage across the organisation to fully identify strategic issues, options available to the organisation and to find the most appropriate options.	Managers will want their institution, programmes and graduates to be the best on the market. They strive to eliminate interfacing activity noise and invest in productive Customer Satisfaction Performance work	1.Having the desire to be out front and best in the pack
Change-Project management	**Focusing on the strategic intent**	**Enabling principle / rule**
Managers seek to establish an infrastructure of completeness and control over the physical realisation of its strategy. They ensure that tools, techniques and resources are availed so that change can be effectively and efficiently pursued.	Managers establish a clear definition of all key activities and how and who needs to do them and how they should be aligned to the medium and long-term as well as the institutional goal infrastructure.	1.Ensuring integration of effort 2.Being disciplined 3.Creating customer value 4.Being time-based 5.Creating strategic capabilities
Making strategies work	**Driving the change-projects through**	**Enabling principle / rule**
Managers seek best ways of aligning, integrating and linking the micro to the macro so that the the multifaceted day-to-day activities calcify in the delivery of the organisation's high-level strategy	Managers create the enabling environment to foster and drive change that fits into the organisation's atlas of development. They emphasise the need for continual alignment and integration.	1.Gaining alignment 2.Embracing change 3.Establishing a learning culture 4.Relating the micro to the macro 5.Measuring and reporting 6.Supporting distributed leadership 7.Being up front
Strategic risk management	**Resourcing**	**Enabling principle / rule**
Managers seek to ensure that organisational risks are identified, monitored and the organisation's risk envelope is in control	Managers take a longer-term view of resources, behaviours and the organisation's risk interdependence field by influencing behaviour of constraints.	1.Resourcing for the medium term 2.Profiling positive and negative risks

Strategic planning is about having a penchant desire to achieve something, it is about having an aspiration and an ambition and the glue to draw into the mainstream the men and women who traditional bureaucracies would keep in the peripheries of decision-shaping (Dervitsiotis, 2002:1087). Wei et al. (2015) observed that strategic planning with a desire to be out front is crucial for ongoing instructional improvement.

2.3.4.1 Having the desire to be out front

The QFD-based organisation needs a view of what they desire to be through the use of QFD. The implication is that management must be willing to change their way of thinking and behaving if they want QFD to take them out front. Bevington and Samson (2012:175) are of the opinion that ‘‘... business strategy is as much about managing the detail of the deployment of strategically planned change to the organisation’s business processes as it is about positioning the business in its market place.’’ Similarly managers of higher education institutions face the challenge of deploying management best practices and quality excellent principles in ways that would deliver exceptional high quality to the student, industry and society. The conceptual framework to this thesis offers the context for engaging quality and management best practices and a roadmap for their deployment across the organisation. QFD is a rather complex model that embodies very technical aspects, philosophical aspects, human relations aspects and processual aspects of the organisation. There is no better way of deploying strategic planning in QFD contexts than through enacting the management best practice principle of being out front. In the next section I discuss other management best practice principles that act as vehicles for and media of change-project management.

2.3.5 Change-Project management

Change-project management is a tool for ensuring the completeness and the control over the physical realisation of the chosen strategy. The implication of this perspective is that most work is project-based including running higher education institutions, doing quality assurance and the instructional process itself is a project. Without organisation-wide integration of efforts, discipline, considering time as a resource and creating organisation-wide strategic capabilities that focus on enhancing customer value, change and projects are

not likely to mature. Five of the 14 management best practise principles that relate most to change-project management are:

- Ensuring integration of effort
- Being disciplined
- Creating customer value
- Being time-based
- Creating strategic capabilities

Ensuring that the organisation has the ability to manage change guarantees the organisation's ability to co-adapt with the changing internal and external environments particularly within the supply chain and in the customer base.

2.3.5.1 Ensuring integration of effort

Ensuring integration of efforts across the institution matters greatly because most HEIs are made up of numerous structures, processes and functions that different people work on at differing speeds, and sometimes, at cross purpose. The QFD's assumption of at least a central QFD team is based on the understanding that organisations perform better when efforts of individuals, sectors and teams are integrated and subordinated to organisational goals. Integration of effort is crucial within teams, across them and across sectors including with external stakeholders.

Wider discussions and alignment of business processes could help to displace turf warring and fragmentations between higher education institutions and their quality assurance agencies. Senge et al. (2007 / 2012) and Bevington and Samson (2012:177) observed that turf warring, fragmentation, reactivity and competitive behaviour lead to organisational dysfunction. A turf war is generally a struggle for power, control, and other social goods such as recognition among an organisation's stakeholders. Disconnects among students, academics, management, quality assurance agencies and society are widely blamed for poor quality performance of higher education institutions. They are potential causes of turf-warring. In chapter 3 four Six Sigma roadmaps are discussed and their importance in helping to close these disconnects in favour of integration and alignment for quality is underscored. Organisational discipline is one omnipotent tool for establishing alignment and integration.

2.3.5.2 Being disciplined

Policies and organisational structures that are blindly adopted from other organisations would rarely be as effective in the adopting organisation. Interface mapping based on the voices of those who do the work should help to shape policies that people can relate to, thereby appreciating how these policies influence their working environment. Staff generally resist policies that they find oppressive and alien to their culture. Strategic categorisation would help organisational management to identify the kind of work and activities that do not add value to the organisation and harm or are indifferent to customer satisfaction. Strategic categorisation also helps the organisation to understand and monitor the core activities that are value adding (Bevington and Samson, 2012:179). Oakland et al., (2002:1132) explain the importance of a disciplined approach to establishing links between organisational philosophy, mission, values and the core processes at the ground level. Being disciplined helps in focusing the organisational infrastructure on creating customer value.

2.3.5.3 Creating customer value

Increasing rigour and relevance of education to the student, industry and society is a way of creating customer value in higher education. QFD practitioners would argue that the idea invested in QFD is that all work must be understood and done in the spirit of creating customer value. The implication is that the organisation must, as much as possible, have ways of intimating the workforce with: Voice of Customer; Voice of Market; Voice of Employees; Voice of Business and the Six Sigma roadmaps that derive from the integration of these voices.

To successfully implement the principle of creating customer value it requires that the organisation should have performed well with the generation and institutionalisation of a relevant and enabling policy regime (being disciplined). Furthermore, institutionalisation of an enabling policy regime that aligns structure-structure, structure-function and function-function relationships (integration of effort) in the organisation creates a strong strategic capability in the organisation. Enhancing the organisation's capability of creating customer value involves interface mapping which is a strategy by which integration and alignment can be achieved (Bevington and Samson, 2012:180). Only time-based organisations would

realise the value of interface mapping, which actually helps in removing any time-wasting activities of no value to the products and services. In fact, redefining time as a critical resource enhances organisational efficiency and optimises the creation of customer value. This is the essence of being time-based.

2.3.5.4 Being time-based

Bevington and Samson (2012:180) are of the opinion that ‘‘. . . implementing the principle of being time-based calls for the removal of the main drivers of interfacing activity noise from the business.’’ This means trimming away all activities that have little value to the organisation so that staff work only on value-adding activities that align to Customer Satisfaction Performance. Doing the trimming actually allows the value-laden activities to interlock and interface intimately and align more strongly. Intimate integration and strong alignments allow for the workforce to spend less time in completing their role assignments. In one of their studies, Bevington and Samson (2012:180) observed that ‘‘An analysis of activity in a large health policy unit revealed noise levels absorbing over 60 per cent of the total effort.’’ This is not uncommon in bureaucratic and public services institutions. From examples given by Newton (2000), Anderson (2006) and Ramirez (2013) noise levels are equally high in higher education across the globe.

Literature has many similar examples of organisational responses to the realisation of the value of time and trimming organisational activities to only those that are critical to customers. These realisations have fathered principles such as ‘just-in-time’ delivery; management-by-objective; performance management and many more. Successful applications of these principles should proffer organisations the benefits of structural agility, cultural agility, process agility and change agility. In chapter 2 we learnt that these are reasons why most organisations, then and now, adopt QFD. QFD caters for all these elements of organisational performativity. Mukherjee and Wong (2011:138) are of the opinion that “an approach with a delay built into the process has the disadvantage of impairing both efficiency and institutional agility to respond swiftly to change”. In higher education delay on delivery of customer value may be caused by time and efforts spend on waiting for management approvals, lots of paperwork and sustaining bureaucracy. Bernasconi (2011:243) lambasts

public administration rules for inhibiting HEIs from responding with agility to external opportunities. Cruickshank (2003) laments that even after many years of adopting business quality models, HEIs continue to be sluggish because, among other factors, there is lack of vision of the institution as a system of interrelated parts that should otherwise be attentive to incidents through coordinated responses (Gallifa and Batalle, 2010:162). Mukherjee and Wong (2011:140) tend to suggest that autonomy helps to bring agility to strong world-class universities. But the truth is that autonomy is not antithetic to sluggishness. Agility should be felt as a means to creating the competitive responsiveness that characterise success in competitive markets. Autonomous Faculties in HEIs may still inherit the sluggishness of the mother University, for example, unless they are consciously set to be agile. QFD would improve on time usage because of its emphasis on integration, alignment, leadership distribution and creating strategic capabilities for improved customer values.

2.3.5.5 Creating strategic capability

The process of creating strategic capabilities stands on the shoulders of ensuring integration of effort, being disciplined, creating customer value and being time-based. Organisations wishing to build their strategic capabilities do so by proactively managing interfaces in ways that complement their positional strategy. Three activities drive the creation of strategic capabilities. One of the three is the alignment of processes through interface mapping and identifying noise and gaps. The second is developing solutions to noise and the identified gaps and the third is efficiently deploying change targets and their catalysts (Bevington and Samson, 2012).

Most assumed change, a lot that would benefit educational quality never set off because organisations continue to indulge in the past and that there is no mechanism of setting on the change process and catalyse it. In QFD the underlying assumption is that systems are improved by the men and women at the systems' coalface. This implies that more open-door and democratic management in HEIs that value the voices of their professoriate and students, of their external stakeholders by genuinely incorporating them in their strategies reward the institution with a repertoire of robust strategic capabilities and the power to make their strategies work.

2.3.6 Making strategies work

Making strategies work is an ongoing process for connecting the high-level strategic plan (macro) to the day-to-day (micro) activities that are critical to the delivery of the strategy. These activities include all secondary changes necessitated by changes in the initial premises of the strategies. Of the 14 management best practice principles that make strategies work are the following seven:

- Gaining alignment
- Embracing change
- Establishing a learning culture
- Relating the micro to the macro
- Measuring and reporting
- Supporting distributed leadership
- Being up front

Deploying the above principles throughout the activities of HEIs helps to create conditions for a strategically bundling management, the professoriate, students, instruction, curricular and the mission and vision.

2.3.6.1 Gaining alignment

In QFD contexts, the goal of 'seeking alignment' is to achieve a seamless end-to-end business process by concentrating on the interfaces between personnel as well as doing the functional activities called for in the strategy. This implies careful management of person-to-person, person-to-system and system-to-system processes (Chang, 2006:158). Efficient process management helps the workforce to build shared common values and enhances their strategic bundling. HEIs are process-laden, multi-structural entities with high potential to fragment therefore need more than most organisations management skills for alignment. Use of communication approaches, vision workshops, and management development programmes are commonplace strategies when seeking alignment. Interface mapping further increases the chances for gaining alignment in that all unnecessary activities that stand in between value-adding activities are identified and removed. Scott (2008:99) observed that ''... a company which has efficient communication systems, good labour relations and a contented workforce is in a strong position to succeed in the competitive marketplace''. The

more QFD institutionalises, the more and stronger the alignment between organisational vision (an image of the desired future), values (route and journey to the desired future) mission (what the organisation is here for) and goals (milestones the organisation expects to reach before too long) should be. Living by the management best practice principle of 'being disciplined' creates the context for gaining alignment and being able to embrace required change as an organisation.

2.3.6.2 Embracing change

It is important that organisations seeking change and transformation must focus on creating the strategic capabilities for implementing the desired change. Rowley and Sherman (2002) opine that change in universities has become a new coefficient for their relevance. Where the magnitude of desired change is sizeable it is important to have a framework of deployment of activities that would bring about the net desired change: what will be done; why it will be done, and how it should be done. Postma (2013:3) affirms that these questions reflect on education quality as transformation. It is important also to align the prospected changes with a remuneration policy that attract and retain high quality staff. Traditional bureaucracy coerce for change. QFD believes people will effect change efficiently when they drive it because it makes sense to them.

The communicative, collaborative, and participatory nature of QFD creates conditions for shared visions. In drawing an atlas for change it is best to start by asking staff to document fully what they do and their assessment of its implications on value creation, value management and value delivery. This process creates the first instance the staff comes head-on with focused self / role evaluation. It should then be easier to move with the staff to the next level of evaluating what needs be changed by removal, modification or addition. This is the first instance of interface mapping, a process that feeds into the principles of time-based, alignment, creation of customer value, integration and of linking the micro to the macro. Used well, QFD should help with problem identification and design of appropriate change and solutions. Throughout the text the thesis discuss QFD as a mental tool that facilitate the understanding of data generated from within as from outside the organisation. It is indeed a potent tool for organisational learning and the subsequent mapping of an atlas for change.

2.3.6.3 Establishing a learning culture

Interface mapping, strategic categorisation and the use of genomic frameworks set the foundation for a focused mechanism for promoting and targeting learning. Establishing a learning culture under the auspices of QFD creates what Pearce and Robinson (2009:364) define as an:

> ‘‘... organisation structured around the idea that it should be set up to enable learning, to share knowledge, to seek knowledge, and to create opportunities to create new knowledge’’

Ficalora and Cohen (2009:4) say ‘‘QFD is a method that flags gaps in knowledge, capability and understanding as the design team works through the various QFD elements’’. Better aligned and lean team-based organisations learn better and faster than expansive organisations (Bevington and Samson, 2012:183). By pinpointing the organisation’s shortcomings and proffering strategies for their correction, QFD becomes a more comprehensive knowledge and quality management tool. Knowledge takes numerous forms which include operating know-how, knowledge of customer networks or relationships with customer networks. It can also mean technical knowledge upon which processes are or will be based and the technical knowledge upon which products and services are or will be based. It can be about relationships with key people or an individual that can get things done more effectively, efficiently and speedily (Pearce and Robinson, 2000). All these forms of knowledge help in creating improved educational institutions and programmes.

In learning institutions everybody becomes somewhat like a ‘node’ or distributor through which intricate networks of personal relationships are continually coordinated to bring together relevant know-how and successful action (Pearce and Robinson, 2009). However, Pearce and Robinson (2009:366) observed that certain organisational structures are inhospitable to the institutionalisation of a learning culture. In QFD, a learning culture should be about a model of thinking and practice that focus on renewal and updating of the set of organisational values, processes, conventions and practices that encourage individuals and the whole organisation to increase knowledge, competences and performance. Evaluation, monitoring and the development of processes take centre stage in learning cultures. But what and how we evaluate, monitor and develop should be determined by the business strategy.

At Section 3.5.3 the thesis discusses four strategies of aligning organisational culture to business strategy. Benchmarking and networking that are designed to leverage and enhance knowledge should flourish the more the learning culture calcifies (Harvey and Williams, 2010b:81). Temponi (2005), Trivellas and Dargenidou (2009) are also of the opinion that business schools should be shining examples of learning organisations where continuous improvement, customer satisfaction, and service quality are unquestionably paramount. Yorke (2000) had earlier highlighted that effective learning organisations depend on the recognition of good ideas and expertise for what they are and not for where they are from or who in the organisation backs them. Yorke further argues that open support for capacity building in ambiences of trust, honesty and respect enhance effective organisational learning. From an organisational management perspective in higher education, one would quickly assume that business schools should take the lead in exemplifying learning institutions. They would be characterised by continuous improvement, service quality and customer satisfaction (Trivellas and Dargenidou, 2009; Temponi, 2005). In chapter 3 I discuss how organisational and strategic structures that marginalise one or so stakeholders limit the number and value of options at their disposal.

2.3.6.4 Relating the micro (individual) to the macro (companywide)

In relating the micro to the macro, the workforce links its short-term and day-to-day activities to the organisation's strategic goals. For instance linking what happens in the lectureroom with the programme goals, the institution's mission, vision and the needs of the market of stakeholders. This further implies a link between institutional goals and those of society and industry. This link is fine-tuned when staff consciously appreciate how their efforts impact on others and how they escalate into the organisation's bigger picture.

Literature is awash with tools that help in linking the micro to the macro. These include employee empowerment; team-based working; Voice of Customer; Management by Objectives; the Balanced Score Card; customer surveys and benchmarking for management. These tools, at least on a theoretical level, raise the workforce's awareness of the strategic goals. A more efficacious and precise mechanism of linking the micro to the macro, the short term to the long term and the 'smaller activity' to the global, is through interface mapping,

strategic categorisation and the use of the 'genomic' framework. The implication of interface mapping is that all routine and seasonal activities are documented and areas of ritualism, duplications and noise are pinpointed (Anderson, 2006; Bevington and Samson, 2012:182). This is an important element of QFD implementation particularly in HEIs that are laden with valueless workloads.

2.3.6.5 Measuring and reporting

Bevington and Samson (2012:186) say that ''... best practice organisations measure a range of financial and non-financial parameters with the aim that employees would see and know what is needed to drive improvement''. Key Performance Indicators (KPIs) are set in some organisations and organisational performance is measured against them. Researching, measuring and reporting on key performance indicators (KPIs) should help the organisation to establish behaviour change indicators (BCIs) that are necessary in preventing resource wastages. In this way the behaviour change indicators (BCIs) link to key performance indicators (KPIs) and consequently link the micro (individual / team / short term) to the macro (team / organisational / long term). This is one of the areas of alignment that should optimise institutional performance be it in terms of facilities or human skills.

BCIs can be set at the person, team, sector or organisational level and may cover particular set of knowledge, attitudes, skills, understanding and beliefs. Bevington and Samson (2012:187) say that ''... when all the BCIs are adhered to, the strategic outcomes will be delivered''. This point is reiterated by Dahlgaard and Dahlgaard (2002:1071) who exhort the need for linking KPIs to training provisions. Traditional quality assurance schemes have the weakness of collecting hard-and-dry data without tracing backward as to causes or drivers of the data and weaknesses. In QFD contexts, data is collected with the idea of building effective action. This means BCIs are subordinated to the organisation's key performance goals and indicators, thus reinforcing cross-sectional integration and both vertical and horizontal alignment. Measuring and reporting is a powerful QFD tool for building a shared organisation-wide understanding of where the organisation stands, its fitness for the next challenges and its risk envelope. The shared understanding is critical for creating incentives for distributed leadership.

2.3.6.6 Supporting distributed leadership

Further to empowering the workforce, the practice of distributed leadership engages staff in analysing the business with an eye to enact necessary changes and in relating their daily activities to the medium- and long-term goals of the organisation. Distributing leadership goes beyond assigning job descriptions. It is about understanding why one has to do certain things and accepting responsibility for improving one's performance, such as making operational decisions pertaining to one's roles in the team and the organisation. Genuine leadership distribution involves being up front.

In QFD contexts distributed leadership should aim at developing a robust infrastructure for leadership substitution. By leadership substitution is meant a context in which subordinate professional orientation is so honed that they need no coercion to do their roles. It further means an exceptional amount of competence that supervision become minimal. Jones et al. (2012:67) observed that leadership that befits ''... the higher education sector …'' is one that ''… requires a less hierarchical approach that takes account of its specialised and professional context''. Pierce and Newstrom (2000:254) view employees with a professional orientation as being able to:

> ''... cultivate horizontal rather than vertical relationships, give greater credence to peer review processes, however informal, than to hierarchical evaluations, and tend to develop important references external to the employing organisation.''

Literature is indicative of a relationship between organisational structures and the amount of space the workforce find for experimentation, for linking amongst them, and bringing in external peers. QFD works well in ambidextrous organisations, which Pearce and Robinson (2009:366) define as ''organisational structure most notable for its lack of structure wherein knowledge and getting it to the right place quickly are the key reasons for organisation''. Forward thinkers perceive QFD organisations as ones that generate knowledge and innately share it to enable deeper understanding of business and the customer base throughout the organisation. These organisations use internal and external architectures and networks to foster opportunities for being out front with customer satisfaction. Honesty, trust and being up front are critical success factors for distributed leadership.

2.3.6.7 Being up front

This principle gives a special value to relationships. The idea is to be honest, trustworthy and 'vulnerable' in the sense that one values the supremacy of other people's knowledge where it is. Being up front creates the resource of not glossing over problems and not passing them to other persons. Bevington and Samson (2012:185) say ''... a mechanism for opening up a previously closed culture to admit to problems, mistakes and inconsistencies'' is a fundamental strategic capability. Sciarelli (2002:1141) stressing the socio-cultural dimension of quality expressed that there is a strong relationship between business ethics and business quality mainly because each organisation shares a porous boundary with its environment. The other dimension to 'being up front' refers to issues of corporate governance.

Corruption and favouritism constitutes a negative risk that exists if management control over processes is not sufficiently vigilant (Fill and Jameison, 2006:38). In HEIs, the most ventilated incidents of unethical and immoral behaviours include misuse of institutional property, sexual exploitation, research plagiarism, bribing of teachers, cheating by students, and irregularities in the admission and examination processes (UNESCO, 2007:15; Heyneman, 2011:8). Corruption tumbles the reputation of HEIs known for perpetrating it and reduces the competitiveness of their graduates on the labour market. The Transparency International (TI) calculates a Corruption Perception Index (CPI) that reflects on the levels of corruption, opacity and lack of meritocracy in a society (Jabnoun, 2009:421). Cognisant of the negative impact corruption in HEIs will have on future employability prospects, youth organisations in South East Europe founded the Anti-corruption Student Network in 2003. Their objective was to coordinate the exposure of immoral and unethical practices in higher education. This effort is being replicated in many HEIs. The Higher Education Corruption Monitor proffers information from news articles, bibliographies, and links to other agencies. There are other strategies at play to curb corruption and lower the perception that a HEI could be corrupt. Heynenman (2011:9) lists some of the strategies:

- annual reports to the public on year-by-year changes in corruption incidents
- code of conduct for administrators and staff
- code of conduct for faculty
- code of conduct for students,

- exposure of perpetrators
- institutional courts to hear cases of misconduct
- staff surveys on corruption
- statements of honesty on public websites
- student surveys on corruption.

Academic corruption becomes all the more difficult to deal with because immoral, unethical activities carry cultural, legal and social connotations. And the chances of corrupt behaviour increase in high-power distance communities where checks and balances are difficult to implement effectively (Kimbro, 2002; Sanyal and Subarna, 2004; Dirienzo et al., 2007).

2.3.7 Strategic risk management

Strategic management of strategic level, systems level, operational level and unforeseeable risk profiles ensures that strategic objectives will be pursued in conditions where the actors are aware of the accompanying constraints and the organisation's risk envelope. Abiding by all 14 best practice principles is a robust risk management process in itself. Because of their multifaceted nature, HEIs are prone to conflicts and fragmentations which may remain latent and invisible for long but not without reducing organisational performativity even in small units such as curriculum design, implementation or resourcing of critical elements of instruction.

2.3.7.1 Resourcing for the medium term

QFD tools can be used to help the organisation balance short-term operational and medium-term development and growth requirements and aspirations (Bevington and Samson, 2012:187). Bevington and Samson (2012:175) say that one of management's risks is that decision makers interpret organisational problems through the lens of their own experience. However, experiences become less valid and less reliable as the organisational contexts change. The assumption in QFD is that no one can know what the customer requirements would be unless he has run the Voice of the Customer and processed it appropriately. Both the theoretical perspective and the conceptual framework validate the importance of having a pragmatic understanding of QFD, of how this phenomenon can be understood in the context of the service sector and the opacity of education delivery.

Using the 'figuration' perspective (Elias, 2000:482), the CUTGBS could be viewed as a case of networked individuals, teams, processes, rules, policies, regulations and influences. This position is packaged in the intimate relationships between the Strategy Focus Wheel and the 14 'best practice principles' as shown in Figure 2.2 and Table 2.1. Looking at the compounded framework of the Strategy Focus Wheel and the 14 management best practice principles within the lenses of the Rule-Resource model of Dougherty and associates we can as well safely assume that each of the principle acts as a rule. And the opportunities created by their enactment create one or so resources / benefits. Dougherty, Barnard and Dunne (2005:38) found that the best-practices principles per se are insufficient in creating high-quality products and services. Through their protracted international research they drew a distinction between innovative and non-innovative organisations. In innovative organisations they observed an enduring presence of three sets of rules and their corresponding resources. They further argue the presence of an intimate causal relationship of rule and resource. The link is basically that, in a pre-meditated manner, management and staff may enact a rule and be conscious of the resulting resource(s). On the other hand the same management and staff may not be aware of both the fact of the rule they are enacting and the resultant resource(s) the rule is generating. One of the rule-resource relationships is whereby aggressive, out front and entrepreneurial organisations seek new opportunities and using new mental models create numerous viable options (resource) for themselves. They realise that teamwork quality (TWQ) creates the opportunities for more ideas and does multiply the power to act on those ideas.

The second rule-resource relationship is when these same prospector organisations valuing knowledge (strategic capabilities) for its own sake (rule) create power to define problems (resource). They view every team member as a knowledge-node, a leader and a distributer of knowledge. Organisations that live by the rule of sharing responsibility and integration for the entire project, proffer themselves with the resource of time and attention.

Non-innovative organisations on the other hand have sets of desanguiniating rules and resources that haemorrhage workers' creativity and innovative ideas. Whichever model gets adopted in such organisations, there will be minimal success. Non-innovative organisations

are characterised by the pervasive presence of the following rule-resource relationships. A non-innovative organisation is overwhelmed by its own focus on results thus generates the resource of control at the expense of expertise. Power, in them, is more important and is only with relation to getting a fixed list of results. This is characteristic of many a quality assurance agency and the result has been 'comply, comply, comply' when they come to evaluation of institutions. This maybe is one of the reasons institutions have remained stuck with externally defined metrics and standards that are at variance with the needs and wants of the end users of their products and services. In non-innovative organisations the rule of eliminating problems quickly generates the resource of limiting discussions and thus limiting others' actions. This is in stun contrast to QFD and the desirable way of running educational projects in competitive environments. In trying to keep high results or to exonerate self from poor performance by saying ''we don't know how it went wrong but we followed the rules''. Non-innovative organisations discard any suggestions to see or do anything differently.

The rule of separating responsibility generates the resource of control over one's own domain. This rule eliminates the possibility of cross pollination of ideas and has no value in teamwork quality. Where people work in numbers it is about the physical gains that result in net ability to lift the load or to reduce completion time not about adding value and satisfaction.

QFD is characterised by the first three sets of rule-resource relationships. The second set tends to characterise the very traditional HEIs and quality assurance agencies. The reason for adopting a hybrid model of Strategy Focus Wheel, the 14 Best Practice Principles and the Rule-Resource model is that neither, standing alone, would give a fuller explanation of why humans would behave the way they do in the face of a change-project model like QFD. And by using all three perspectives the thesis maintains the complexity of institutions and the complexity of their management. The 14 best practice principles expand the concept of 'Strategy Focus' and are the vehicle that deliver excellence in service and product delivery. The Rule-Resource model explains what distinguishes winners from losers, even with the same model. The elements of the proposed model are thus interwoven, as shown below. As each plugs into the other it is difficult to present a model of a conceptual framework that

exhibits mobile relationships pictorially. As chapter 2 continue to unfold, the key point is imagining how the management excellence principles could intervene to deploy quality throughout the organisation's structures, processes and functions. But we need to discuss the perspectives of QFD in order to build a corpus of concepts for analysis of why the model would be an urgent adoption.

2.4 QFD: The three perspectives

There are three perspectives to the term 'quality function deployment': the quality, the function and the deployment perspectives. Each of these will now be discussed.

2.4.1 The quality perspective is defined in terms of the qualities, attributes or features making the expectations of the customer. Literature generally highlights some ten determinants of service quality which (Franceschini, 2002:48 / 147-'8) use to link perceived quality and expected quality of a service. These determinants are: access, communication, competence, courtesy, credibility, reliability, responsiveness, security, tangibles and customer knowledge. The quality perceived by a customer is a function of the complex relationship among the quality factors themselves, word-of-mouth communications, personal needs and past experience. Figure 2.3 below shows how the ten determinants of service quality (Franceschini, 2002) relate to perceived service and expected service in building a perception of service quality. Whilst we can list the determinants of quality discretely our mental models of quality don't isolate them but pass a complex picture of what they represent as quality to us. However each of the determinants percolates into our mental models individually or maybe in permutation with other determinants based on our exigencies, past experiences and / or internal and external communications. Three levels of satisfaction would arise independently of one another but expressive of the balance between expected and perceived quality.

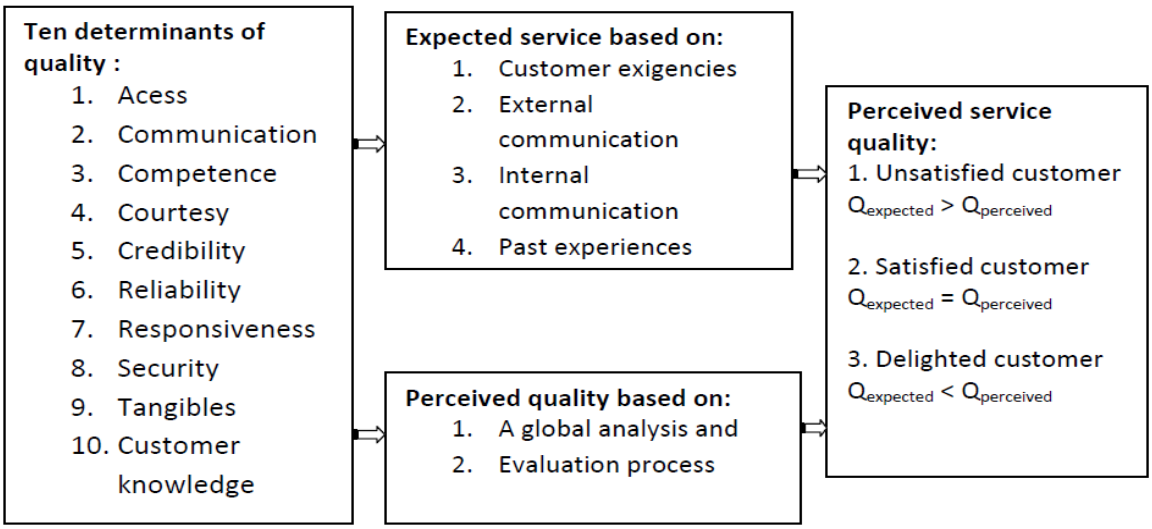

Figure 2.3: The relationship between ten determinants of quality, perceived and expected quality of a service (Fransceschini, 2002).

Perceived quality has a mobility characteristic just as each of the ten factors is mobile and is historically conditioned in space and in time. That means 'relational, organisational and temporal variables of a service' must be defined and evaluated. This point is of fundamental value particularly in curriculum design and the ensuing teaching-learning interactions Franceschini (2002:139).

Babakus and Mangold (1992), Chua (2004), Tan and Kek (2004), Mahapatra and Khan (2007), Narang (2012) confirm the use of SERVQUAL in measuring quality in HEIs. The SERVPERF has also been used in education with some claimed success. However, these models have their shortcomings which propagate into many other models derived from them. Narang (2012:361) proposes the use of a model, EduQUAL which is expressed mathematically as:

$$\text{EduQUALi} = \sum_{j=i}^{k}(\text{Pij} - \text{Eij})$$

where: EduQUAL = perceived education quality of student 'i'

k = number of education attributes / items

P = perception of student 'i' with respect to performance of an attribute 'j' of institution

E = education quality expectations of student 'i' for an attribute 'j'.

A positive rating would indicate that expectations have been exceeded, while a negative rating is indicative of expectations that are not fulfilled (Narang, 2012:361). How one conceives quality has an implication on how one will strive to get it. The definitional inconsistency of the term 'quality' has however led others to assume that conditions or resources for quality are in themselves quality. For instance, Singh et al. (2008:165-166) and Materu (2007:3) seem to be suggesting that leadership, state of facilities, quality of faculty are in themselves quality. Quality, meaningful quality, in the context of higher education, resides where teaching and learning are, in their locus. Salmi (2009, 2011:6) writes of nine errors in creating world-class universities and explains that:

- magnificent buildings are a desirable but not the world-class quality itself;
- curricular copied from world-class universities does not necessarily produce world-class graduates when embryonically transplanted into other universities;
- running curricular in pre-existing infrastructures militates against world-class delivery and world-class learning;
- internationalisation is what it is and not quality in itself and that it is not superior to local resources and local branding (Agnew, 2012);
- slow is fast because quick fixes and fast-tracking issues skips over important details to which the organisation will need to return to later;
- small is beautiful as doing things in small, manageable bits allows for complete understanding thereof;
- institutions need the present to be coherently linked to the future by able leadership and robust structures;
- corporate isomorphism has problems of strategy-culture fit; and
- strategic capabilities cannot be built in the short term without a futuristic perspective.

Other authorities have looked at quality variably. Harvey and Knight (1996) talk of quality as perfection / excellence, a construct that relates to the principle of being right the first time. However, there are difficulties in defining what is excellent. Attaining excellence in every facet of a product or service may not be possible when looking at the situations regarding context and resources in which most organisations operate.

Quality as consistency to some specifications may be proper in manufacturing, but a rather naive pursuit in the education delivery system. With reference to the services sector Oakland et al. (2002:1126) refer to consistency of material, skills, facilities etc. Consistency may be better looked at as the alignment among inputs, processes and outcomes (Stufflebeam and Shinkfield, 2007) . This is shown in Figure 2.4 below. The basis of the model is that the context defines quality and the inputs and throughputs conform to the conception of quality held. In this way quality offered approximates quite closely to quality planned. Elements of the model still persist in novel models for quality assurance, including QFD. This context, input, process, product model assumes that both the intra- and extra- institutional environments (context) partake in determining inputs, throughputs and standards for measuring outcomes as satisfactory or not. Since contexts differ in space and in time, it means that the nature of inputs, throughputs and standards would differ too in space and in time. However in QFD the basic inputs are the voices of the diverse customers. The main goal for outputs is their fitness for purpose as measured by Customer Satisfaction Performance metrics. Figure 2.4 below summarises these points.

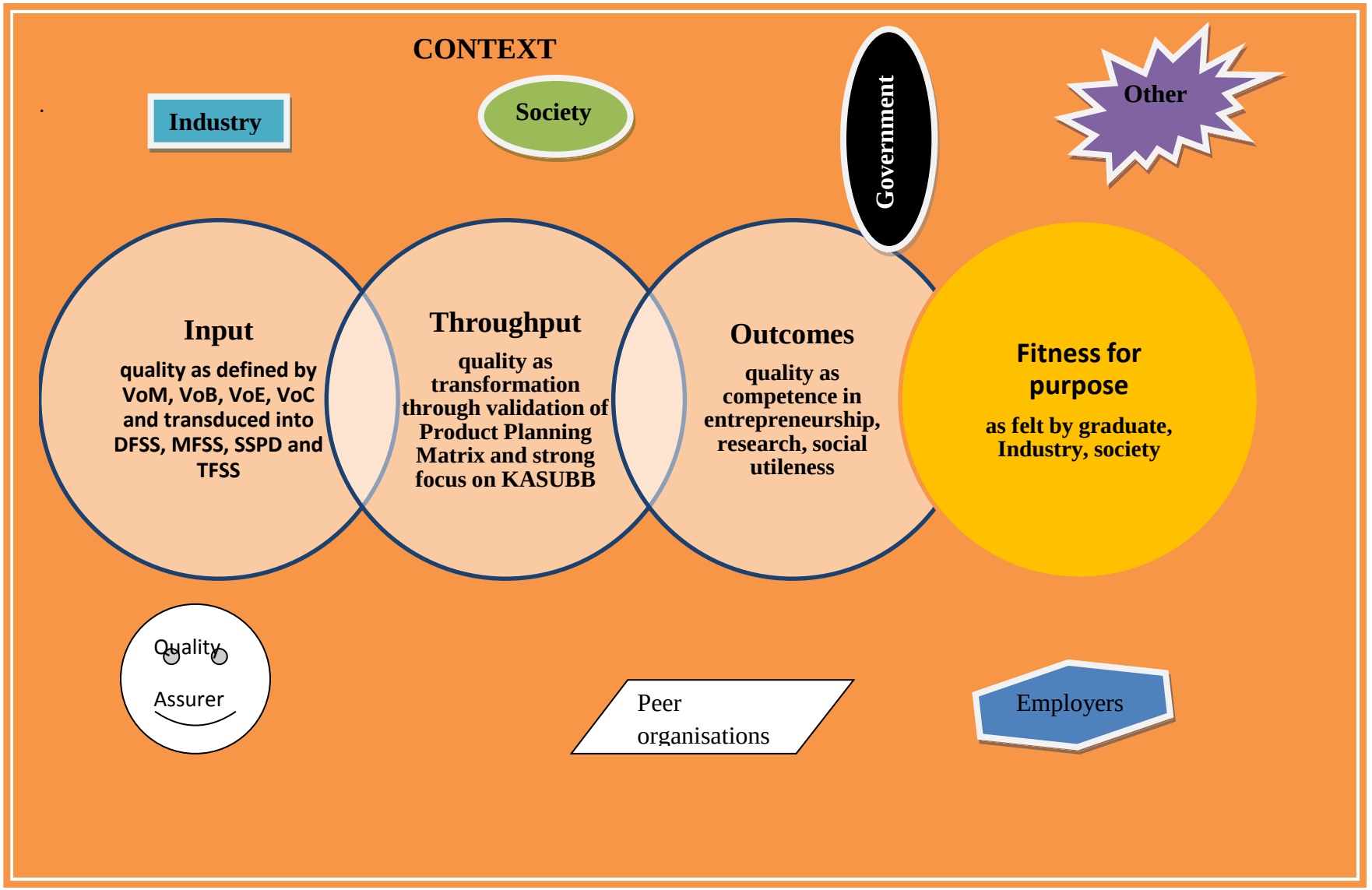

Figure 2.4: A QFD-based model for insuring deployment of quality throughout inputs, processes their interfaces and outcomes

A model must recognise the context in which an assessment or evaluation is being sought and done. The aim in good education is not to 'drill students', but to work with them within their academic, social and spiritual diversity. Not even is the aim of education to produce 'cloned', like-minded graduates. With education we may look at consistency with 'Voice of Customer', with the university mission and the university's vision; with the skill sets necessary for a prosperous life; and which are consistent with democratic, peace-loving societies. Unlike in goods production where consistence is about exactly similar goods, in services consistence is in respect of Voice of the Customer, the mission and vision of the organisation.

For Macfarlane and Lomas (1999:70) quality as value for money means that graduates should be able to return on the investment through development and innovation. To Lemaitre (2009:3, 2012) it means technical efficiency, while for Hertzman and Ackerman (2010:211), Law (2010a:66), and CHE (2011:13) it means accountability, effectiveness and efficiency. These positions co-relate with the Six Sigma notions of designing organisational structures and processes that reduce failure modes. Ewell (2007) looks at quality as value for money in terms of rigour of study programmes and employability of graduates. However Meirovich and Romar (2006:328) warned that 'value for money' should be cushioned from students' pressures for passable examination and inflated grading. Lamentably, some quality assurance instruments place an emphasis on retention and graduation rates, for instance the ZimCHE. These measures can be easily manipulated and are unrelated to quality as transformative and as fitness for purpose.

Quality as transformation has been discussed by Harvey and Green (1993), Harvey and Knight (1996, ch. 1 & 2), Richardson (2000), Tam (2001), Harvey (2002), Law and Meyer (2010), who concur that this refers to value addition on student knowledge base, attitudes, skill set, understanding, behaviour and belief (KASUBB) system. The implication here is that quality should be defined fundamentally as what happens in the teaching-learning interactions. It therefore collates well with educational evaluation models that focus on inputs, processes and outputs. I consider 'quality as transformation' a super-model that builds on yet other models: Engagement model of Program Quality; University of Learning model;

model for a Responsive University. In proposing the ***engagement theory***, Haworth and Conrad (1997) argue that an institution of learning would do more and better at improving future value of their graduates if they invest in: programmes dependent on 'Voice of Customer'; diverse and engaged stakeholder groups; participatory cultures; interactive instruction, and adequate resources. The ***university of learning*** model (Bowden and Marton, 1998) defines functionality of the university in terms of the same characteristics that Hoegl and Gemuenden (2001, 435) would use to define 'teamwork quality': communication, balance of member contributions, mutual support, effort and cohesion. The ***responsive university*** model (Tierney, 1998) presumes that the university should be responsive to 'voices of customer' and be service-oriented, and emphasises the same facets of 'teamwork quality'. The three models reinforce the concept of university actorhood referred to earlier.

According to Campbell and Rozsnyai (2002:132), 'quality as fitness for purpose' presumes that the education processes are subordinated to a datum of university vision, mission, customer and other evidenced requirements, and that the graduate will give evidence of the fulfilment of purposes of higher education in its broader sense as in the narrowcast sense implied by the programme's curriculum. The transformation done by the teaching-learning process must improve students' knowledge, attitudes, skillset, understanding, belief system and behaviour (KASUBB) so that they: become research professionals, employers, competent employees and creators of goods and services that improve society's wellbeing. An argument is made here that the concepts of quality as 'consistency', 'value for money', and 'excellence', hard as they are to measure, form the foundation for the construct of 'quality as transformation', which in itself leads to 'quality as fitness for purpose'. Looking at the concept of quality in this integrative manner helps to define and orient the argument for outcome-based curricular and objective-based education.

2.4.2 The function perspective refers to everything that has an influence on the ultimate quality of products and services provided by the institution. This includes students, stakeholders, staff, management, processes, resources, physical infrastructure, teaching and learning material, the appropriateness of the interfaces between the institution's structure-structure, structure-function and function-function relationships, etc. It also refers to the

principles, values and tools that the organisation deploys in its multiple activities. It further refers to the management of networks and external strategic architectures, among other things. This perspective stretches the traditional collegiality concept of the 'teamwork quality' concept, which is the hallmark of QFD. Most quality assurance schemes tend to put lots of focus on issues that fall within the function perspective of QFD such as scores of entry students, academics' credentials, infrastructures, etc. This action is incomplete in the sense that real quality arises from the correct deployment of the functions and their strategy-operational alignment.

2.4.3 The deployment perspective defines how the flow of development efforts will be developed, deployed, diffused, and managed to ascertain that they are aligned or market-oriented to the needs, requirements and expectations of students, society and industry. It refers to how the 'needs analysis' is translated into the skills and processes of the institution so that the programme achieves market orientation (Ficalora and Cohen, 2009:176). This link finishes one of the most important matrix in QFD – the whats-how (objective-means) matrix. The overarching statement on deployment is how tasks, resources, efforts, time, recognition, power and responsibilities are allocated or deployed among structures, processes and persons within the institution. Relationship matrices, open and sincere communication become of such great importance that alignments are achieved and that performers are clear as to why particular decisions are enacted. In QFD quality is deployed through management of the 14 best practice principles across every function and interface in the organisation. Building on the arguments under each perspective, the thesis assumes QFD as the translation of Voice of the Customer into quality objectives that are then deployed to appropriate structures and functions of the organisation.

2.5 Early uses of QFD

Understanding the uses of any model, particularly in its maiden forms should help us appreciate its relevancy and how well be model has survived its brush with the roughness of operational reality over the years. We are then able to discuss whether the model may work well in a particular context. In 1975, the Japanese Society for Quality Control (JSQC) appointed the Computer Research Committee (CRC) to do research of QFD methodology

and in 1987 the Computer Research Committee published a final survey report on the status of QFD application among 80 Japanese companies. The companies surveyed listed the following as the purpose of using QFD: analysing and accumulating market quality information (Voice of Customer), benchmarking competitive products (Customer Satisfaction Performance), communicating quality-related information to later processes (Goal Setting and Improvement Ratio), cutting development time (Product Planning Matrix), deploying design intent into manufacturing (Correlation Matrix), expanding market share (Goal Setting and Improvement Ratio), identifying control points for the *gemba*-exact place where it happens (Product Planning Matrix), new product development that sets the company apart from competitors (Product Planning Matrix; Goal Setting and Improvement Ratio), reducing design changes (Product Planning Matrix), reducing development costs (Product Planning Matrix; Goal Setting and Improvement Ratio), reducing initial quality problems (Customer Satisfaction Performance; Product Planning Matrix; Goal Setting and Improvement Ratio) and setting design quality and planned quality (Product Planning Matrix; Goal Setting and Improvement Ratio) (Akao et al., 1987; Vonderembse and Raghunathan, 1997).

2.6 What QFD is being used for today

Organisations make choices of strategies through three main routes: (a) following others; (b) own initiative; or (c) modifying some known model. Choices are normally based on what is felt to be gained through the use of a model based on the experiences of some organisational members, word of mouth or scholarship. QFD is variably being viewed as a system, a philosophy, a methodology, a technique or a tool. QFD can also be used in juxtaposition with other models and strategies such as TQM, Business Process Re-engineering, Six Sigma or others, but it can also be used as a tool when these are being used as methodologies. For instance, when a project is based largely on Six Sigma principles, but some tool in QFD is called in for some specific dedicated effect, Six Sigma will be referred to as the methodology and QFD its tool, and vice versa. Ficalora and Cohen (2009:13) make the following distinction between a methodology and a tool. ‘‘A methodology comprises several steps to achieve an aim or purpose, using multiple tools’’ whereas ‘‘a tool comprises a single function, or multiple functions that may be applied in several ways.’’

Organisations are using QFD to enhance their ability to drive the requirements of each stakeholder group into the organisation's development and design activities. Successfully done, this deployment activity would benefit the organisation by: increasing its revenue base; maintaining its competitiveness; decreasing costs; adjusting to market shifts; reducing products and services creation time, among other benefits. Thus QFD can help organisations to solve many of their problems.

QFD is a problem-solving tool. Franceschini (2002:13) and Ficalora and Cohen (2009:xviii) are of the opinion that QFD proffers a formal linkage between each stakeholder requirement or need and the organisation's responses to each of these needs. This linkage is achieved and communicated through processing Voice of Customer and constructing the relevant matrices. Elevating 'Voice of Customer' to Six Sigma roadmaps as shown in Figure 3.10 helps organisations to solve issues relating to demand-resources-competitive performance. For instance:

- **Design for Six Sigma** (DFSS) focalises on overall organisational response to customer requirements. The idea being to adopt an organisational structure, behaviour and mentality that focus on market excellence through effectiveness and efficiency.
- **Six Sigma Process Design** (SSPD) focalises on (re)designing person-to-person, person-to-system and system-to-system processes with the aim of making the organisation lean, effective, efficient and agile by removing time, people, and resource wastages.
- **Technology for Six Sigma** (TFSS) focalises on the adoption of appropriate technologies for more effective customer-driven performance, whilst
- **Marketing for Six Sigma** (MFSS) focalises on up front communications with the market with the aim of customers and stakeholders sharing the vision and mission of the organisation.

Matrices are used all over QFD to help the stages link goals to means. This is where and when those who are unsettled by matrices claim that QFD does not work. Ficalora and Cohen (2009:xviii) affirm that QFD offers a roadmap for assessing and evaluating the best strategic options for meeting customer needs with resources at hand, irrespective of the technology underlying the products and services.

QFD has been described as the visible memory of the organisation and as a method that provides a convenient repository of the organisation's information right from Voice of Customer to management-related documents. This information can always be retrieved, reprocessed and re-membered with other data for new decision-making processes. Matrices however constitute a high-level summary of key product planning data in the repository (Ficalora and Cohen, 2009:9). By determining the data and its deployment in Product Planning Matrix and strategic planning and detailing all future amendments thereto QFD writes a concise history of the organisation.

In conjunction with this function, QFD proffers a systematic method of comparing and setting project priorities at different levels of the organisation with respect to the products and services development processes. One of the greatest problems in QFD implementation is when management fails to realise the supremacy of Voice of Customer over their intuitions. Ficalora and Cohen (2009:4) are of the opinion that ''QFD enables management to evaluate whether the product plans are worth the investment'' as well as take appropriate budgetary decisions, including allocations of other resources to activities. Every too often literature blames HEIs for lack of rigour and relevance in their programmes. An equal amount of research blames the Quality Assurance agencies for failure. HEIs respond by instituting changes that sooner or later become an attraction to yet another barrage of criticism. Where is the problem?

Ficalora and Cohen (2009:9) believe that in the hands of the organisation, the team or the individual, QFD informs the development or deployment of means based on objectives at every altitude of the organisation. QFD assumes that task deployment as well as skill / response deployment should be in pursuance of maximising on each objective, which in itself should arise from the overarching organisational aim. A problem, particularly with novice management, is role-induced biases in decision making rather than objective, fact-dependent decisions.

QFD is basically a strategy design tool that helps greatly in aligning goals, means, and resources. QFD is used as an organisational alignment tool. Ficalora and Cohen (2009:4) say

of QFD that it ‘‘keeps track of how key product and process design decisions relate to customer needs’’. As QFD is taken through its stages, it flags gaps in knowledge, capability and understanding. By taking track and highlighting constraints, QFD helps the accomplishment of intra-project alignment as well as the much-needed alignment between management desires and project rendition. It also influences decisions on the amount of support required. Ficalora and Cohen (2009:4) argue that ‘‘QFD is fundamentally a quality planning and management process to drive the best possible products and services solutions’’.

Akao (1990), and Franceschini (2002:22) consider QFD to be a ‘mind enhancer’, ‘... an evident and powerful tool for prioritising and assigning’ or deploying resources and responsibilities throughout the organisation. QFD is widely used to link customer requirements to skills development programmes, to work breakdown structures (WBS) and organisation breakdown structures (OBS). This implies that quality assurance functions need to be in place well before the products and services creation processes begin. This shift of quality assurance functions, from output stages back to the pre-production stages, is one huge contribution of QFD practitioners of the 1960s. Salmi (2011b:6), writing on universities seeking world-class status, reiterates the value in having leadership, the board and a robust strategic framework well before programmes and projects begin.

Franceschini (2002:39) says QFD is being used to prevent interface drawbacks and improve the organisation’s horizontal integration and leveraging. Akao (1990), Oakland (2000:39), Almannai et al., (2008:4) and Ficalora and Cohen, (2009:262;) view QFD as a methodology, whilst Zheng and Pulli (2007:370) refer to QFD as a philosophy. Sallis (2002:3) however considers QFD to be both a philosophy and a methodology.

‘‘QFD is what QFD practitioners do,’’ say Ficalora and Cohen (2009:8) and as a versatile tool / methodology the profundity of application of each of the QFD techniques and tools depends on the benefits the organisation or team needs or is willing to work for. Thus QFD should remain open to be implemented at a level of detail commensurate to the task at hand. With this said, this thesis assumes three levels of adoption of QFD:

- Dogmatic adoption that is blindly adopting the model without contextualising it, thus forcing the QFD model onto the organisation. This approach is normally coercive, taking the logic of instrumentality and consequences. A dogmatic approach will need to be supported by a barrage of regulative antecedents: policies; rules; regulations; deadlines; and swamps of sanctions. Here the engine works, but the vehicle doesn't go anywhere.

- Incremental-creative is an adoption where the organisation metabolises the QFD model and selectively phases it into the organisation's modus operandi. The process may soon be supported by some antecedents as well, but more for the purpose of holding on to what has already been achieved than to force (coerce for) compliance. In ideal scenarios, the adoption is supported by lots of training, coaching, mentoring as strategies for building strategic capabilities across the organisation. Things must be done because they are the best things to do relate to the logic of appropriateness of organisational values and codes. If the process is sustained, sooner or later there is a shared appreciation of the value of the organisation and a culture of certain habits of work.

- Selective adoption may be either dogmatic or incremental, but the organisation chooses tools from the QFD model and then adsorbs them into the organisation's modus operandi. In selective dogmatic adoption, the organisation adopts selected parts of the model in a dogmatic, non-contextualised fashion. In selective creative adoption, the organisation adopts selected components or tools of the model in a creative way to fit in with the contextual elements of the organisation.

In a summative manner, organisations are using QFD along its three vectors. Procedurally, QFD uses a series of quality tables and matrices. Behaviourally, QFD assumes that everyone contributes to quality by exhibiting cooperative, collaborative and communicative behaviour at all times. Philosophically, QFD works optimally when underpinned by results-oriented management like 'management by objectives' and 'management by processes'. The philosophical dimension focalises on both what needs to be done and how it is to be done (Conti, 1989, Lomas and Nicholls, 2005).

2.7 Customer: The focus of a QFD strategy

In Six Sigma and QFD lexicon, the term 'customer' encompasses a client, buyer, vendor, purchaser, acquirer, receiver or giver as in organisational supply chains. It means therefore that in an organisation everyone is a customer to someone. Lomas (2007) discusses whether it would be appropriate to regard the student as customer to her host institution. In a competitive market it benefits the organisation to focus on active customers, not-customers and non-customers. This helps in structuring the organisation's marketing and quality strategy. Most research on institutions adopting 'new public management' (NPM) approaches conceive the student as the primary customer. This research adopts a similar position. It looks more reasonable under the lens of QFD to regard the student as the primary customer because he is the main recipient of the educational products and services and also the one who pays the consideration for the education provided. In her study, Ermer (1995) considered students, academic staff and industry as customers and she analysed their requirements separately. Samford University defines its customer as the student. Harvard University seems to take a similar position defining customer as anyone to whom it provides information or service, which is exactly what the student gets (Hubbard, 1994). While other HEIs are not too explicit on taking their students as customers, the Oregon State University says "our students are our purpose for existence" (Coate, 1990). Helms and Key (1994) reported that students at the Wright University overwhelmingly and jealously didn't want to share the title of customer with any of the University's stakeholders. Similarly, Sharabi (2010:323) agrees that the 'defining' of students as customers in HEIs has become commonplace. The University of Pretoria refers to students as clients and many people use the terms client and customer interchangeably. This study takes a customer as any party receiving a benefit for a consideration, and this qualifies every stakeholder to HEIs as a customer. It also accepts the discriminate ranking of customers.

2.8 The growth and philosophy of QFD

QFD was birthed in Japan in the late 1960s (Akao, 1997). Its conception was driven by the desire to increase originality in the development of products and services. Throughout the years, theoretical models and analyses of practices have added content and perspectives to our present understanding of QFD. Juran in 1954 had emphasised the importance of a

paradigm shift from inspection to making 'quality control' (QC) a part of business management, and Dr Ishikawa had observed the importance of having every employee take part in QC (Becker, 2005). This trend later moved into education around the 1990s. Newer ideas on QFD then focused on the importance of the impersonal aspects of quality in QFD and the idea of total quality management was beginning to settle in manufacturing and service industry. For instance, Dr Ishikawa protagonised the Company Wide Quality Control (CWQC) movement whose core facet was the wide involvement of everyone and everything in the quality generation process (Akao, 1997). The idea behind the Company Wide Quality Control paradigm is that leadership, followership, styles of management, management processes, resources, facilities and their interfaces and intrinsic connections have a cumulative yet complex influence on the quality of organisational performances (Jachson, 1995; Ip and Jacobs, 2006; Roberts and MacLennan, 2006; Vagneur, 2008:178; Aguinis, 2005:45).

There were two prominent drivers for QFD in the 1960s. Firstly, quality charts and models were used in the manufacturing, but on the finished product rather than at every point prior to churning out the final product (Ficalora and Cohen, 2009:20). It was like worrying about closing the stable door when the horse has long bolted out. On the other end, measures of quality in education have always been on the input side: the curriculum; the magnificence of physical infrastructures; qualifications of the teachers; finances of the institution, etc. What was wanted was a strategy of quality inputting, quality management and quality delivery and not of inspecting for presence of quality in services already on the market. Secondly, people had some idea of the value of design quality, but were unclear about how this could be incorporated into the production process (Akao, 1997).

What actually happened was that production and quality assurance were disjointed processes. Quality assurance would wait until production was through, then would come in on the finished products and services and if anything was wrong research to establish the causes of failure modes would then be instituted. This approach tends to violate the excellence principles of 'being time based', of 'integration', of 'alignment' and linking the micro to the macro. With regard to these drivers, Dr Akao had wondered why production management

and doers could not note the critical points on the quality control process chart as predetermined control or check points for production activity before production start-up (Akao, 1997).

At the time, quality control charts had the deficiency of confirming quality only after product or service generation had began (Ficalora and Cohen, 2009:20). In essence, QFD arose to solve the problems created by quality control mentality and procedures that were skewed on the output at the neglect of the input and the throughput. This is not uncommon even today. Many quality assurance strategies are input based. The ZimCHE in its quest for quality within HEIs proclaims that every university lecturer must be a PhD holder by 2015.

2.9 QFD and the quality-innovation helix

In mathematics a helix is a 3-dimensional structure that winds like a wire, just like the DNA in genetics. In QFD lexicon the QFD-Innovation helix refers to the binomial Quality-Innovation relationship that stretches over time and involves any factors that enhance the products' and services' desirability and the modification of the market, however marginal this may be. The helix has a dynamic nature because quality and innovation are themselves dynamic entities. In QFD the main goal of innovation is to improve quality of products and services thus linking quality to innovation through innovation's engineering-organisational character and the communicative-persuasive content. I look at how this dynamic relationship has evolved over the years.

Throughout the years, Japanese quality protagonists continued to exchange details on tools, templates and techniques of quality. In 1966, Kiyotaka Oshiumi, working at Bridgestone Tyre Corporation, constructed a Process Assurance items Table (PAiT) (Oshium, 1966). The PAiT highlighted the transition from true qualities to substitute quality characteristics to the process factors. This is a crucial step in the QFD's House of Quality (Ficalora and Cohen, 2009:113). A mentality of bringing in 'Voice of Customer' into every step of products and services creation right up to creation was eventuating. Benchmarking on the PAiT, Akao worked out a 'design viewpoints' field which he blended into the PAiT and made an effort to have the enriched version of the PAiT utilised in production manufacturing. The new version

of PAiT was first described as quality deployment (QD) in 1972. The inception of the PAiT marked the marketing of a method to deploy, right at the product design stage, the critical quality assurance (QA) points required to ensure and guarantee the design quality throughout the production process (Akao, 1997; Ficalora and Cohen, 2009:20-21). At this point, tools such as factor maps, tables and matrices drifted into the centre of QFD practices. Throughout 1973, Shigeru Mizuno and Yasushi Furukaya working at Kobe Shipyards – Mitsubishi Heavy Industries mentored improvement of the extended or enriched PAiT so that it could systematically reflect true customer quality needs in terms of functions, exhibiting the relationship, the functions and the substitute quality characteristics (SQC) (Mizuno and Akao, 1994; Singh et al., 2008:164). The integration of the ideas and models so far became known as 'quality deployment' and defined as:

> "…a methodology that converts user demands into substitute quality characteristics, determines the design quality of the finished good, and systematically deploys this quality into component quality, individual part quality and process elements and their relationships'' (Akao, 1990).

Katsuyoshi Ishihara made an invaluable input to QFD by applying concepts from Value Engineering. Value Engineering had a model for defining functions of a product, and business function deployment was articulated to the then narrowly defined QFD.

2.10 QFD as a high-level strategy planning model

In its incremental growth QFD has embraced new strategic tools and techniques that include: benchmarking, critical success factors, Delphi method, dialectical inquiry, environmental scanning and forecasting, trend analysis, experience curves, focus groups, future studies, market opportunity analysis, metagame analysis, multiple scenarios, nominal group techniques, sustainable growth model, strategic issue analysis, strategic gap analysis, situational analysis, product life cycle analysis, and product impact market studies analysis, among others. Those who say QFD does not work, or those who are still waiting many years after adopting QFD, may be erring in the deployment of such tools. These strategic techniques are now widely used in HEIs as tools for quality assurance. How well they are being used is in most cases worrisome. It is critical to establish with what intensity an adopting organisation uses the above tools as they are the mechanisms for deploying quality.

2.11 Application of QFD in education

Okamoto and Rioboo (2002:1) observed that education systems have not exempted themselves from:

> "... implementing improvement strategies that can lead them to better quality, reduced cost, reduced delivery time, as well as better design of services and products, supply chain management, strategic planning and project management."

In his editorial to the Journal *Quality Assurance in Education*, Dalrymple (2010) exhorted the protracted innovative application of approaches and methods from other discipline areas to the quest for measurement and improvement of quality in the education sphere. Among these migrant approaches and methods are QFD, Total Quality Management (TQM), Failure Mode Evaluation Analysis (FMEA) and others that have become common in educational programme quality assurance (PQA). Ever since the prowess of QFD was experienced in the industry, QFD has assumed an expansive content and context, developing into a philosophy and methodology of doing work.

Krishman and Houshman (1993) found that QFD was an effective design tool when they applied it in addressing customer requirements in the design of engineering curricular. The main focus of the study was the 'Voice of Customer' and its subsequent translation into Substitute Quality Characteristics (SQCs) or means by which the organisation would respond to each of the 'Voice of Customer' requirements. This was one of the most explicit demonstrations in linking WHATs to HOWs and means to ends / objectives in education using the QFD approach. Murgatroyd (1993) showed that QFD could also be applied in Distance Education.

Grimes et al. (1994) considering students, academics and staff as customers used an integrative Voice of the Customer to improve educational services. In this study, the student is considered the primary customer and treating his voice together with those of the academics (employees) constitutes the Six Sigma roadmap of DFSS (Ficalora and Cohen, 2009). Grimes's approach was based on the Kano's model, which helps in determining priority areas for both customer and needs. Kano's model (Kano et al., 1984) as in Figure 2.5 has been used over the years to classify customer needs into:

Type B (basic) attributes, or must be or expected

Type O (one-dimensional) attributes

Type E (excitement) attributes

Type I (indifferent) attributes

Type R (reverse) attributes.

The Kano Model can also be used to leverage quality attributes into both the ServQual and the EduQual frameworks both of which are widely used for curriculum development and programme implementation.

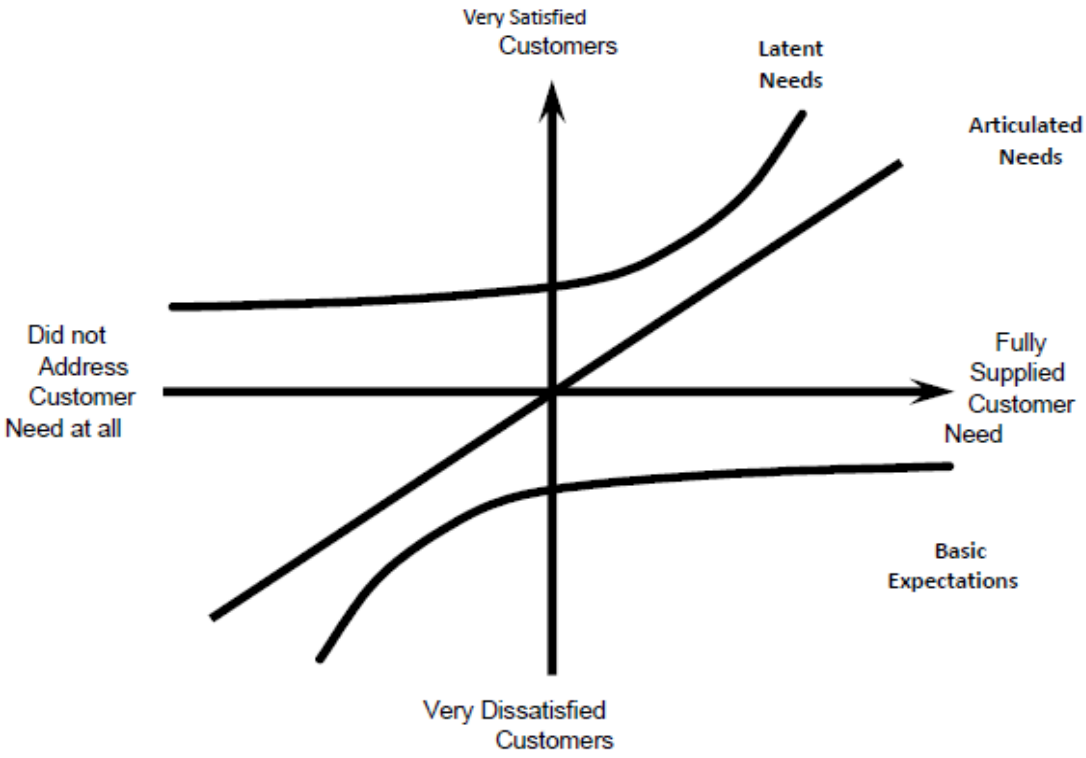

Figure 2.5: Kano's model (Kano, 1984)

All Kano types of attributes are present in curricular design and implementation options and management can, particularly under conditions of resources scarcity makes decisions of what to emphasise and what to defer to future considerations. Based on market dynamics and trending issues the Kano's model can be a handy tool in determining organisational actorhood.

In the same year, Jaraiedi and Rits (1994) applied QFD to the process of advising and teaching where students played the key customer role. At the higher education level, the teacher-lecturer as argued by Macfarlane (2012:25) has duties of being: a mentor, a guardian of standards, an enabler of networking and resource for others and an ambassador for the institution or discipline. The implications of focusing on 'Voice of Employees' in Six Sigma lexicon is that HEIs would understand better how academics define themselves relative to their job, the HEI and students, which is the main reason for the HEI being there. QFD poses a challenge in this regard as it pull the professoriate from their hiding in the shadows to the frontline of strategy formulation and implementation.

Clayton (1995) used QFD to ensure that the value of degree programmes is guaranteed at the design, management, and delivery stages. These were the early indications of the potential of QFD to shift the locus of quality assurance from extra-institutional structures to the centre and fabric of the institution's internal infrastructure. This research showed the inherent value of QFD as a measurement, an assessment and evaluation tool. This served as the first comprehensive signal of the intimate relationship between QFD and the Context-Input-Process-Product (CIPP) model.

Ermer (1995) evaluated a programme's performance using a QFD model that considered students, staff, and industry as customers. Ermer transgressed one confinement that had so far existed: that QFD was just a methodology of doing work, and that the assessment and evaluative power of QFD had not been explored in education; from whence educational institutions could begin looking for ways of using QFD as both a methodology and an evaluation tool.

Hillman and Plonka (1995) used QFD for the design of a curriculum. QFD was reported as effective and supportive in the design process. The study showed how curriculum resources, processes and outputs could be related to key customer needs. While Hillman and Plonka heavily emphasise Voice of Customer and the Product Planning Matrix (PPM), the process they described reveals lots of goal analysis, Target Values (expected learner outcomes) and benchmarking (Competitive Satisfaction Performance).

Nilsson et al., (1995) successfully applied a QFD-based benchmark approach to evaluate a Master of Business Administration (MBA) programme. In present day QFD, the process can link Customer Satisfaction Performance and the sifting of Critical to Quality (CTQ) elements of other programmes. The approach integrated QFD's House of Quality matrices, which made the effort all the more effective and efficient. In Taiwan in the same year, Chang and Ku (1995) showed how QFD can be used to identify the improvement vectors in vocational education. This is one further evidence of QFD's use in Goal Setting and definition of Improvement Ratio with the aim of aligning organisational processes to Customer Satisfaction Performance.

Glen et al. (1998) studied the impact of QFD-based models and approaches in improving educational processes and outcomes. QFD is used in process / business re-engineering, a process that is helpful in realigning, and in modifying processes so that they become more relevant. When well used, QFD should help in interface mapping and thus identification of value-laden processes and those that are what Bevington and Samson (2012:208) define as 'noise'; time and resources wasting and as work that adds no value to the organisation. Glen et al., using QFD as a template, assessed and evaluated the value impact of context, inputs, and throughputs to quality education (Stufflebeam and Shinkfield, 2007). This was yet another attempt at using QFD as a programme evaluation model.

Eringa and Boer (1998) used a QFD-approach that hybrids Applied Service Blueprinting in restructuring educational service processes that took students as primary customers. The key exhibition of this work was demonstrating the versatility of QFD and its potential to work in juxtaposition with other models. Ever then QFD has been used in the framework of Six Sigma and Six Sigma has also been used inside QFD methodologies.

Franceschini and Terzago (1998) observed that QFD can be used in manufacturing and in services industry, including education. QFD may have originated in the manufacturing industry, but as a versatile tool it can still be applied in varied environments for service creation. From then on, many researchers have begun drawing QFD lexicon into education,

with many others finding equivalent processes and alternatives. Franceschini developed what is today known as ‘qualitometrics’ or measures of service quality.

Koura (1998) used QFD to determine student demands and requirements on how lecturers delivered the curricular. This research touches what should be the core of quality assurance work. Teaching and learning are the central tenets of an educational offering and if educational institutions must save those who receive the learning then it must put them at the centre of their strategies.

Lam and Zhao (1998) observed that QFD and Analytic Hierarchy Process (AHP) can be used to improve teaching. AHP is a structured technique for organising and analysing sophisticated decisions that need to factor goals, resources and strategic capabilities of the organisation. Today QFD has increased in prominence as a decision-making tool. Owlia and Aspinwall (1998) used QFD in improving quality in an engineering department. Their study did what QFD is really for: delighting the customer by increasing Customer Satisfaction Performance.

Bouchereau and Rowlands (2000) linked QFD to Fuzzi logic, to artificial neutral networks and the Taguchi method to improve metrics for measuring organisation performance. This study reiterated the value of QFD as a measurement technique. Furthermore it showed how QFD can be used interactively with other techniques. A year later, Hwarng and Teo (2001) applied QFD to the first three steps of the QFD’s House of Quality in higher education institutions.

Ficalora and Cohen (2009) have mentioned that users can determine how much of QFD they want to use, but as highlighted in Chapter 6, readers need to be extra critical in reading research that claims to use QFD, but is actually using a single tool within QFD. Inconsistencies between concepts and practice tend to create undesirable arguments on what should change and what tools should be used in bringing in the desired goals. This fragments effort that is otherwise critical for programme implementation and change in higher education for example. Using a part component of a model is far different from using the

full-blown model and we are expected to be up front about that, lest they mislead the readership. This concern is equally sounded by Al-Kassem (2013) who finds it misleading about the main model or concept be it QFD or TQM.

Chang and Minj-Lu (2002) showed that QFD can be used in juxtaposition and interactively with other models, techniques and tools. This point was made before and illustrates the holistic nature of QFD. A point is reiterated that QFD is a third level-like 'theory' and its analysis needs a pinch of systems thinking.

Sahney et al. (2003) studied the use of QFD in fostering productive relations between industry and academia. QFD helps structure and manage collaborative relations by helping to clarify intentions and expectations. Quality assurance work is being blamed for the lack of integration between its otherwise important constituents. Salih et al., (2003) elaborate with great success on how QFD was used in the design of a course on statistics. QFD is a 'glue' and communication tool that has great potential to bring people and their varied ideas together. Yoshikawa et al. (2003) applied QFD to find strategies for easy learning and mentoring in e-TQM projects. Using QFD's roadmap Technology for Six Sigma (TFSS) users are able to select appropriate technology and apply it to the creation, management and delivery of value in their products and services.

Sahney et al. (2004a) used QFD and SERVQUAL in the gap analysis of quality education and customer requirements in the education system. It was often observed that what higher education institutions teach and what brought the student into higher education and the particular institution are at variance. Chan et al. (2005) investigated the potential of QFD-based curriculum design in the textile industry. The value of QFD in curriculum design cannot be overemphasised. Aytac and Deniz (2005) used QFD in the revision of a curriculum.

Bedi and Sharma (2006) investigated the use of QFD to develop case studies that focus on curricular needs of MBA students. QFD was successful in processes (SQCs) regarding the needs and expectations of students. Thakkar and Deshmukk (2006) examined the use of QFD

in educational competitive environments and found that QFD can improve the competitive position of an institution. Indeed the ultimate deliverable in implementation is enhanced competitive advantage. In the following year, Zheng and Pulli (2007) applied QFD to improve the design of mobile services.

Ikiz et al. (2010) applied QFD to align educational structures to the Bologna Process. QFD helped in achieving fitness for purpose of higher education offerings. External alignment is a critical facet of QFD and the fact that it has proved to be able to establish it gives us the hope that QFD can effectively work as an evaluation tool. In the same year, Mautsch et al. (2010) reported that by using QFD one is able to achieve 'fitness for purpose' and enhance market-orientation of academic programmes.

Thus QFD has been applied at the input, process and output levels of education, with examples in staff and student recruitment, curriculum design, improving teaching and assessment and evaluating post-qualification performance and satisfaction levels of alumni. QFD has continued to be used in education to:

- help in translating voices of stakeholders into educational products and services;
- run Customer Satisfaction Performance with the idea of identifying performance gaps;
- plan to close quality performance gaps between different elements of higher education;
- link higher HEIs to their environments in search of external competences; and
- assess and evaluate educational processes including management processes.

It will be of value that institutions attempting to implement QFD consult the available literature and contextualise the many recommendations. The use and application of QFD in African universities is not widely documented.

2.12 Stumbling blocks for implementation of QFD

Literature has examples of organisations that have failed to implement QFD and many others are still waiting for results many years after adopting what they thought is QFD. Organisations fail to implant QFD because of a number of reasons. Firstly, adoption of QFD needs lots of preparation at all altitudes of the organisation and across its structures. A strong

mental and resources base is a necessity. However this does not mean the organisation must wait until everything is optimal. Organisations that don't prepare and those that wait too long may never taste the benefits of QFD.

Secondly, the adopting organisation needs to run an objective, thorough-going self assessment in conditions of deliberative democracy and 'ideal speech situation' – people talking respectfully yet candidly and without being beholden against or to anything else apart from the desire to see their organisation driving on a QFD strategy.

Thirdly, organisations need to realise that teamwork quality is the basis of QFD and thus organisational politics that encourages workplace 'gangsterism' and yellow-banding is counter-current to the spirit of QFD. Apart from teamwork quality issues, leadership need to be at pulse with the happenings across the organisation, and leadership off the radar doesn't do well for QFD implementation (Hay and Fourie, 2002; Shar and Nair, 2014:147 / 152).

The fourth point is that the quintessence of QFD is gathering Voice of Customer, processing it and satisfying customer requirements. Organisations that adopt QFD to deliver hay to the horses will soon frustrate themselves when they turn to cost-benefit analysis.

Fifthly, QFD is a communication tool that should help management to glue people, processes and issues throughout the organisation. When communication fails, QFD gets constrained. Sixthly, higher education is a regulated business with multiple stakeholders who sometimes have opposing expectations. Institutions that fail to negotiate amicable relations with regulatory agents may find themselves concentrating on bickering rather than finding synergies among them. Lastly, QFD is directed at helping organisations understand their scoring on Customer Satisfaction Performance. More often than not, management impose what they think of satisfaction onto the supply chain. Customers know their needs, and an organisation needs to understand them and work out how to meet those needs.

2.13 Conclusion

The Theory of Constraint forms the theoretical framework of this study and basically affirms

that the success or failure of an enterprise is a complex function of the organisation's ability to manage both positive and negative constraints within both the formal and emergent designs of the organisation. This understanding of the Theory of Constraint permeates all discussions in chapters 2 to 6. Every often I highlight disconnects, hindrances and catalysers of processes relating to quality assurance. The conceptual framework has been discussed with the link between the five elements of the Strategy Focus Wheel and the 14 Best Practice principles. QFD glues these aspects together and helps each of the strands and the principle to optimise their performance. The three perspective of QFD are discussed and this discussion challenges the appropriateness of the Harveyian definitions of quality in contexts where QFD is followed. This new position challenges the traditional prerogative of HEIs management to define quality disregarding the many disconnects their quality had with student, Industry and society's expectations. The Voice of the Customer becomes the new central axis in defining quality because it is the epitome of what those who want the quality say it should be. Discussing the growth and philosophy of QFD should help in understanding how QFD has become increasingly relevant to the higher education sector over the years.

CHAPTER 3 – PROGRAMME QUALITY ASSURANCE IN THE PERSPECTIVE OF QUALITY FUNCTION DEPLOYMENT

3.1 Introduction

Chapter 3 examines the potential link between the 'Quality Function Deployment' (QFD) model and programme quality assurance (PQA), affirming that the link is possible, complex and dynamic. It proceeds to compare and contrast QFD with nine quality assurance models with the idea of establishing why QFD could be a first choice with most business schools. In section 3.5 I examine the process of institutionalisation because the scope of adoption and institutionalisation impacts the rendition of models. In section 3.6 I discuss inconsistencies in quality assurance relating these to the nine models and examining how QFD could sooth the gaps. Dimensions of quality assurance are examined and an evaluation of how QFD could shift the locus of control and the prerogative to define 'quality' is suggested. Sections 3.9 and 3.10 highlight the gaps between stakeholder expectations of quality and the purpose of HEIs, their behaviours and actorhood. In sections 3.13 and 3.14 the role of external quality assurance mechanisms is examined, showing current deficiencies and how QFD could absorb these roles into management agendas of higher education institutions rather than wait to 'suffer' them after their strategies are done. .

3.2 Towards a conceptual model of the relationship between QFD and PQA

In its infancy, QFD has been confined mainly in the manufacturing sector. Over the years, researchers and practitioners have begun to notice the presence and usability of some QFD tools in the services sector. Research into the increasing use of QFD has shown that QFD is being conceptualised quite variably within and across the disciplines (Franceschini, 2002, Ficalora and Cohen, 2009). For instance, those in economics tend to view and use QFD slightly differently from the way those in medicine, banking and hospitality use it. Thus QFD has grown to be a versatile methodology. In fact, Ficalora and Cohen (2009:7) say of QFD that prospective users can adapt the model to fit their contexts and can make own decisions as to how much of QFD they want to use. An attempt to relate QFD to PQA should ideally show the direction of such relationship as well as a blow-by-blow analysis of the structural and processual links between or among aspects of QFD and PQA. QFD illuminates PQA in a

number of ways, which can be summarised by arguing that QFD can serve as a strategy for achieving PQA and ensuring sustainable superior quality performance. QFD offers a systemic and systematic perspective to the conceptualisation, design and management of quality and how the search for quality ('qualitying') should be done.

The endeavour of assuring quality is a 'wicked' and complex engagement where there are no lineal cause-effect relationships. The absence of metrics whose validity and reliability is unquestionable erodes stakeholder trust in claims of superior quality made by both Quality Assurance agencies (QAAs) and HEIs (Harvey, 2006:187). Most reported successes are but anecdotal. The other point is that some measures of quality are prone to distortion and / or manipulation, as will be explained later under the Section on Measuring and Reporting. For instance:

- Can we actually measure quality by **retention rate** when there is no evidence that students respond to midstream realisation of poor quality instruction or programme by abandoning the programme?
- Can we actually measure the quality of a programme by **its popularity (enrolments**) when we have no evidence of the mediating effects of the market (for example market signalling) or affordability (programme fees), or the amount and effect that market signalling (marketing messages) impacted on the student and the sponsor?
- Can we actually measure quality of a programme by its **output rate** without firsthand understanding of its rigour, the psycho-pedagogical level of its content, scope of the programme and the teaching methodologies being applied?
- Can we actually measure the quality of a programme by **an improvement in the grades of the entrants** without a critical analysis of changes in the grading regime of the programmes or curriculum from which they are coming?
- Can we develop satisfaction in quality assurance by saying there has been some **significant improvement since the last audit / visit** when we have no means of excluding management's developed skills of concealing their weaknesses, or increasing visibility of the few things they have been good at, and of whitewashing reports because they now know what matters to the auditor?

These questions take us back to the need for a quality assurance system that is institution based, and one that is within the genetic code of the institution. This is the case for a QFD approach to programme quality assurance. QFD does not repudiate the need for external quality management systems (EQMs). What it does is to take external quality management mechanisms on board as inclusive of the organisation's Strategic Quality Plan. Voices of the external quality mechanisms are captured into the quality assurance process as Voice of Business and Voice of Market. QFD blends Voice of Market and Voice of Business into a Six Sigma roadmap – Marketing For Six Sigma (MFSS). Marketing for Six Sigma aims to guarantee market orientation or fitness for purpose of the organisation's products and services. Blackmur (2010:67) and Singh (2010:193) say that for a long time, people have been waiting for a model or family of models that can innovate and improve quality assurance work. Some authors feel that quality assurance work is failing because of the current structure between quality assurance agencies (QAAs) and those who do the bulk of the work that is involved with quality, in the creation of value of education, its management and delivery (Ramirez, 2013:126). Houston (2010) captures this disparity when he says that academics and disciplines are largely excluded or exclude themselves from quality assurance systems, and when they get involved it is superficial or they are involved in matters of peripheral value. But still inclusion of people without inclusion of their points of view and their experiences undermines their desires to contribute. Without genuine inclusion we lose the opportunity for genuine commitment which would otherwise create a platform for what Goleman and Senge (2014:12) called the 'triple focus'. Triple focusing and what Senge et al (2007 / 2012) call 'presencing' form the bedrock for a protracted and profound change.

QFD has a special emphasis on teamwork quality (TWQ), on cohesion, cooperation, coordination, communication and everyone's involvement. In doing so, QFD takes quality assurance work to the basic units of 'structure' and 'function' in the university. It does the same among higher education stakeholders. Lamentably, most quality assurance schemes are 'forced onto' academics and 'deans' and this has the result that quality assurance work is suffered rather than enjoyed by those who otherwise should be key players (Brennan and Shah, 2000; Macintyre, 2004; Houston, 2010). In this regard, Power (1997:138), O'Neill (2002) and Harvey (2006:290) lament that HEIs lose lots of resources and time in the

production and collation of documents, consequently reducing resources and time for teaching-learning activities. In chapter 2 the thesis stress that interface mapping should be the first step in reducing such wastage so that greater alignment and integration is attainable. Watty (2003:217), Kleijnen et al. (2009:234) use the word 'ritualism' in describing how academics perceived the system of quality assurance, with Newton (2000) having already captured parts of this dysfunction in his paper *Feeding the **beast** or improving quality?* I have emphasised the word beast in bold.

The ideas of total inclusion have been within higher education debate for some time, as is exemplified by Karmel (1990), Graham et al. (1995), and Jackson (1997), who advocated for a shift in responsibility for quality assurance to the academics and the teaching-learning processes. This shift is attainable in QFD since this model advocates for Voice of Employee and the blending of policy, management and activities at the shopfloor level (Ficalora and Cohen, 2009; Macfarlane, 2012). Such a shift would have an implication on the professional identity of the lecturer, his curriculum orientation, and on the content and processes of teaching and how the student learns. The speculative analysis is that the same course outline in the hands of what Macfarlane (2012) classified as 'academic citizens' or 'boundary transgressors' would be treated very differently and would presumably engage students along very different vectors of intellectual growth. QFD does not only reiterate this mentality, but it proffers the tools, methods and philosophy for deploying resources into the functions (structures, processes, policy, etc.) that would create quality.

We can assume that the ideas have been taken and implemented by some, and these should be shining examples of successful quality performance and quality assurance. Throughout Chapter 2 I exhibited that thick quality is created by the disciplined deployment of the 14 management best practice principles across the organisation. Once the infrastructure of the Strategy Focus Wheel and the 14 management best practice principles is in motion the momentum for continuous improvement can be sustained. Continued failure of educational programmes, projects and institutions implies that the discipline of strategic planning is not completely mastered nor is the ability to create conditions for fructification of quality-based models. QFD creates, in the long haul, a quality culture, which many feel is not present in

institutions that are low on quality performance (Shah, 2013; El-Khawas, 2014). The implication here is that HEIs still have much to do in terms of having their own mass of skills and in influences conditions in their institutions.

3.3 Extending the theoretical examination

In both phrases 'QFD' and 'PQA' the word / construct 'quality' is present. Harvey and Green (1993) discuss the construct of quality within 5 frameworks and each has an implication on the orientation of quality assurance mechanisms. These are mentioned below.

- exceptional performance or excellence, which assumes that high standards are exceeded;
- perfection or consistency, which assumes that there are zero defects in both products and services;
- value for money, which relates to performance standards, effectiveness and accountability;
- transformation, which implies a positive increment in knowledge, attitudes, skill set, understanding and behaviour of the student: and
- fitness for purpose, which implies that the education should meet the needs of students, industry and society.

At section 2.4 the thesis alludes at the difficulty of drawing up metrics for each of these constructs of quality. Traditional Quality Assurance mechanisms that focus on quality as excellence, consistency and as value for money find it difficult to measure and report on criteria derived from these constructs. Consequently related quality assurance efforts are difficult to pursue, enforce and control for in an educational programme particularly in the sense they are portrayed by Harvey and Green (1993). For example at Section 2.4 the thesis discuss the difficulty in defining quality as excellence, consistency and value for money. If there is ambiguity at the definitional level we assume there would be fragmentation at the execution level and thus much difficult to draw concerted metrics for measuring how well quality assurance is fairing.

A hermeneutic analysis of 'FD' (function deployment) alludes to ensuring that every process, structure and interface in the system attains the highest standards desirable. Alignment and

integration are key to creation and delivery of high-quality products and services. This is in consistency with the Theory of Constraint which considers incongruence between policy and practice as a major threat to superior quality performance. Equally so, a hermeneutic analysis of 'PA' (programme assurance) should imply that there are efforts to guarantee the presence and functioning of structures, processes and interfaces with an eye to creating products and services of high quality.

The quintessence of QFD in programme quality assurance lies in its potential to proffer tools such as Correlation Matrices and Relationship Matrices. These tools facilitate in-depth structure-function analysis, process analysis and interface mapping both of which are critical in the identification of worthless activities that otherwise waste time and resources without a commensurate addition on quality. Doing this is essentially assuring quality by deploying the management best practice principles of alignment, being time-based and creating customer value. Secondly, Correlation and Relationship matrices help in informing budget and allocation decisions thereby improving the effectiveness and efficiency of the organisation. These two characteristics give QFD an edge over other models: that of self reflexivity, of being able to measure, assess and evaluate its own efficacy as a model. .

From these perspectives, achieving high quality can be seen as a result of improvements, of change and innovation, all of which can be facilitated by QFD. Relating QFD and PQA poses two challenges. The first relates to the theoretical compatibility of the QFD and PQA constructs. To test for the possibility of linking QFD to programme quality assurance, it is important to examine the following questions:

- What are the key issues at the strategic, systems and operational levels of (programme) quality assurance?
- Does QFD inherently address all the key issues of (programme) quality assurance at the strategic, systems and operational levels?
- What are the measures and standards against which QFD can the evaluated and with what intensity do these resemble measures and standards of quality in PQA?

At the strategic level, both QFD and programme quality assurance look at strategies, resources, goal tailoring, and organisational structures that will best serve the requirements of the stakeholder / customer. Quality assurance efforts that are not embedded upfront in the strategic plans of the institution are likely to miscarry either because they don't have case-owners or resources or they are at variance with the programmes's network of objectives.

While QFD defines the customer as the one who matters most for the survival, profitability and market competitiveness of the enterprise this may not be the exact view in programme quality assurance in its traditional sense. But with the advent and increasing prominence of commoditisation, and marketisation of higher education in a deregulated market, PQA should begin to take greater cognisance of these new factors. Complaints about Quality Assurance seem to be about the outdatedness of their standards and points of view (Ramirez, 2013:127) and their repudiation of the emerging business concerns (VoB), particularly for self-funding programmes. We can therefore say that traditional quality assurance is retrogressive.

At the operational level, we can argue that the same measures used for testing the effectiveness of QFD apply for PQA. Literature blames poor quality performance on a number of issues. Firstly is the cleft between external quality mechanisms and internal quality mechanisms (Vagnuer, 2008; Ramirez, 2013). Both custodians of the internal as well as of the external quality management machinery have differing perceptions of what quality is and how it obtains. Most external quality management systems are focused on control mechanisms. Practitioners apparently abhor control and instead require more resources and favourable policy regimes. Secondly are the intra-institutional fragmentations due to the functional nature of organisational structures, reactivity and dysfunctional cultures which are equally blamed for poor quality assurance in higher education. The divide between management and academics in terms of what is quality and how it should be achieved fragments HEIs and degenerate them into competitive and dysfunctional ivory towers.

QFD offers the tools for integration of efforts for quality assurance and the activities for education design and delivery. QFD's focus on cross-functional teamworking, on horizontal integration and vertical alignment help managers and practitioners (academics) jointly assess

and evaluate their inputs in the perspective of Customer Satisfaction Performance. Traditional quality assurance mechanisms look at products and services as having to meet certain criteria. Normally these remain static over many years. This normally puts the Quality Assurance agent at war with the more innovative HEIs. QFD instead looks at producing products and services that chase the changing requirements and tastes of the stakeholder and the customer. The QFD's House of Quality Product Planning Matrix solves this tension. Customer Satisfaction Performance and Competitive Satisfaction Performance are predetermined by the provider and the traditional Quality Assurance agents. Normally these are based on reactive and historic data, if not in the worst, embryonic transplants from other contexts, mainly Western Europe or the USA. QFD uses both reactive and proactive data and runs a blow-by-blow comparison of products and services with those on the market. More examples could be given, but what matters now is to express the argument that at both the strategic and operational levels QFD and programme quality assurance contain more than meets the eye. The factors upon which the effectiveness of QFD can be measured are the same factors that should define good quality:

- Basing decisions on the basis of the voices of business, market, employees and customer
- Collaborative working with openness of sharing perspectives and ideas
- Meeting requirements of the state and its regulatory framework
- Satisfying the needs of the industry, society and stakeholders
- Designing products and services in accordance with needs of stakeholders
- Correlating institutional goals and maintaining a healthy balance among them
- Running institutional assessments and pinpointing performance gaps and measuring Improvement Ratios
- Defining absolute quality values and subordinating resourcing decisions to facts as defined by objective targets.

HEIs can tout of adopting QFD, Business Process Reengineering, TQM, Six Sigma or any of the ISO series models. But what matters is the adopting organisation's ability to work the model in ways that improve Customer Satisfaction Performance of the products and services. It is the effects of the QFD on the totality of education delivery that the student, industry, and society use to evaluate its value and meaning to them. Literature generally defines and

conceptualises this as perceived quality (Q_p), which is a global evaluation of what the customer feels he or she is getting from a product or service (Rust, et al., 1999; Franceschini, 2002).

The general outcry is that current quality assurance schemes are failing to find ways of closing the gap / discrepancy between expected quality (Q_a) and perceived quality (Q_p) (Franceschini, 2002). Expected quality is what the customer expects to get from a product or service based on personal experiences, word of mouth and own imagination or expectations (Rust, et al., 1999; Franceschini, 2002).

$$\Delta Q_{(a-p)} = Q_a - Q_p$$

Where: $\Delta Q_{(a-p)}$ is the discrepancy between perceived quality and expected quality.

Q_a is the expected quality.

Q_p is the perceived quality.

The main reason for the existence of Quality Assurance agents is to close discrepancies between expected and perceived qualities. This means working on the whole system of the educational institution, from the mental framework of those at every level to the activities that seek the smallest organisational goal. It means therefore that a change in our mode of (re)thinking is far more important than any barrage of control measures. QFD powers what Senge et al (2007) called the discipline of systems thinking which loops mental model with a particular paradigm, set of means, objectives and outcomes. Figure 3.1 shows how QFD provides this systems perspective. For instance a new paradigm (model or strategy) should create a new set of means designed to accomplish a premeditated network of objectives (the micro) that are derived from long-term goals (desired outcomes). Houston and Paewai (2013:263) are of the opinion that ‘‘... attending to quality assurance from a critical systems perspective provides a means of exploring its elements in a manner that does not ignore the complex interactions that occur between them’’. Small-scale models that are particular on isolated issues tend to ignore the environment from which the issues arise and its interactions with other issues thus whatever solution is proposed it soon looks out of context and proportion to the realities of the organisation. Let us plug Figure 3.1 into the discussion.

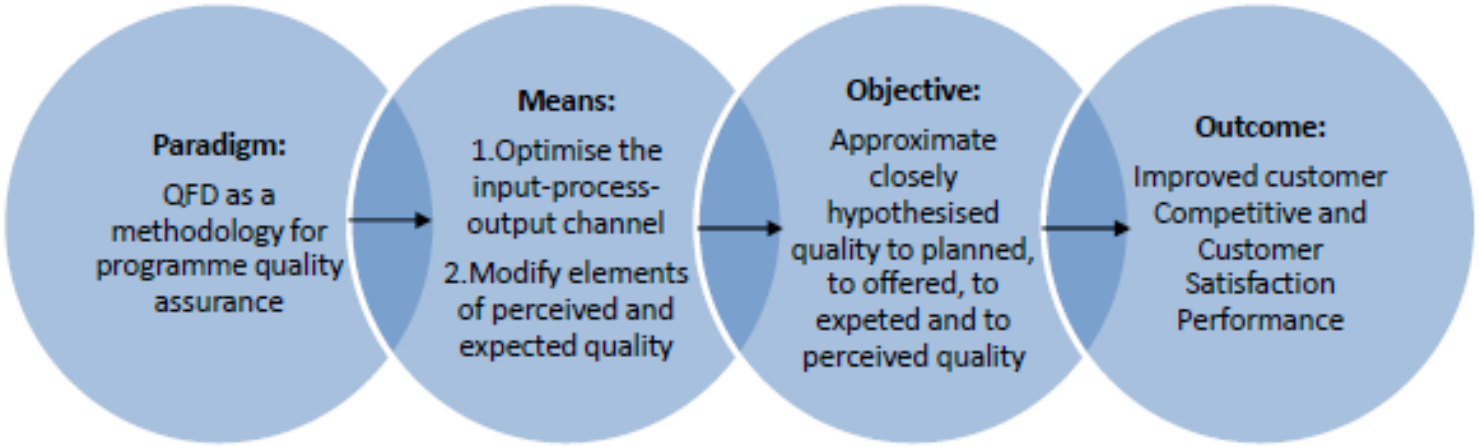

Figure 3.1: Using QFD to meet PQA in terms of needs of the various customers as synthesised from literature

Figure 3.1 indicates how the adoption of QFD will lead into the adoption of the means to optimise processes and resources for the production of high-quality products and services that meet all quality standards that are desired by stakeholders. It indicates the link between the paradigm, the means, the objectives and the outcomes. Next I examine other quality models. The focus is on comparing and contrasting the models so that we can identify gaps and strengths from whence we can pronounce statements of assessment. Next we look at some models that have populated the higher education landscape for some time now.

3.4 Traditional Quality Assurance and evaluation models akin to QFD

3.4.1 Introduction

A model is a real or perceived picture of a concept or relationship in terms of what is currently known. Models are generally used to help to explain certain measurements and observations that have different levels of complexity. Models have a dynamic character, changing over years by negation of obsolete elements and incorporation of novel insights. The presence of a large number of assessment and evaluation models is a good testimony that each of the models is not sufficiently detailed or structured to adequately assist in improving education. Each model tends to be restricted in its focus on educational delivery or is too generic that people find it difficult to appreciate what it means in operational terms. For instance the collaborative model does not mention the tools for instituting collaboration. One or so models may not yield a full description or a complete view of the shortcomings and benefits of the programme subject of an evaluation. QFD, used as a measurement, evaluation, and management methodology subsumes all the models described below.

3.4.2 The behavioural objective model

This model focuses on how the teacher should structure the learning process so that he can have an idea of how much the student is learning. The model expects the student to exhibit certain observable behaviour like explanation, listing, working a tool, etc. This aligns with QFD in that the outcome of education should be an agreed agenda on the amount of change or transformation impacted on the students' knowledge, attitude, understanding, belief system and ultimately their behaviour. In terms of quality assurance the fundamental question is whether the programme, intra-programme products and services and processes are

achieving the intended results. This model and the 4-Level model (Kirkpatrick, 1994) correspond to QFD's Product Planning Matrix and Goal Setting and Improvement Ratio. In terms of quality assurance they overlap in that they can be used to evaluate a programme's impact on participants in terms of reactions, learning, behaviour and institutional results.

3.4.3 Goal-free evaluation model

This model is akin to QFD's stages of institutional assessment whereby the assessors can be internal or external persons. It is also akin to QFD's stage of 'Regulatory Requirements'. Such assessors are assumed not to be beholden to the organisation in ways that are significant enough to bias their judgments. Newer approaches to evaluation emphasise the active participation of internals so that they have a more detailed insight of institutional and programme weaknesses and strengths (Salmi, 2011a). Biases can also be eliminated by the use of more robust instruments that minimise or eliminated opportunities for distorting data and findings. This model has much in common with other models like 'expertise / accreditation model'.

3.4.4 Success-case model

This is an evaluation method that is practical, fast, credible and valid and meant to discover what is working and what is not or what is no longer working well. This model resembles QFD in that it is fact-based and focuses on assessment, measurement and evaluation. These three can be applied at the level of a subject, part-component of a programme or the whole programme or a curriculum. The Success-case model resembles QFD in that it covers a huge area and can be applied on each of QFD stages as it focuses on 'what is really happening'. This focus may be useful in discerning sloganeering from reality (Brinkerhoff, 2003). The QFD model accommodates this approach. At every stage QFD talks of 'results and analysis thus far'. Like in the Success-case model this loop helps in addressing questions as to what is real; what results the stage and the process is producing; the value the results are apportioning to the stakeholders and how the initiative, stage and process could be improved. These are also the achievements of QFD when applied to education.

3.4.5 Utilisation-focused evaluation model

This model departs from the same premise as QFD: that evaluations should be based on the utility and actual use of that which is being evaluated. Literature portrays this model as backward-looking. This is what distinguishes it from QFD which is both backward looking and forward-looking. Voice of the Customer is a key tool in each success-focused evaluation as in QFD. Both can be used to evaluate how utile a lesson, course, programme and curriculum has been. QFD can be used to predict how utile these will be and what needs be done to optimise potential weak points. For both, evaluation is about the information needs of the different stakeholder groups and how the findings shall be used (Patton, 1997).

3.4.6 Empowerment evaluation model

This model covers QFD team responsibilities in QFD contexts. In non-QFD contexts the model advocates for delegation of duties and some responsibilities. The value of empowerment in QFD is about empowering every voice and every structure to make the optimum contribution to products and services quality. The focus here is on empowering more people in more areas so that there is full understanding of the organisation and the many organisational objectives (Fetterman, 2001:3). Examined critically one should observe that the corpus of the 14 management best practice principles gravitate on empowerment of the workforce whatever their level and assignments.

3.4.7 The collaborative model

This model is subsumed in the teamwork and QFD quality cycles. The collaborative approach or participatory approach is covered in QFD's teamwork structure and orientation. Both assume the presence of an infrastructure that encourages collaboration, and provides the resources and tools for collaboration among higher education stakeholders. Using collaborative group working sessions with membership from sections of the organisation and from external stakeholders (e.g. Quality Assurance agents, professional associations, peer review teams, external auditors, etc.) the organisation can make more effective and efficient decisions. Because such decisions are constructed by a broad-based forum, chances of them attracting superior support are high (Berry and Bunning, 2006). However, to come up with the most appropriate solutions, the right problem should have been understood through the

collaborative process (Gutmann and Thompson, 2004). Qualitative and quantitative analysis and modelling can be used to show where exactly a problem resides within the organisational structures, functions, culture or their interfaces. They too will indicate the magnitudes of the problem factors. Whilst the understanding of problems should be objective, solutions and decision making must be subordinated to the need to align and focus on benefits and outcomes. QFD emphasises the value of team working, distributed leadership and the use of technology to engage otherwise distant stakeholders.

3.4.8 The organisational learning model

Elements of this model are covered in the QFD process of institutional assessment, strategic planning through to Goal Setting. In very rudimental terms organisational learning is about understanding the organisation in terms of its mandates / market and developing individual, team and organisation-wide competencies to perform on those mandates to the satisfaction of the market of stakeholders. In contrast, a learning organisation should be one where the acquisition of knowledge or skills is not necessarily driven by acknowledged customer or market needs.

Learning and acquiring skills that impact the large-scale quality performance of the institution is a real necessity in QFD, as in programme quality assurance. As part of the organisation's desire to be out front, the building of strategic capabilities including human resources competences should be treated specially (Dowling and Henderson, 2009:11). Dowling and Henderson (2009:12) identify five categories of generic meta-competencies that include: ''self-awareness and reflection; self-management; communication competences; leadership and influencing; and managing the performance of others''. Each of these categories has been ventilated in literature as important in quality assurance and in positively influencing staff performance at the individual, group and team level. What is apparently lacking is a solid research-based recommendation as to how to work the discipline of organisational learning, thus little wonder why most HEIs are perennial fragmented underperformers. Otherwise most HEIs are unclear about the difference between organisational learning and a learning organisation. The first –organisational learning – is a conscious longevity process of creating knowledge that improves total performance on value

creating and customer-satisfying goals; the latter is a nice-to-have-and-do thing not necessarily connected to preconceived organisational goals. See Section 2.3 for a profound discussion of the idea of organisational learning.

3.4.9 The consumer-oriented model

This model corresponds to the QFD stage of Voice of the Customer and Product Planning Matrix. In Voice of the Customer the needs and wants of the customer or consumer (student, employer, society) are captured with an idea of aligning products and services features to the consumers' voices. Many people consider customer orientation to be the collection of lots of data from the customer / student. In the context of QFD, customer orientation relates to data about the customer and means subordinating the design processes to the needs and wants translated from the collected data – Voice of the Customer. Furthermore, when data conveys a need, the next decision should be about how the organisation should respond to that need.

3.4.10 The responsive evaluation model

A responsive evaluation model relies more on dry and unadulterated communication about programme activities rather than its intent. It relies on giving the audiences the information they require in order to make their own judgments rather than giving them only what the organisation management want them to know about the programme. Furthermore, it requires the reporting on programme successes and shortcomings to be up front on the various standards of interest to different stakeholders. There is no conflict between this approach and QFD. Both are customer focused and both appreciate the diversity of the customer. However, QFD supersedes the responsive model by supplying the tools to be responsive at all stages of products and services conceptualisation, management and delivery. Both are prone to raising quite embarrassing questions that expose the market bluff and the incongruence of work in relation to the needs of the stakeholder. Exposing the provider of higher education products and services threatens the legitimacy of the particular provider, its competitiveness and its reputation. In the context of QFD, this potential for damaging exposures is catered for by a continual Voice of the Customer and validation approach that picks up dissatisfiers and get them sorted in the 'analysis of results thus far' loop (Franceschini, 2002).

Each of the above models may be effective as small-scale, short-term tools for fixing problematic issues. A more embracive and global model is better at dealing with quality assurance issues systematically and systematically.

3.5 Organisational culture and model institutionalisation

3.5.1 Introduction

The speed and intensity of the institutionalisation of a model is a psycho-socio management phenomenon. The psychological makeup of the workforce, the nature of social relationships among the workforce and the way the model and the processes intended for institutionalisation are managed, all influence the responses of the organisation to both the model and what it is meant to achieve. Salmi (2011b:336) identified a number of factors that influence the performance of top research universities, but these factors operate the same at any other universities. These are location; resources and incentives; quality assurance and enhancement; governance and regulatory framework; vision, leadership, and reform capacity; basic freedoms; political stability; economic stability; technological advance; information system and talent of workforce. There should be some amount of 'fit' between the strategy model and organisational culture.

3.5.2 Level of institutionalisation

By 'level of institutionalisation' of a model is meant the intensity and depth to which elements of the particular model are routinised or accepted as friendly and value-adding by the party adopting the model. Ficalora and Cohen (2009:7) are of the opinion that the QFD team can make a choice as to how much QFD they wish to use. There are basically three levels of adoption that relate somewhat to the level of institutionalisation. A model may be adopted in part or wholly, dogmatically or creatively and with permutations thereof. The response to the model matters a lot in determining the success that the organisation will reap from using the model. Building on discussions by Colyvas and Powell (2006), Scott (2008) and Vukasovic (2014:47) institutionalisation is conceptualised

> ''... as a process through which new, initially ambiguous, unfamiliar and resisted ways of doing things become structured, desirable, appropriate, comprehensible, commonplace and routinised''.

Colyvas and Powell (2006:346) classify institutionalisation into low, medium and complete or full institutionalisation, the latter of which is said to involve substantially full exercise of regulative, normative, technical and cultural-cognitive elements of the institution (Vukasovic, 2014:47). In terms of its scope, programme quality assurance work can embrace normative, technical, regulative and cultural-cognitive aspects. The idea of university actor-hood is used here to claim that universities don't do any work, but the people within them do. Thus institutional work in HEIs can be compressed into normative, regulative and cultural-cognitive work. Figure 3.2 indicates the incremental nature of institutionalisation of a model.

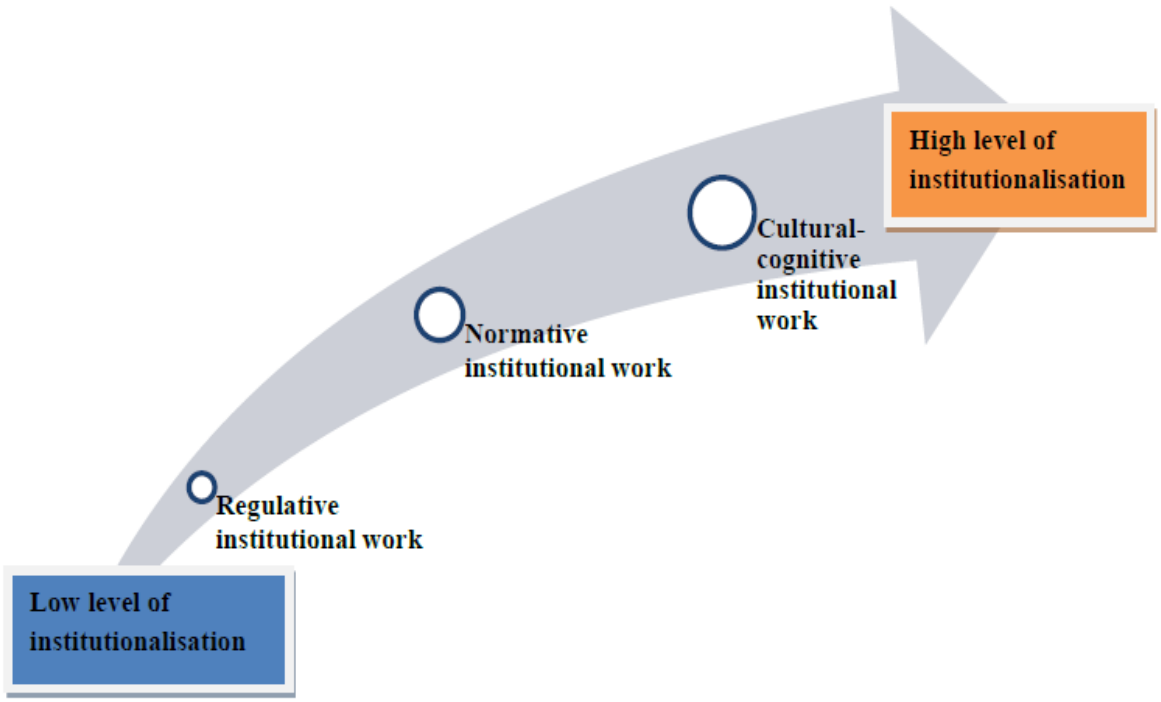

Figure 3.2: The looped incremental relationship between elements of institutional work as synthesised from literature

These areas are covered extensively within the stages of a QFD model and there is an array of tools within those stages that help to enhance exploitation of each work area. Institutional work on the cultural-cognitive elements of quality assurance is about building capabilities for sustaining continuous improvement. It is also about learning and converting learning into competitive advantage. The idea is that good behaviour should be institutionalised, but the process of internalising 'reason' requires some training or other stimulus or catalyser, which

is where training, mentoring and coaching come in handy. In Chapter 2 both the theoretical and conceptual framework highlighted the benefit in building strategic capabilities through training, coaching, and mentoring as processes within the learning organisation and as part of the behavioural objective approach; four-level model; the responsive evaluation model; empowerment model and organisational learning models. These have been used over the years in different contexts for quality assurance.

QFD's House of Quality underscores the value of goal setting, of target values, and of relating WHATs to HOWs through a number of matrices. Institutional work on cultural-cognitive elements of quality assurance builds on institutional work on normative aspects of quality assurance. Normative work normally involves the governance issues such as democratisation of the decision-making processes, of institutional self-assessment, teamwork quality, Customer Satisfaction Performance, and any work that smoothen institutional management. Institutional work on the regulative aspects of quality assurance includes the setup of a structure-structure, structure-function, and function-function relationship. Alignment and integration of structures, functions and processes creates a strong base for institutionalisation of a robust quality assurance infrastructure. Quality Assurance is more meaningful when actors within quality assurance enjoy it rather than suffer it.

3.5.3 Managing the link between quality model (strategy) and organisational culture

The speed and depth of institutionalisation of a model should depend on the structure-structure, structure-function and function-function relationships within the adopting organisation. The interfaces among these and the content and processes of leadership also influence the speed and depth of institutionalisation. It is critical therefore for management to show sensitivity to the structure and mobility within the factor interdependency field, including those that take place as the new model wedges into organisational life. Pearce and Robinson (2009:397-401) discuss four ways or strategies of managing the strategy-culture relationship. These include linking the strategy and culture to the organisation's mission. The second option is to maximise synergy between the strategy and the culture. The third bailout kind of option is to manage around the culture of the organisation. Finally is the option of reformulating either the strategy or the culture or both.

It is possible that an organisation can be working on one, two, three or all of these strategies on different aspects of the organisation simultaneously. It is widely ventilated in management and strategy literature that culture can affect the success of an organisation. For instance, some aspects of the internal culture of academia have been seen by Kezar and Eckels (2002) and Veiga et al. (2011) to constrain quality improvement initiatives.

Reformulating the strategy is a drawn-out exercise that includes transforming the 'customs and practices' of the organisation. Care needs to be taken in engraining changes, particularly with customs and practices that have become deeply engrained in the organisation's architecture. All the same, they have to be uprooted. If the cost-benefit analysis favours the reformulation of the strategy or model, the organisation's first choice may be to phase in the new strategy or model bit-by-bit while using the Theory of Constraint and strategic risk management tools to manage the organisation's risk envelope.

Managing around the culture is the method whereby management introduces major unfamiliar organisational changes as it paves the way for the new strategy. The lookout points are to catalyse and invigorate those desired changes while weakening all forms of resistance and weeding away growth inhibitors. Pearce and Robinson (2009:399) list a number of ways of managing around the undesirable culture: creating separate entities; using task forces, teams, programme coordinators; bringing in an outsider; outsourcing the service or selling away the entity. These strategies have been variably tried in quality assurance work.

Linking to mission is a strategy of choice where a majority of proposed changes square in with the culture of the organisation and these proposed changes are compatible with the organisational culture. The strategy of linking to the mission is premised on three assumptions. The first is that the mission in itself is meaningful and is worth of pursuing. In QFD contexts the only worth of pursuing mission is one that is customer-oriented. The second assumption is that there is currently a mismatch or broken link between the mission and organisational culture. This can be the case when for example there are two dominant perceptions of quality among organisational sectors for example one based on excellence and

another on consistency. The third is that the proposed changes and the current culture weakly share a vision but are at variance on a pragmatic level. This is, for example, where there is shared vision of quality as fitness for purpose but constituents differ on how to do that 'quality'. Critical factors of success in the strategy of linking to the mission will be making the link between major changes and the culture visible. Other critical success factors include retaining experienced staff and enlisting previous and current opponents of the change into the change process.

Maximising synergy is a strategy that an organisation can adopt when it has to introduce some desirable changes and is lucky to have the compatibility of the desired change and the extant organisational culture. Organisational strategists and workforce will thus have the task of synergising the desirable new and the existing desirables. The second task would be to remove any roadblocks to the cementing of the link between the new and the existing. Synergies can also be achieved between the organisation or parts thereof and externals, for instance the quality assurance agencies. However, as reported in Harvey (2006:288), people are more prone to react to suggested changes with hostility and disdain, particularly those emanating from outside them.

3.6 Inconsistencies in quality assurance

3.6.1 Introduction

Various authors have used the term 'disconnect' in reference to the absence of some link where they should naturally be present. And in most cases people have an idea that such connectivity should be there but other compelling circumstance just get in the way, not excluding unethical or those resulting from unethical tendencies. Many authors have used 'disconnect' which differs clearly from 'disconnection' in which the latter refer to a link that was once present but has become lost. In the sections that follow the thesis discusses inconsistencies in quality assurance and suggests that the stages and tools of QFD could be used to close on the inconsistencies. The deployment of management best practice principles of integration, alignment, creating customer value and linking the micro to the macro would do a lot in removing any such inconsistencies.

3.6.2 Disconnect between purpose and metrics

Bevington and Samson (2012:208) define noise as:

> ‘‘... non-value-adding time, potentially distributed throughout the whole supply chain, that is a direct consequence of not doing the strategically needed core activity earlier in the process. Noise is the consequence of failure to do the job once, right first time and therefore includes chasing, correcting and duplication. Noise is always measured in resource hours’’.

Noise is measured in resource hours and another way of looking at it in monetory terms is to total all hours lost by everyone who worked on the ‘noise-job’ plus the number of hours that shall be lost in correcting the ‘noise-job’ by everyone involved plus the costs of ‘waiting’ for the corrections. Rework (re)uses resources, time, and money gets wasted. From that we can assume that noise in quality assurance work can come about when those who should protagonise quality assurance fail to do one, two or so of the stages in QFD: institutional analysis; strategy planning; engaging stakeholders; listening to regulatory requirements; relating organisational competences to the needs of the stakeholders; seeking authentic strategies of satisfying the stakeholder; learning effective and efficient ways from others; setting goals and improvement ratios with the aim of continuously improving quality and its accoutrements. There are numerous disconnects between processes, structures and mental frames that should stand together in assuring quality in higher education. Stakeholders have differing expectations of what universities should be teaching: should they focus on hard content or on skills, and which content or skills to emphasise.

There is inordinate amount of disquiet on what should be the purpose of HEIs from whence the purpose of quality assurance should be drawn (Altbach, 2012). There are also debates on what quality is among quality assurers, as is the case among the actors (management and academics and among academics themselves) in HEIs. Academics struggle with combining rigour and relevance in the curriculum. Lodge and Bonsanguet (2014:3) highlight the importance of addressing that link in research. What universities stand for is equally equivocal among society. In this regard, Lodge and Bonsanguet (2014:3) are of the opinion that ‘‘learning is core business for universities, though at times it might not be obvious that this is the case’’. No wonder the world over is grappling with the increasing numbers of ‘garage universities’ (The World Bank, 2000:32), ‘pseudo-university’ (Altbach, 2001:8),

'demand absorbing institutions' (Altbach, 2009) and all sorts of 'diploma and degree mills' (Altbach et al., 2009) as well as 'accreditation mills' (Ezell, 2007; Altbach et al., 2009:60). Even for the recognised institutions, judging by a selection of objective measures, there is little to build confidence that HEIs are delivering robust, value-adding benefits for society, industry and their students (Shermis, 2008; Arum and Roksa, 2011; Lodge and Bonsanguet, 2014:4). This suspicion comes from research and experiences that confirm such perennial ills in the higher education sector, which Bamber and Anderson (2012) describe as the absence of theory that guides the evaluation of the complex instructional process. The proliferation, popularity and disdain after forced closer by quality assurance agencies of some of the so-called informal providers should send us re-examining our metrics of quality.

The situation on the ground is one where standards and measures are doubted. In fact, the section for quality assurance in the higher education landscape is littered with tools and techniques that don't measure what we think we are measuring. QFD may provide a new and more relevant way of assessing the HEIs than the ''... poorly defined and confused performance indicators'' currently in use (Lodge and Bonsanguet, 2014:4). With the explosion of information technology, the number and nature of tools available to those at the terminals of technology has exploded. Most HEIs have resorted to 'cut and paste', thus multiplying the nature of generic tools and instruments for assessing quality learning.

As instruments are multiplying, apparently the cleft between instrument-to-purpose fit have widened. Most collect data from students. This has little strategic value. What has strategic value is data about the student so that action about the student is taken. Tracer studies have shown the ubiquity and longevity of such deficiencies in the higher education sector (Bok, 2006; Borden and Young, 2008). One of the cumulative effects of such disconnects is the strategic drift of the university from its supposedly core business of learning and the ways in which they are evaluated and legitimised (Lodge and Bonsanguet, 2014:5). There is little wonder why literature finds university rankings of no value to the core of teaching and learning. If we should assume that the core of quality is learning, then equally learning qualifies as the chief or key constraint in the instructional relationship. By this thread, and the discussion in Chapter 2, everything else then would need to be subordinated to the learning

deliverable(s). The most ventilated constraint is our way of thinking or responding to issues around us and we referred to this in Chapter 2 as 'mental models'. The thesis's argument is that the way we think and conceptualise quality and quality assurance, how they can be gotten and how they matter to every one of us should determine our success in the pursuit of quality and quality assurance. Coming back to the question of mental models and systems thinking we observe that stakeholders are at variance about the conceptualisation of learning. To exacerbate issues, most HEIs are reported to be using proxy measures of the learning experienced by students, thus adding strength to the web of distrust about the actual value that HEIs are adding to different stakeholder groups.

Measuring instruments are condemned for their lack of validity and reliability (Porter, 2011), lack of usability (Harvey, 2003; Richardson, 2009) and a host of other nuances (Lodge and Bonsanguet, 2014:7). Earlier, Astin (1991), Heywood (2000) and Race (2006) had pointed out that most instruments don't measure what we want measured or just don't measure what they should. Boud and Falchikov (1989), McCabe (2010) and Bowman (2011) found that students are often at sixes and sevens about value added to their knowledge, attitude, skills set, understanding, behaviour and belief system (KASUB) by their scholarship. To enhance their accountability profile, HEIs are shifting toward the use of objective and comparable measures of student learning outcomes (Marginson, 2009). With increased quality literacy levels, more and more people are able to decipher inconsistencies between instruments and what their users claim to be getting by using them.

3.6.3 Accountability as a mode of quality assurance

Educational institutions adopting one or the other model do so with a number of goals. If seeking accountability is the goal, then management needs to manage it at three levels: accountable to whom; accountable for what and how to account. There is an intimate relationship among the three accountability elements, as shown in Figure 3.3 below. The way staff perceive a model influences their response to it. It actually reflects how it views the model against the purpose for which the model would have been adopted. Following the 'theory' of 'university actor-hood', we understand that institutional work is what the staff within the HEIs do either to build or to destroy, for good or for bad. The QFD team in this

context becomes the protagonists of the institutionalisation of programme quality assurance through a QFD-based approach. In doing their quality-seeking work, actors within HEIs should seek to account to the various institutional stakeholders. Figure 3.3 indicates to whom and how the organisation would account for a variety of expectations. The accountability should demonstrate conscious efforts to increase on a continuous basis institutional effectiveness and efficiency. More often than once, management overwork the more visible aspects of institutional work, sometimes neglecting the more important, strategic, yet less visible aspects of institutional work. Accountability can be shown through a number of strategies as long as they communicate to both the internal and external stakeholder groups. Such communication often takes an air of marketing rather than of 'fair commenting' on institutional progress.

	Accountable to:	**Accountable for:**	**Accountable by:**
Traditional approaches	Government and funders	Programme of study	Making some data public
QFD approach	The customer	Alignment of actorhood to Voice of the Customer	Measuring and reporting on progress on all Voice of the Customer issues

Figure 3.3: Accountability for, to, and how as synthesised from literature

The question of accountability in QFD contexts takes very different dimensions to the ones ventilated in literature and is exemplified in the diagram above. In QFD the target of accountability is the customer. The purpose of the organisation in QFD is to meet the ever-changing tastes and preferences of the customer. The customer is the key source of revenue and deserves the greatest amount of accountability. By running Voice of the Customer the organisation's aim is not to hoodwink the customer into thinking that he is king. The idea in Voice of the Customer is to see how the organisation can be made more customer-oriented and by focusing more and more on continually improving his satisfaction the organisation is paying back for the time and effort lost in responding to Voice of the Customer surveys. Whilst accountability in traditional higher education is to the government and the local power

structures, in QFD it is all about giving the customer the greatest in terms of products and services that exceed his expectations. Up to this point we have loosely referred to various dimensions of quality assurance.

3.7 Dimensions of quality assurance

One of the strategic challenges facing HEIs today is the question of how to align and mutually integrate three key vectors: the curriculum vector, the quality assurance vector and the institution's strategy vector. In the context of physics, a vector is a quantity that has a magnitude and a direction. The magnitude in a curriculum is the content and volume of what a subject or programme covers, and the amount of time that the teaching-learning process occurs. Consequently the direction of a curriculum can be measured in terms of what the curriculum seeks to achieve, the value-addition factor, and its objectives.

A magnitude in quality assurance can be the number and diversity of the criteria that are used by internal and external quality assurance agencies. Quality assurance schemes may range from cosmetic, compliance-focused to improvement-oriented ones. The direction of quality assurance may as well be externally motivated or endogenous. The direction can be positive and that is when the idea behind the effort is to increase or enhance what is already present. The vector of quality assurance may be considered negative when it is about reducing and doing less of something. In QFD's Kano model this corresponds to Type R (reverse) attributes. In one of the stages of QFD, goal setting and improvement ratios are discussed and it is not uncommon to find management opting to ignore certain issues of value so that resources are freed so that they can be used for doing more of another type of attributes. In non-innovative visibility-seeking organisations emphasis on Type E (excitement) attributes is common. It is not unimportant to 'excite' one's customers by adding a number of 'wow' effects in the programme. The question is about the morality dimension of quality when it comes to having high quality facilities and cars when the core of teaching and learning is suffering without resources. At the international level, quality assurance is about finding common understanding of factors for qualification recognition. It is also about learning from one another. At the national level, the focus of quality assurance is the national development priorities. At the discipline level quality assurance covers parity of standards based on

qualification descriptors and a system of subject reviews. At the institutional level, quality assurance is about the presence of a risk management infrastructure that encourages quality enhancers whilst weeding away threats to quality.

At the programme level, quality assurance's focus is on how the individual subjects deal with the development of knowledge, attitudes, skills set, understanding and behaviour of graduates. At the subject level, quality assurance is about the rigour, relevance and fitness for purpose of the instructional relationship. At the lecturer level, quality assurance is about the lecturer's credentials, psycho-pedagogical adaptability and content mastery. At the process level, quality assurance is focused on a processual relationship in which the student learns unlimitedly. Whatever its scope, quality assurance should seek to integrate improvement work and an orientation for innovation in a never-ending manner. Figure 3.4 exhibite this desirable.

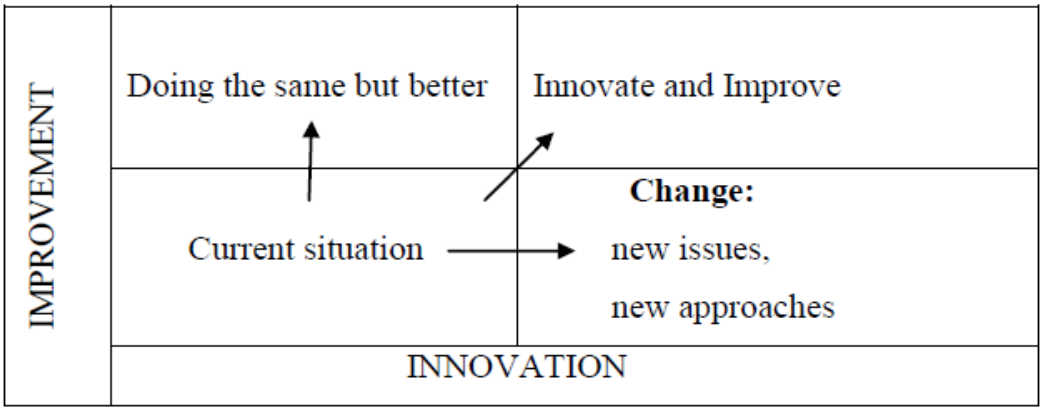

Figure 3.4: Two dimensions to quality assurance (Yorke, 1994)

Whilst QFD has clear cognisance of the two orientations, traditional Quality Assurance models tend to encourage only the improvement aspect of quality assurance. Aytac and Deniz (2005:512) conceive that methodologies like QFD can be used as a guiding tool for improving educational activities at every level of curricular activity and by any player with a stake in educational quality. National quality agencies have also sought knowledge, competences and advices on how to improve and innovate from across their country boundaries. This is exemplified below.

3.8 Global and international efforts at quality assurance

The value of cross-border collaboration in quality assurance (QA) is increasingly being recognised globally and in Africa (Materu, 2007:37) with more and more quality assurance agencies increasing their operations across the borders of their national origins. Specialised programme accrediting bodies that are now international players include the US-based Association to Advance Collegiate Schools of Business (AACSB) and the Accreditation Board for Engineering and Technology (ABET). The European Quality Improvement System (EQUIS) (OECD, 2004) and the International Network for QAA in HE (INQAAHE), which was established in 1991 to collect and disseminate information on current theory and developing practice in the assessment, improvement and maintenance of quality in HE (Materu, 2007:37) has become international players as well.

European Union nations, in 1999, launched the Bologna Process, and invested in it in the hope that it would strengthen European cooperation in QA. The Asia-Pacific region launched the Asia-Pacific Quality Network (APQN) with a mandate to cohere quality assurance efforts in the region. The Latin American region launched the RIACES to spearhead quality assurance initiatives across the region. Within Africa, rather fragmented efforts have been shown, yet with a common interest in assuring the superior quality of higher education. The only body that has a continental focus is the Association of African Universities.

The other institutions are fundamentally regional: Southern African Regional Universities Association (SARUA) and the Higher Education Quality Initiative (HEQMISA) for SADC countries; Inter-University Council of East Africa (IUC-EA) for East African nations; Counseil Africain et Malgache pour I'Ensignement Superior (CAMES) for francophone African nations; North Africa and the Middle East-Arab Quality Assurance Network for Higher Education (ANQAHE) for Arab-African nations and Arabic nations of the Middle East. If all these organisations have a shared vision, about a similar customer, and similar goals then teamworking and the application of QFD to their work should be feasible and very rewarding. Why these organisations continue to fail to find synergies and collaboration among them is arresting. It is interesting that they continue to be protagonised by academics,

serving as employees. Thus however discussions may happen, it remains doubtful how they represent positions of other absent stakeholders to higher education.

3.9 Stakeholders views of the purpose of higher education

What does the world gain from higher education that it would not have without it? What would higher education be without the quality assurer? Would any type of higher education be fit for our purpose? In this section I discuss some of the proclaimed benefits of higher education. The main purpose of higher education institutions is to create intellectual, social and economic capital and transform society into a learning society (Milisiunaite et al., 2009:6). File et al. (2009) suggest that three key functions of HEIs are firstly, to create conditions for an attitude for lifelong learning by developing and exploiting the potentialities of individuals, by preparing students for the labour market and providing for their employability. HEIs would achieve this by developing new knowledge in all disciplines and preparing cadres for civic society based on principles of democracy. Secondly, HEIs must create and reinforce conditions for the development of innovation, research-and-development in ways that encourage their use and to apply research-and-development as a springboard for innovation. Higher education must therefore promote learning through teaching, research and community outreach projects (Houston, 2010:178).

Harvey (2002) however laments that quality assurance processes pay little attention to educational theory, educational processes, or student learning and are not aligned to what is generally accepted as purposes for higher education. The United Kingdom's quality assurance agency sees master's degrees as "designed to fulfil a range of purposes" reflecting "both the desires and ambitions of students and the traditions and needs of particular disciplines and professions" (QAA, 2010:4) and "prepare students for the next stage in their career" (p. 13) and "to contribute toward research in the discipline" (p.11). Jabnoun (2009:416) proclaims that HEIs are a source of national pride and ''play a pivotal role in economic competitiveness and the sustainability of economic growth''.

A World Bank Report claims that with good higher education systems nations are better able to deal with health, development, engineering, and socio-political issues. The document

further states that higher education plays a catch-up role particularly in creating the critical mass of skills in the manufacturing and services sectors (The World Bank Report, 2000:17). Bloom et al (2005) and Hayward (2006:6) report that higher education may help Africa broaden its manufacturing base, promote further technological catch-up and improve its nations' abilities to maximise economic output. Houston (2010:178) and Williams (2011:1) argue that the purpose of higher education is to promote learning through core functions of teaching and research. They further assert that quality initiatives should therefore result in the improvement of teaching and research. However other literature show that little has changed since Harvey (2002) decried that quality assurance processes apparently paid little attention to educational processes, educational theory or student learning. Houston (2010:179) says that higher education should actually empower and encourage lifelong learning in ways that benefit society.

Most literature concur on the purpose of higher education. Based on a wide ranging study the QAA (2010) discovered that master's degrees may be designed with more than one purpose in mind, among these being to enable master's graduates to:

- focus on a particular aspect of a broader subject area in which they have prior knowledge or experience through previous study or employment;
- focus on a particular subject area or field of study in greater depth than they encountered during the course of previous study and experience;
- learn how to conduct research often linked to a particular discipline or field of study and thus contribute to the discipline;
- understand a research project on a topic within the area of interest that makes up the majority of the overall assessment;
- specialise or become more highly specialised in an area of employment or practice related to a particular profession; and
- prepare themselves for the next stage in their careers, whether pursuing further research or entering employment of different kinds.

What then should be the attributes that we would expect to see in a master's degree graduate if we consider the perspective of the ideal purpose of higher education and the ideal second

cycle curriculum? To what extent is the curriculum fit for purpose? It can be concluded that it is important for both arms of quality assurance to focus on the design and delivery of curricular that will ensure quality higher education. A lot of research has focused on the development of modes of focusing on some of these purposes.

3.10 Philosophy and methodology for curriculum development, quality assurance and the idea of ideal master's graduate

Graduates of master's degree programmes are expected to have a certain level of skill that should help them to be employable, to be employers and protagonists of many socially responsive initiatives. The methodology of instruction must therefore align with the expectations of the ideal master's graduate. The philosophy of education as well as of quality assurance must then ensure the presence of an appropriate methodology of quality assurance as well as of teaching and learning. Figure 3.5 show the proposed relationship. This kind of link is apparently lacking in national and institutional quality assurance structures despite being widely present in most literature (Bowden and Marton, 1998, Coates, 2010). This shows the difficulty of making the proposition work which may be because the proposition is excessively abstract.

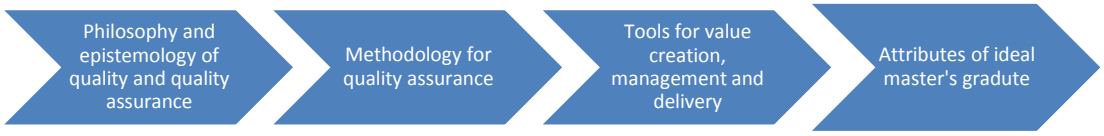

Figure 3.5: The traditional epistemology of quality education as synthesised from literature

The traditional approach to the relationship between ideal graduate and philosophy of education is that the philosophy precedes and determines the quality of the programme graduate. What if the philosophy is erroneously premised? A philosophy may become dominant because it is protagonised by a group that has absolute power within a discipline or society. Philosophies should be as good as they are collaboratively built by those affected by them. This is the basis of Voice of the Customer in QFD.

Graduates of master's degrees are expected to have a bundle of subject-specific attributes as well as generic attributes. In a general sense, master's graduates would be considered to have the abilities to take responsibility and use initiative, and to offer creative and innovative solutions to all sorts of problems. They should be able to initiate and take decisions in challenging situations and develop themselves into meta-cognitive learners. Master's graduates should be able to communicate effectively and adapt strategically with efficiency and in ways that are effective. Further to the repertoire of generic skills, master's degree graduates are looked upon to exhibit subject-specific attributes that include profound knowledge and understanding of the discipline. Such profound mastery of the discipline should be rooted in lifelong learning, awareness of the currency, evolutionary trends in the discipline and other developments around the knowledge areas.

Students graduating with a master's degree should be able to complete a research project by way of critical literature review or by empirical methodology. This requirement calls for proactive behaviour, analytic abilities, synthetic abilities, teaming abilities, communication abilities and abilities to solve problems. Sahlberg (2006) strongly advise on the need to abandon the old fact-based curricular and adopt curricular that place focus on developing thinking skills, interpersonal skills and creativity. Other models challenge higher education programmes to develop strategic skills (Scott, 2008).

Alex Scott (2008:38) postulates that 'strategic thinking' arises from an in-depth command of various academic subjects that cover management, financial, economic and analytical issues. From such a foundation of knowledge, the graduate should be able to identify models that suit his circumstances as well as use prescribed models to navigate through workplace and life issues. Sahlberg further affirms that one can actually be considered a strategic thinker when one's synthesis and evaluation skills are sharply developed. Other skills identified as critical for life and employability include emotional intelligence and social intelligence. In fact, Lowden et al. (2011, p.4) talk of literature that has developed taxonomy of skills. These skills are classified as: ''core skills; key skills; common skills; transferable skills; essential skills; functional skills; skills for life; generic skills and enterprise skills''. To what extent is the work of the various quality assurers guided by these taxonomies of employability skills?

Owlia and Aspinwall (1998) rank-ordered factors they felt are determinants of the overall quality of graduates. These are the quality of delivery and management of programmes of study; recruitment, appraisal and development of the staff; rigour with which study programmes are designed; guidance, counselling and support given to students; quality of admission criteria; service support of study programmes and assessment of students. Apart from this identification there have not been robust ways of improving the focus on these aspects with regard to the higher education strategic planning and Quality Assurance agents' formal designs. An analysis of literature show that we are awash with ideas about quality assurance but not as much with the strategies of how the ideas can be made to work.

3.11 Improving the quality of quality assurance work in HEIs

Quality assurance (QA) is a planned and systematic process of reviewing a programme of study or an institution with an eye to determine whether or not acceptable standards of education, scholarship, and infrastructure are being met, maintained and enhanced (Materu, 2007:3). This definition of quality assurance contains a number of aspects that characterise programme evaluation. Wall (n.d.:1) conceptualises programme evaluation as:

> ''a purposeful, systematic, and careful collection and analysis of information used for the purpose of documenting the effectiveness and impact of programs, establishing accountability and identifying areas needing change and improvement''.

One of the generic purposes of quality assurance mechanisms is to inform the public on how well higher education institutions (HEIs) are meeting public expectations and what they declare either in good faith or as marketing gimmicks. Because of the heterogeneity of international economics, politics, markets, cultures, etc the term quality has become more and more contextual and stakeholder dependent. In 2006, the Vice President of the European Association for QA in Higher Education said that because of the elasticity of the term 'quality' Quality Assurance mechanisms must be equally flexible and follow the trend if they are to be relevant and of service at both the national and international level.

To improve their relevance, Quality Assurance systems must measure both the fitness of purpose (focus on process) and the outcomes of higher education (focus on the graduate). Nunan and Calvert (1992) argue that where measurement of quality focuses on the student as

a product of education, quality is seen as value added by the process of education. They further argue that when the emphasis is on management of quality, the focus shifts to strategies for achieving and improving quality (Nunan and Calvert, 1992). Both transformation of the student and the institutionalisation of quality improvement strategies must be seen as interweaving facets that have a mutual enhancement effect. A quality assurance perspective that encourages and values diversity above certain thresholds proffers incentives to institutions seeking to brand themselves with new products, services and processes. While there is abundant agreement that the process level of educational activity defines the core of quality, the reality is that there is also the level of education that is most difficult to measure and to monitor. Teaching and learning happen far from the control and monitoring activities of management and of the quality assurer. Poole (2010:6) feels that the narrowness of certain definitions of quality may misinform quality assurance work. Further to this observation, Rowley (1997:9) thinks that the definitional ambiguity on 'quality' would potentially confuse any efforts to quality assurance.

3.12 Features of an effective quality assurance system

3.12.1 Impersonal attributes

Effective quality assurance systems are characterised by a number of attributes, as pointed out by Massaro (2010:23-24). The system must be crafted and owned by the institution and accepted by those on which it will be used (the institution) and for those it is meant to serve (students, industry, society). The hallmark of a QFD approach is to make the provider organisation take responsibility for the process of creating, managing and delivering high-quality products and services. The quality assurance system must serve the purpose of higher education and of the institution in particular.

The public must be able to see evidence of quality in the service. An effective quality assurance system would need to be a detailed and thorough cyclical process rather than a seriatim of brief and superficial runs of checklists. Due to the increasing diversity of the student market and delivery systems in higher education, the quality assurance measures need to be sufficiently flexible and diverse. Indeed, quality assurance systems must promote

diversity. Quality assurances are both inward and outward looking and their deliverables must be disseminated in terms that are understood by a lay audience.

To be of both corrective and developmental value, quality assurance systems must address the issue of standards and be conducted at both the programme and subject level. In this epoch of globalisation, quality assurance mechanisms should contain international comparative measures and should be conducted by both national and international peers. A huge concern in higher education today is how to translate employability skills and industry requirements into the curriculum. Further, the credentials of those in quality assurance must be of high probity.

3.12.2 Human competences

The argument presented here is that the quality assurer should be characterised by systems thinking, having a shared vision with stakeholders, excellent team learning skills, possess a mental model of the complexity of quality assurance and be self-governing (Senge et al. 2012). The second argument endorses a systems thinking approach that argues that the quality assurer must be able to draw a vivid picture of the vertical and horizontal integration of the quality assurance work. The third calls for a new epistemology of quality, a new mental model that looks at everyone as a quality assurer at whatever level and role in the higher education landscape. This includes the student, academic, staff, team, Department, Faculty, institution, quality assurance agency and the whole nation and supranational agencies.

Quality assurance systems in Africa are still in their embryonic stages of development and are experiencing numerous constraints that include the human capacity in terms of expertise and availability for quality assurance projects and jobs (Materu, 2007). It goes without doubt that the credentials of the assurer of quality in higher education is as important as should be the quality assurance infrastructure itself. There is lack of competence and capacity development for those in quality assurance assignments at the accrediting agencies, at institutions and within peer review teams (Materu, 2007; Massaro, 2010). Furthermore, there are massive problems at the accrediting agencies and at HEIs to collect and process the data,

information and self-analysis needed for effective self-studies (Materu, 2007:49). The quality of those at the forefront of assurance mechanisms has an effect on the quality of response their organisations receive from those for which and upon whom quality assurance is done. Materu (2007:65) alludes that the integrity, credibility and legitimacy of the work done by quality assurance agencies depend on the credentials of the professional staff leading the quality assurance process.

Professionals at the national quality assurance level need skills for system conceptualisation, the development of methodologies and for rolling out of quality assurance systems. Effectively, professionals in quality assurance are boundary spanners, connecting with an unlimited galaxy of constituents. They need strong negotiation skills. Quality assurance strategists need adequate management capacity; such that midstream changes of directions, scope and measures are avoided as much as possible. Continuous capacity building is necessary as a way of ensuring that the quality assurance system is oiled and smooth flowing. In fact, the quintessence of quality is in the processes that are designed to bring about and to sustain it, and these evolve over time.

3.13 External Quality Assurance mechanisms

3.13.1 Introduction

External quality mechanisms include structures, agencies and policies that are not integral parts of the institution and have a concern in the quality of the institution itself as well as its offerings and have the motivation and space to do something about that quality (French et al., 2014). Dill (2007:4) argues that the infrastructure of external quality management has three prongs: market regulation, professional (self) regulation, and state (direct) regulation. Market regulation encompasses commercial information provision, institutional or programme performance data, assessments and rankings. Professional (self) regulation includes accreditations by professional bodies, professional licensure, voluntary institutional accreditation and external examining. State (direct) regulation encompasses the national qualifications framework, subject assessments, state-conducted accreditation, licensure, academic audits, performance-based funding or contracting, national examinations and national surveys. Government's concerns about quality may be superficial and institutions

are left with so much autonomy that they can run their own quality strategies with minimal or virtually non-state interference. On the other extreme, the government's concerns about quality may be visible and explicit. The institutions operating in strict quality environments may be required to report to Parliament or some statutory organ on quality issues, and funding may be based on these reports in one sense or the other.

3.13.2 Licensing

It is not uncommon with some institutions of higher learning to take advantage of most stakeholders' confusion regarding licensing, accreditation and quality assurance. Licensing can be a once-off or phased process that culminates in an institution being granted authority to launch products and / or services within some given framework (Materu, 2007:4). Licenses are normally granted by ministers of higher education and the requirements for quality that normally go with licensing are not stringent enough.

The involvement of a minister of higher education in the accreditation decision has an 'eye washing' effect, making things look good and of higher standards. While ministers may represent society, responsibly in other cases, it is difficult to do so with a process as complex as quality assurance, taking into account that ministers have other roles. Further to that, ministerial positions are political in nature and often subject to high turnover (Materu, 2007:22). These factors debilitate the credibility and trust that the system of assuring quality could court from the public. An infrastructure for external quality management consists of processes such as accreditation, licensing, site visits, inspections, etc.

3.13.3 Accreditation

3.13.3.1 Introduction

Accreditation is a process of validating the infrastructure, processes, products and services of an educational institution for being above a set threshold. In most cases the standards of accreditation are set by some expert group. The important thing in accreditation is pitching a link between accreditation standards, stakeholder concept of quality and the accredited institution's buy-in to the process and its deliverables. Accreditation should be a more

disciplined and rigorous process directed at ensuring conditions for effecting quality assurance.

3.13.3.2 Expectations on accrediting agent's credentials

Accreditation is a process of self-study and external quality review designed to guide institutions, stakeholders and the accrediting authority in assessing to what extent published metrics of quality have been met. It is one of the several quality assurance measures aimed at safeguarding and improving quality at the institutional, programme and course levels (Vlasceanu and Barrows, 2004). Regardless of whether an accrediting body is supranational, national or institutional the accrediting activities need to focus on a number of areas. The key is to assess how well the institution, programme, or course is meeting the quality standards set for it. Secondly, the team members must have the conceptual, managerial, and behavioural competences to undertake a quality assessment without undue prejudice. Thirdly, the accreditation decision should be based on objective evidence about the baseline standards. Fourthly, the accreditation is founded on a 'yes', 'no' or other compromising decision that must be understood by all parties concerned. Fifthly, accreditation decisions and judgments have a time frame upon which they are deemed to expire.

Accreditation pursues some definite objectives with these guiding principles. On passing the judgment to accredit an institution or programme, the most common practice is to seek evidence of successful practice in a number of operations / criteria. What is likely to be overlooked is how deeply the various criteria are interweaving and how the programme or institution subordinates the rest of the criteria to teaching-and-learning. It is the teaching-and-learning that transforms the students and makes them fit for a purpose. The picture that should guide quality assurance is one that revolves around teaching-and-learning.

3.13.3.3 Objectives of accreditation

The decision to implement an accreditation process can be driven by a number of motives.

Accreditation helps to speak to the world about the acceptability of national or institutional qualifications. This has a number of marketing ramifications in that the more competitive the accreditation the more attractive the institution or programme and the more high-quality

faculty and students will be motivated to join the institution. Higher education is becoming a key foreign currents earner in most countries, including Singapore, Malaysia and Australia. Accreditation seeks to lay out a baseline level of performance and to have those below such levels work and surpass the threshold. It serves a gatekeeper function, ensuring that a threshold level of quality is being met. One of the challenges of having a single accrediting institution or a single accrediting framework is that it domesticates and attempts to make practices uniform. This may work against national interests whereby diversity of qualifications and skill sets is desirable. Quality assurance mechanisms must not demoralise HEIs seeking new paths and distinctive approaches in meeting students and stakeholder needs (Massaro, 2010:23). Mechanisms that value and encourage diversity above the minimum standards level must exist. This variant incentivises institutions to pursue their missions while retaining their individuality and serving the heterogeneous needs of their students. If the concept of quality is stakeholder and context dependent then it behoves society and nations to encourage a broadly diversified higher education system, characterised by different types of higher education institutions with institution-specific missions and models of pursuing and doing quality within them.

Accreditation acts as an incentive for quality development at both institutional and programme levels. At the supra-institutional levels accreditation helps to create a classroom for learning and a platform for exchange and cross-fertilisation of expertise. The public has a right to know the quality of education produced by institutions that are funded by their taxes, and as an ethical norm social institutions need to be a little more transparent, now more than ever. Standards for accreditation are generally a reflection of the standards of performance that are most likely to meet current and future needs of the ‘end users’ of the qualification. In this light, accreditation guarantees that the skills, knowledge, understanding, attitudes, and behaviours that qualifications emphasise are ones that would meet these requirements. Thus accreditation should provide the hallmark for the quality of study programmes and maintains the academic values of higher education. It helps in serving public needs and interests. Just as much as it can be used to buffer against undesirable effects accreditation can be used to instil desired effects, including political ones.

3.13.3.4 Benefits of accreditation

Materu (2007:29) observed that there is a growing body of evidence that accreditation is beginning to take a prominent role in institutions that are seriously mindful of quality assurance. Accreditation can also help to check out entrepreneurs fuelling the willy-nilly proliferation of demand-absorption institutions from having a field day by milling low-quality programmes (Altbach et al., 2009:4). In conditions of 'promotion / employment-by-qualification level' – individuals scrambling for the nearest qualification that give them an employment or promotion opportunity – higher education providers will make huge profits (Altbach et al., 2009:4). Altbach et al. (2009) raise the fear that unchecked multiplication of pseudo universities has a lethal effect on 'true' universities, a concern once raised by Akerlof (1970) when he described 'lemons' as poor quality products and services. He went further to raise alarm about the potential of 'lemon' qualifications to destroy the market of truer and rigorous qualifications. QFD has the potential to draw the requirements by external agencies into the strategy and product planning matrices with consequential improvement of the programme quality and fitness for purpose of the graduates.

Accreditation has the effect of reducing variances between domestic programmes and those offered abroad. Standards that are clear and more convincing are more likely to encourage institutions to adopt them. The aptitudes of entering students have an effect on the quality of teaching and learning and the higher these aptitudes are the more likely teaching can be kept more rigorous and of superior quality. Physical inspection and visitation of institutions puts pressure on higher education managements to improve the quality of their facilities (Materu, 2007:29). Continued deterioration of university buildings, classrooms and other resources has been widely observed in many African universities (Garwe, 2007).

In efforts to keep high standards, accreditation boards impress on minimum qualifications for faculty and regulations of promotions and staff recruitment procedures. These antecedents are designed to bottleneck entry and promotion of sub-standard senior staff in institutions of higher learning. Accrediting boards and some research funders encourage the use of appropriately qualified part-timers so that the full-time faculty can have opportunities for self-upgrading and undertaking research. Accreditation boards undertake crucial activities

like recognition of prior learning and the evaluation and validation of credentials obtained from extraterritorial institutions. This helps to close the clefts between domestic and internationally recognised qualifications. The regulation of teaching resources through setting minimal standards of human resources competences and technical resources help university managements keep conditions above threshold levels. Most African countries are shifting toward institutional accreditation rather than programme accreditation with the danger that once an institution is duly accredited, the process itself masks deficiencies at micro (programme, course) levels, like a programme. While institutional rather than multiple programme accreditations is cost saving, it needs to be augmented by a rigorous process of reviews and self-assessments aimed at meeting the best levels of accreditable quality.

Accreditation is normally phased into: self-assessment; peer review; site visits, and a written report. The assessments for accreditation focus on judgments about capacity, quality, outcomes, and the need for improvement. Materu (2007:19) reports that in Cameroon, Kenya and Ghana public universities are 'accreditated' de jure. De jure accreditation fast-tracks the process, thereby bypassing the rather healthy stages of self-study, peer review and site visit. With guaranteed demand and de jure accreditation earned by virtue of their being public institutions, public higher education institutions are likely to allow trade-offs in quality to accommodate the social demand for access and to offset the effects of reduced funding from government instead of confronting the challenges of searching for alternative solutions (Materu, 2007:31).

3.14 Professional associations and their influence on quality assurance

Professional associations in Africa, as in other continents, are engaged in quality assurance in three key prongs. One of these is the accreditation of professional study programmes in tertiary education institutions. The second is the participation in accreditation panels set up by national quality assurance agencies. The third is participation in curriculum review exercises. These activities fit in with different stages of QFD's House of Quality. Professional associations should proffer evidence of quality as conformance to requirements of the profession (Dew, 2009). Volkwein et al (2007) argue that professional associations are much closer to the teaching-learning process than institutional accreditation work and are

thus better positioned to enhance quality. Materu (2007:36) confirms that "a key strength of professional associations is that their legal mandates include licensing of graduates to practice after graduation". However they may lose focus and prioritise trade-union issues. In QFD contexts professional associations constitute Voice of Market as trend setters or the team may decide to consider them under Voice of Business. However considered, what matters is the provision of space for them to combine with Voice of Employee (academics / media technologists) and on the other hand with Voice of the Customer (student / society). They should provide a much needed external critique of the institution.

3.15 Impact of external examination on quality assurance

3.15.1 Introduction

External examination has always been highly regarded in higher education. The esteem with which external examiners are regarded is variable and depended on the behaviour of the external examiners themselves or of institutions engaging them. QFD does not repudiate the value of external evaluation even when its focus is on shifting the locus of quality to the institution itself. The focus in QFD is to engage external competences in ways that enhance customer satisfaction. Their comments should focus on curriculum, lecturer, student, and the supposed instructional process all of which input into QFD's Product Planning Matrix.

3.15.2 Work of external examiners in determining quality

External examiners are faculty, supposedly of higher standing, who are drawn from other institutions so that they mark end-of-term (semester) or end-of-year examinations and critically assess the questions, curricular and student performance. QAA (2009:8) found the external examining arrangements to be defective, yet some institutions were expressing confidence in the advice from external examiners while others complained that over-reliance on the external examiner system can mislead the quality assurance effort (QAA, 2009:18). An external examiner may be viewed as a critical friend who can help improve courses enormously, particularly where the system is functioning optimally (QAA, 2009).

Reynolds (1990) observed that academics welcomed the external examiner system, particularly in foregrounding arrangements for quality assurance. Institutions have found the

process of external examiners useful, benefiting from their external views and comments on current and planned provisions (Materu, 2007:19). At some African universities external examiners are recruited from regional universities, but other institutions have completely stopped using external examiners due to the lack of finances (Materu, 2007:19). Variably external examiners are given powers over final marks – a move that lends credibility and legitimacy to the final grades (Materu, 2007:17). However there are numerous difficulties that have been experienced with the external examination system.

3.15.3 Difficulties with external examining

Difficulties with the external examining system have many origins and implications for quality at institutions of higher education. The QAA (2009:19) reports that matters relating to recruitment, work and the role played by the external examiner in the quality landscape are not well understood within and outside higher education institutions. Students have little understanding of the functional role of external examiners with many perceiving it as remarking and double-checking the work done by faculty members that are responsible for the class (QAA, 2009:19). Students would naturally welcome such a function, particularly where they have misgivings about the impartiality of their own lecturers. On the other hand, management that are poised to protect their favoured ones or deficiencies in the system do interfere with external examiner work and reports.

The QAA (2009:20) reports on an experience where "senior institutional managers were instructing their staff to tell external examiners that their institutions needed more first class honours degrees in order to improve their standing in the (unofficial) league tables published by national newspapers". Other disappointing cases of meddling with external examiner functions involve institutional managers overturning external examiner decisions despite the manager having no expertise in the subject area.

Other observations involved external examiners being pressured to alter reports (QAA, 2009). The immorality of both some external examiners and some managers has left the external examining system in a dishevelled state, becoming a fig leaf that cannot guarantee academic standards any longer. However, where such irregularities have not been

experienced, the confidence is high among faculty and administrator that external examiners play a strategic role in ensuring fairness in the assessment and comparability of institutions and course standards. External examiner contribution in cross-institutional comparisons will be constrained by the large diversity of institutions and their interaction with the host institution is time-limited. The lack of expertise in the many courses on offer is another limiting factor. Some African universities have done away with using external examiners however in cases where they continue to be engaged, they are domestically recruited and their stay periods have been cut to save costs (Materu, 2007:16). This means that their workloads have increased and this may affect their efficiency.

Due to institutional massification, external examiners may find it impossible to go through all candidates' scripts. The quality of faculty is falling and this lowers the quality of external examiners that are available, thus too lowering the quality of external examination. Some difficulties with external examining arise because the recruitment is not as open, transparent and informed by the future roles to be run by the external examiner. In this light much can be done to improve renditions from the external examining system. Notwithstanding the importance of increasing the importance of internal quality assurance remains critical and QFD provides that vehicle.

3.15.4 Improving external examining

Recruiting institutions need be clear about the credentials of the ideal person and their expectations regarding the role to be assigned to the external examiner. Examiner training is an important contribution to the quality of their work. The other route to getting high-quality external examiners is through membership of a relevant ideagora. Pearce and Robinson (2009:440) define an ideagora as:

> "web-enabled, virtual marketplaces which connect people with unique ideas, talents, resources, or capabilities with companies seeking to address problems or potential innovations in a quick, competent manner".

Entry into an ideogora could be screened, say, by institutions and quality assurance agencies that have experience with the particular academic. It is also very important that management do not interfere in the work of external examiners so as to assure undue influence and the

lack of duress in report writing. Shuib et al. (2007:1) are of the opinion that the use of external examiners, movement of academics around institutions locally and abroad, involvement of professional associations, and allocation of research grants by competitive assessment have had a continuous effect on the exchange of information and the maintenance of high academic standards. Whilst an institution's response to rankings is optional and if done can be quite unique the possibility that lecturers and students in their individuality may be upset or inspired by some aspects of rankings cannot be denied. In this way ranking exert a latent micro-level force even on organisations that don't subscribe to the rankings regiments.

3.15.5 Rankings and their impact on quality assurance

Ranking is a process that has attracted a lot of debate on its standards, measures, purpose and trends. The value of ranking is equally debatable in the context of Quality Assurance. Most popular university rankings are done by Shanghai Ranking Consultancy, Leiden Ranking and Times Higher Education Rankings. Massaro (2010) argues that rankings do not tell much about quality in teaching and learning, particularly as most models measure what is easy to measure even when it is not important to quality assurance.

Most ranking schemes exclude qualitative aspects of education, yet much that shows good education can only be understood in qualitative terms. It is therefore important that before ranking can be used the potential user departs from a complete understanding of how the ranking framework of criteria is designed and the purpose it was designed to serve. A ranking scheme that is designed to measure research activity may not be of much help to nascent universities that are struggling with cash and quality staff. It sounds reasonable then that when HEIs' managements decide to draw lessons from rankings they should look for ranking types that fit their contexts and level of development.

3.16 Modelling PQA through QFD: alignment and integration

3.16.1 Introduction

QFD has an enormous impact on the products and services development process. In education it would proffer sets of standards, metrics and glue together structures and

processes, all of which is fundamental for programme quality assurance work. QFD can help improve vertical alignment of vision-mission-values-action and of resources, processes and objectives. QFD can facilitate integration across functions and teams even if these ‘‘come from different disciplines and understand different jargon’’ says Ficalora and Cohen (2009:229). QFD as a communication tool glues the many different aspects of products and services development process which makes it an ideal tool in education because Education has a plethora of stakeholders and processes. It offers the tools and metrics for determining the appropriateness and goodness of decisions within the products and services development chain. This set of tools and standards form the bedrock of programme quality assurance. Further to these benefits QFD helps the organisation evaluate its performance against the needs and wants of the customer. This is a unique contribution of QFD to quality assurance. QFD ensures that decisions taken today maintain their validity into the future by reducing cycle time and by subordinating products and services decisions to Voice of the Customer. At the strategic and systems levels QFD uses three (3) design best practice principles that make QFD an outstanding alignment and integration tool. These principles are Contextual Analysis and Static-Dynamic Status Analysis; Structuring of product design specifications, and Concept Selection.

3.16.2 Contextual Analysis and Static / Dynamic Status Analysis

Contextual Analysis is used by the QFD team or organisation when the strategic-level aim is to compare competitive products and take decision on how to position the product with respect to both the business and the technical environment (Materu, 2007:31; Ficalora and Cohen, 2009:233). At the level of programme quality assurance the Quality Assurance agency would characterise the performance state of the programme with respect to critical parameters. At the level of HEIs the practice is to draw the quality critical parameters from literature or from the Quality Assurance agency. QFD uses an integrative-collaborative approach that compound the national skills priority list, the subject qualifications descriptor and the Voice of the Customer. Such a collaborative approach would facilitate for a common understanding of what the system should consider for Static Concept and what it should for Dynamic Concept. The implication of such undertakings is that the Quality Assurance agency improves its strategic and improvement-oriented intervention.

3.16.3 Structuring of product design specifications

The structuring of the product design specification is an open continuous process. The continuity aspect of this endeavour brings about one advantage and one disadvantage. The advantage is that the product can be continuously modified and presumably improved. This is very important in teaching and learning and updating of course outlines right in the classroom. The disadvantage is that the space for product development can be abused mainly by those at the frontend of the design process. This may manifest in education where lecturers may drift away from content and aspects they are not too conversant with and those that their students are most likely to pass in examinations even when they have no future employability value. In chapter 2 I explained how the prerogative of structuring of product design specifications (curriculum / course design) rested with an organisation's Quality Department. Even in QFD contexts a department or team should take that responsibility but the process must be genuinely collaborative, cooperative and democratic.

3.16.4 Pugh Concept Selection

The Pugh Concept Selection Process is the centrepiece of QFD as it allows stakeholders to surrender or donate their highest expectations to a common pool of stakeholder expectations (Oakland, 2000:81). The design team can then negotiate and choose the best from the common pool. The advantage of such an approach is that it precludes competitive behaviour and win-lose divides among team members, teams and sectors and among stakeholders. One of the advantages of the Pugh Concept Selection Process is that choices are made on the basis of quality rather than clout and that the team has the possibility of adopting the competitor's model. At the operational level Quality Assurance adopt the QFD and Total System / Subsystem Analysis and House of Quality.

3.16.5 Total System / Subsystem Analysis

This stage brings the team and organisation to the core of the methodology of QFD. This represents the systems thinking aspect of organisational life analysis. The systems perspective contrasts the traditional view observed by Materu (2007:35) that apportion quality assurance to top management of HEIs. The focus of the Total Systems is on reducing products and services development time, increasing customer satisfaction, lowering product

development cost, creating optimal cooperation between functions, establishing a better corporate memory and making fewer mistakes. These deliverables are the ones most mattering to institutional top management. Because they matter to them they also influence their reaction to a model and the way such model is applied. Ficalora and Cohen (2009:239) say ‘‘QFD provides an explicit roadmap for the development of systems involving multiple levels of design’’. Throughout section 3.17 I will exemplify how the above target values are accomplished with each of the stages of QFD.

3.17 QFD’s House of Quality

3.17.1 An overview

The House of Quality is a part-component of QFD that can be used to ensure quality at the ground level. Ficalora and Cohen (2009) describe House of Quality as the entry point into QFD. Because the House of Quality operates at the ground level it is the most ideal instrument for internal quality assurance. Jordens and Zepke (2009), Brink (2010) and French et al. (2014) lament the disconnect between the internal and the external quality management systems and blame it for the poor quality performance that has characterised higher education this long. The term ***disconnect*** has an important implication - the parties in reference should naturally be linked but are not because some external force has ignored to link or deliberately frustrates that link. See Laurillard 1987: Lo-Schiavo et al., 2008; Altbach et al., 2009:xvi / 127 / 129; Vagnuer, 2008:179; Kohoutek, 2009:289; Lodge and Bonsanquet 2014:5).

Some authors arrange the QFD’s House of Quality into four phases: product planning; product design; process planning, and process control. One thing that stands out saliently is the lock-step nature of the four stages. This is important in guaranteeing that no work is done outside the scope of any premeditated objective. This principle of QFD helps in saving resources and time, aligning resources to goals and giving each person more time to focus on their own productivity. These issues are discussed with profundity under the theoretical perspective and conceptual framework in Chapter 2. Other 4-phase QFD models that emphasise different structures, processes and contents are not unknown on the market. For instance as in Figure 3.6 one such model emphasises the phases of: House of Quality; parts development; process planning, and production planning. In the first step: House of Quality,

the Voice of Customer is processed into customer attributes (WHATs / requirement / objective).

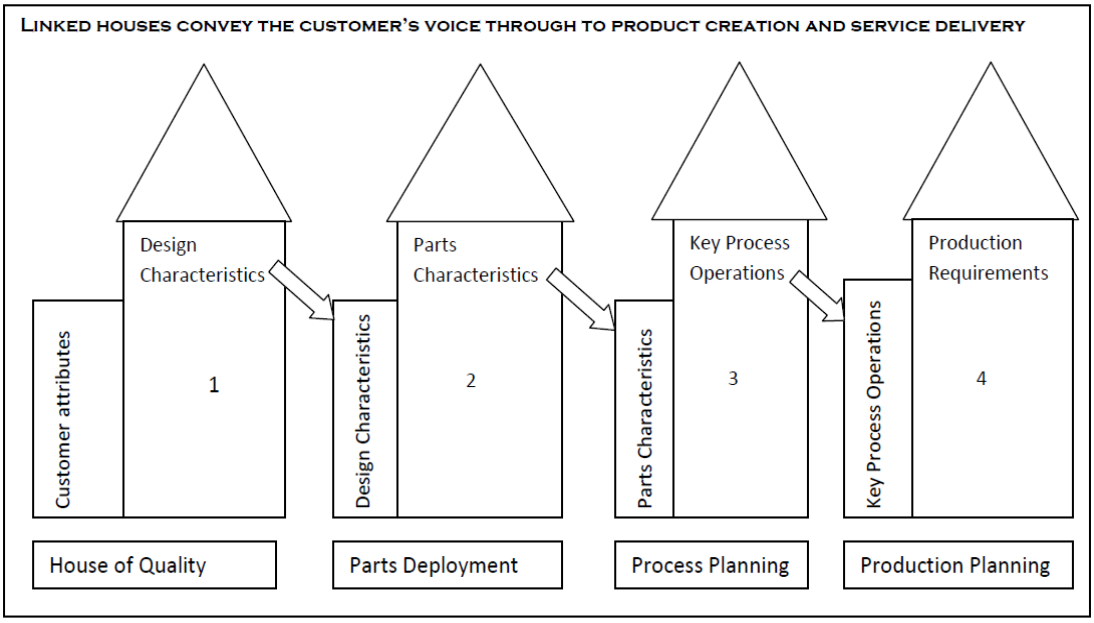

Figure 3.6: Four-phase House of Quality as synthesised from the literature

Each customer attribute is then linked to a design characteristic (SQC / HOW / Response) or a means by which it will be achieved most effectively and efficiently. The proceeding stage is Parts Development. In 'parts development' the design characteristics takes up the value of the WHAT or OBJECTIVE and a new set of responses or HOWs which are the features of the products and services become the means of achieving the Substitute Quality Characteristics. In the third stage: Process Planning the Parts characteristics assume the position of objectives that should be attained by designing key process operations. A Six Sigma Process Design roadmap can be used. In this way wastage is controlled as well as a best fit between the desired features and the process of creating them is achieved. The last stage of this four-phase QFD methodology is the Production Planning stage. Here achieving the key process operations become the objectives of this stage. The matrix matches each of these objectives to the production requirements. This is a shorthand model of QFD. In Chapter 2 I mentioned that QFD is a versatile tool and adopters can make choices as to what of it and how much they would like to use.

The point of departure is the voices of the various stakeholders / customers and these are arrayed each against the strategies that will be used to accomplish each need expressed by the customer / stakeholder. In the next stage, the strategy itself becomes the goal against which ways / means of achieving it is conceptualised. This goal-means relationship goes on through the other stages. The idea is to see issues of greater value and to make sure the organisation invests only in what is required and what it will use. Some authors and practitioners show the House of Quality as consisting of five key areas of activity: technical descriptors; customer satisfaction performance; institutional assessment; Voice of Customer and relationship matrices. Six-roomed House of Quality is not uncommon in literature. One such six-roomed House of Quality is shown in Figure 3.7 below.

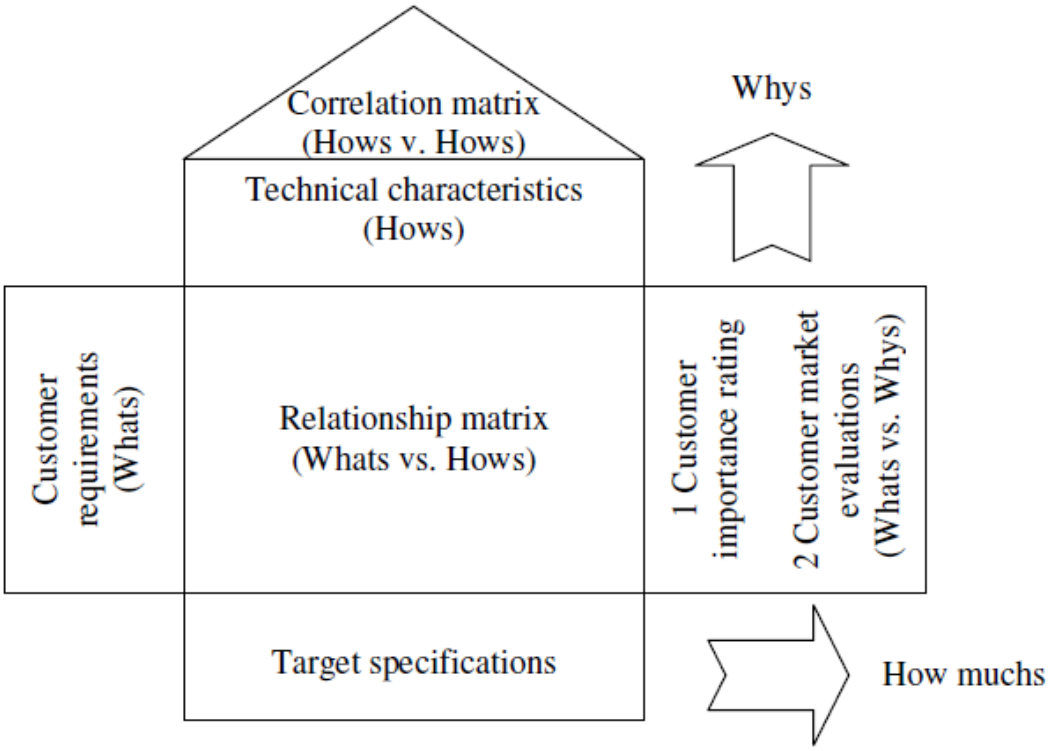

Figure 3.7: Six-roomed House of Quality (Zheng and Pulli, 2007)

In fgure 3.7 the first room would be the Voice of the Customer. Apparently the forms of House of Quality used within QFD recognise the importance of premising quality assurance on Voice of the Customer. The second room is the voice of the designer or the people who will finally shape the goods and services. The third room represents the relationship matrix,

the forth the technical competitive position and target values, the fifth the market competitive position and the roof the design interactions.

Ficalora and Cohen (2009) lament that those who claim QFD does not work are not creative enough to contextualise the QFD lexicon nor some of its tools. It is important that those reading about or using QFD be creative and imaginative enough to think of equivalent terms or processes. For instance in manufacturing QFD, we talk of engineers whose equivalence in educational QFD are the professoriate. Both deal with the application of social, economic, scientific and practical knowledge as they research, invent, design, develop and improve structures, processes and new modes of thinking. Looked at in a rigid and mechanistic way any model would never work for anything. There are no contradictions in these approaches, practitioners adopt most convenient constructs of House of Quality, but this may pose some pragmatic dangers.

QFD uses numerous maps, charts, tables, matrices, statistics, flowcharts and other tools at many of its stages to help users gather and process data so that they reach useful decisions. Stages in the QFD approach / methodologies are variably referred as tools too. The QFD flow in Figure 3.8 below is not much different from the contents of either the five or six-roomed House of Quality shown above. The diagram below is more elaborate, showing stages where some are subsumed in other stages of the former two. A strength of the more elaborate diagram is that it shows the side steps of 'Analyse results thus far'. This step ensures that each QFD stage is thoroughly attended to and that the current stage is synchronised to its predecessor stage and aligned to the proceeding one.

Whilst the loop tends to slow the QFD process, it proffers the benefit of thoroughness which ultimately makes the QFD internally compact and coherent and externally more effective and efficient. The flow just helps in showing an abstracted logic, otherwise after Voice of Customer and Team Establishment the stages can be followed in any sequence that suits the organisation. It is possible to run some of the stages simultaneously. Where this is done, care must be taken to guarantee that the system of analysis does not get cluttered with data. The

basis of strategic analysis is that the organisation will be virtually running a self-assessment. The step that would then be first should be strategic planning.

3.17.2 Strategic planning

This critical stage in the initiation of QFD has most of its aspects explained at Section 2 Chapter 2. Strategic planning sets the philosophy and outlines the methodology for QFD. Success of QFD depends on how deeply teams and organisations believe in continuous quality improvement as a lifelong exercise. Strategic planning begins the process of establishing management, functional and technical support that should continue into the future throughout the organisation. Strategists are often in conflict about their approach to strategic planning. While others may prefer an emergency approach, others may argue for a resources-based approach, and yet others may call for the strategy planning process to follow the scientific approach. Alex Scott (2008) classifies strategists according to four generic tendencies:

- Analysers. These are strategists who would take lots of time looking for details, analysing the detail maybe at the expense of quick action.
- Defenders. These are managers who look more like settlers and they basically believe that unless something compels them to change ‘don’t fix anything until it’s broken’.
- Reactors. These are strategists who are less proactive and want to cross bridges when they come to them. Most of the time like their ‘defender’ blood cousins they would ask ‘why buy the raincoat before it begins to rain?’
- Prospectors. These are strategists who are outbound and always looking for opportunities and markets, and chase them until resources tell them to cool down their ambitions.

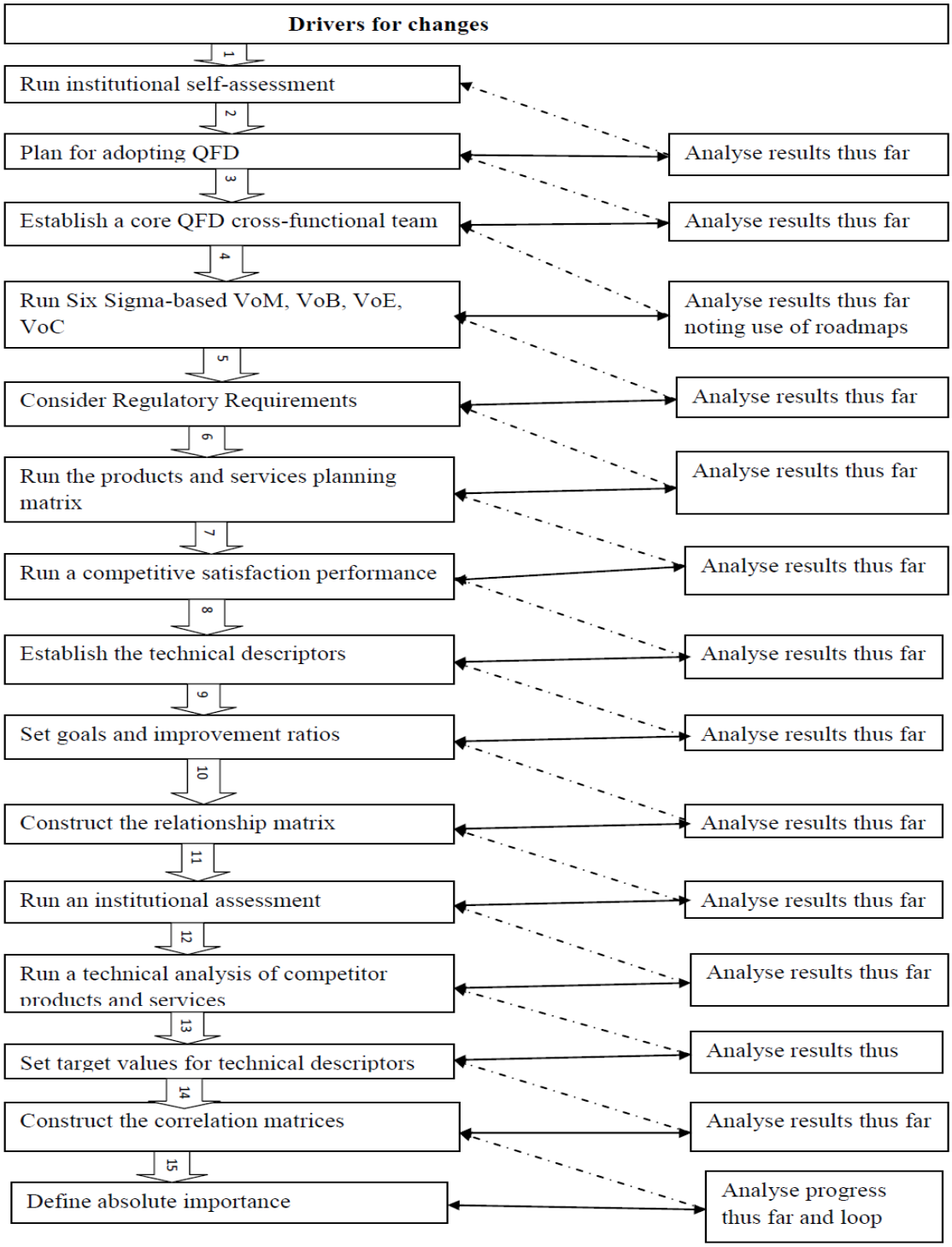

Figure 3.7: The 13 stages of QFD as synthesised from the literature

To avoid dysfunction it is important to allow extensive and mature deliberation led by a skilful negotiator with acumen for consensus building. Organisations that quicken the strategic planning process play by the rule of 'eliminating problems', but lose the resource of multiple perspectives, commitment and the power to act on decisions. There are many benefits that accrue from strategic planning.

Strategic planning helps the organisation to visualise the overall goals and how they disaggregate into sectional objectives. The goal and objectives decomposition process highlights the link between the micro and the macro (Bevington and Samson, 2012:181) making it become more conspicuous. Strategic planning helps in environmental analysis, selection of generic options, aligning resources allocation to objectives and the development of control and feedback systems (Pearce and Robinson, 2009:11). Further to this it proffers a structure within which decisions can be made. Using strategic planning tools like gap analysis, process alignment, issue alignment and the consideration of alternative options people gain a sense of involvement and inclusion, which Senge et al (2005) describe as presencing.

The idea in QFD is more about edifying an infrastructure for strategic capabilities that will sustain continuous improvement rather than chasing dead ends. Unfortunately most institutions fail because they hire managers, give them (dead end) targets to follow on and promise a target-based performance appraisal. This brings in a 'humpty-dumpty' kind of effect on the organisation, making management rigid and inflexibly focused on their contract goals. More often such managers muddle in selection processes as they attempt to fill the organisation with people who support them rather than those with competences. They actually would tend toward micromanagement, a vestige of Scientific management which staff and academics don't find tolerable (Oakland et al., 2002).

QFD uses tools many of which need special skills and expertise. QFD should be successful where strategy planning is teamwork-based and focused on how best each aspect of the QFD approach will be dealt with, including its resourcing. Bryson and Alston (2005) identify a number of targets for the strategy planning process. However, Shah and Nair (2014:145-146)

studying strategic planning at Australian universities observed that there was little knowledge and inclination to layout long-term strategies at the institutional and departmental levels. In the QFD context, everyone is a strategist despite the fact that some persons get the title of leader or QFD facilitator, thus becoming the chief case owners.

3.17.3 Establishing the QFD team

The first step, according to Becker (2005) and Oakland (2000:39) should be the establishment of a cross-functional team. The cross-functional team would need a strong, talented and able leader (Tavcar, 2000:54; Flumerfelt and Banachowski, 2011:225) with Quinn et al., (2009:148) and Kee (2010:8), among others, proposing that such persons be Six Sigma Black-Belt and / or Six Sigma Master Black-Belt. Ficalora and Cohen (2009:261) characterise the QFD leader or manager role as: ensuring understanding of QFD and what it is intended to achieve; sourcing the human skills needed for different QFD activities; establishing a schedule for all QFD phases; follow-on on all QFD activities; communicating QFD schedules and activities to the organisation's supply chain; ensuring capacity building within and outside of the QFD team and ensuring effective delegation. This role could be played by anyone, from the university rector, dean, chairperson or coordinator or any other person chosen from within the pool of academics.

QFD strategists and case owners should therefore be good at traversing between and across the roles of strategist as entrepreneur and goal setter; as analyser and competitor; as a decision maker; as an implementer and controller and as a communicator. This is detailed in Table 3.1 below. Senge et al. (2012: 121) writing about teams say that the quintessence of teamwork is not about seeking mutual replication among team members, but about talking across differences and still getting the amount and quality of strategic bundling that is necessary to get things thought over and done effectively and efficiently to the delight of the customer. While cohesion is necessary all the same the team must be careful of the groupthink entrapment or their degeneration into groupthink. Team activities should normally be defined in the team's goals, with standards, measures and reporting requirements. In most non-QFD environments standards, measures and reporting are but ritualism (see Trow, 1994; McInnis, 1998). In QFD environments, these are present as *datum*

for continuous improvement purposes. What seem very necessary are QFD teams that work right from programme, through Faculty and university to national and regional levels. With such an infrastructure the potential to increase speed of diffusion of QFD efforts would go up.

Table 3.1 show QFD team members in different strategic roles. Firstly as entrepreneurs and goal setters with the role of identifying new courses of action, providing leadership, building an institutional concept by way of developing a roadmap for quality-based competitive advantage. Secondly as analysts and competitors who by analysis and diagnosis build robust market intelligence from all voices in the market. The third role sees the QFD team as decision makers who make strategic choices by way of assessing strategic options, gluing the organisation and managing risks. The forth role call on QFD team members as implementers and controllers who ensure successful implementations by measuring and reporting and monitoring for effective resources utilisation. Finally is the QFD team as communicators, ready on feedback, clarifying and communicating changes in organisational directions. The table shows a far outcry from the traditional identity of the professoriate as in most archetypal redbrick HEIs.

Table 3.1: The many hats of the strategist / manager (Scott, 2008:70)

Who	What	How
Strategist as Entrepreneur Goal setter	Identify new courses of action; Provide leadership Create a concept of the institution	Developing a roadmap to success, finding talent and advocating a concept of the institution.
Strategist as analyser and competitor	Gathering and analysis of information Understand change in the institution's environment	Analysis and diagnosis
Strategist as decision maker	Ensure wide managerial consultation; Assessment of strategy options; Cost-Benefit analysis; Link levels of strategies	Making strategy choices
Strategist as Implementer and Controller	Allocating resources Monitor for effective use of resources Measure performance	Implementation
Strategist as Communicator	Negotiating, clarifying and communicating changes in direction	Communication and feedback

QFD is essentially management by facts. To sustain cohesion, team members need a rather strong culture of mutual respect where each feels valued by the other and communicative patterns value the individuality and diversity of people. Senge et al. (2007:48) in *The Dance of Change* highlight three new team factors that guide profound change. One of these is openness without the fear of embarrassing questions and with the idea to developing a genuine spirit of trust and of inquiry. The second is about localness and genuine inclusion that encourages and creates the 'white space' to take decisions at the lowest possible level of the hierarchy. Thirdly is the intrinsic motivation and proclivity to respect people's natural disposition to learn. According to Hoegl and Gemuenden (2001: 436), communication, coordination, balance of member contributions, mutual support, effort and cohesion constitute performance-relevant measures of intra-team interaction. Bureaucratic systems are not without team-like structures such as committees, cycles, etc. Such team-like structures differ from QFD teams in that in the case of QFD teamwork quality is subordinated to Voice of Customer and to customer satisfaction. In bureaucratic organisations teams can easily become tools for maintaining the status quo and championing the individual or sector rather than the needs of the customer base.

3.17.4 Voice of Customer

3.17.4.1 Introduction

In thick QFD the idea in running Voice of the Customer is to listen to the diverse perspectives and systemically built a corpus of knowledge that will direct future decisions on organisational restructuring, leadership redesigning and process focusing. Kane (2014:130) confirm that collecting data from students has become commonplace within HEIs. Many Quality Assurance models refer to the importance of collecting data from students and other stakeholders (Udam and Heidmets, 2013:221-222). In this background, many HEIs have designed, modelled or adopted survey instruments for the purposes of data collection and actually collected data from the students. Why then in all these years of data collection, have higher education products and services not come any nearer to the expectations of the stakeholders who give that data? One explanation could put the fault on the instruments used in collecting the Voice of the Customer. But there could also be variations in the perception of what should be Voice of the Customer and what to do with it. Yet another explanation

could be the organisations' inability to mould Voice of the Customer into the four Six Sigma roadmaps that are the media and vehicle of escalating it into pragmatic organisational strategies.

3.17.4.2 Deficiencies of Voice of the Customer instruments

As observed by Haggis (2009), research in the field of education lags behind research in other fields by a measure of decades. This could mean that we are using instruments and data analysis structures that are archaic and ill equipped to tell us precisely what matters for our stakeholders. These disconnects are considered earlier in the chapter. This observation is not new. Bedggood and Pollard (1999) in studying instruments used in student surveys in Australia found that they contained ambiguous questions, were badly structured and some of their questions were beyond the capacity of the respondents. Timing of surveys can lead to gathering distorted data as either response rates are too low or respondents play 'gap filling' with the survey instruments. The surveys may be skewed in favour of what the institution is already excellent at, leaving areas that it should be getting information on if it were to improve. This is not uncommon where Voice of the Customer is mandated and compelled by management or external quality assurance agencies.

Students' answers to surveys are not independent of induced psychology or happenings in their surroundings. Moods may affect the content of the answers such that the answers end up reflecting the moods rather than being fair and unbiased responses. Customers may get the unintended meaning of a term, particularly if they have weak language command. As observed by Conrad and Schober (2000:28), words transmit meaning quite ambiguously. Bennett and Kane (2014:130) say that students who differ in their personal characteristics might ascribe disparate meanings to the wordings of particular items designed to measure certain dimensions of survey instruments. It matters therefore that as institutions think about running Voice of the Customer, they think too about the quality of their data collection instruments.

3.17.4.3 Variation in meaning of Voice of the Customer

What Voice of Customer achieves in QFD relates to or is equivalent to what other quality models like the ZimCHE, MBNQA (Malcolm Baldrige National Quality Assurance), ISO9000:2000 (International Standards Organisation, 2008), EFQM (European Foundation for Quality Management), IIP (Investment In People), etc refer to as customer / stakeholder / market focus. There is a general agreement in literature that collecting Voice of the Customer is critical to a customer-focused model and strategy. In QFD contexts what matters is not gathering data but what is done on and about the gathered data. At the strategic level, data collected should be **about** the stakeholder and not only **from** the stakeholders. Secondly, data collection is an ongoing process that uses multiple instruments. Thirdly, collecting data is a means to understanding and building knowledge rather than a goal in itself. Research work exists that has claimed to be QFD research work, when what they refer to as QFD is the collection of data from various populations (Chan, 2009). There is a huge difference in using QFD as a methodology and using QFD's Voice of the Customer. When Voice of Customer is used as a tool or stage in QFD work, then it qualifies as the entry point (first room) into QFD. The weakness with most educational strategies that claim to focus on the student, elevating him to the position of primary customer, is that they collect data from the student, data that will not help in improving relations, processes, structures and institutional customs and practices.

In thick QFD environments the data is gathered from different key sources, processed as per source and then globally with the aim of building webs of knowledge that will inform the theory of the organisation and influence practice. As explained before, after many years of research and efforts to try and be more student focused, literature is still littered with examples of gaps between curricular and the post-qualification performance of graduates. For the sake of thoroughness, most QFD efforts use Six Sigma tools and methods to capture 'Voice of Customer', as exhibited in Figure 3.10 below. Various tools can be used in gathering such voices, including going to the workplace (*gemba*) and observing practice. When such data is collected, it should be analysed and validated per source.

3.17.4.4 Escalating Voice of the Customer into Six Sigma Roadmaps

Bennett and Kane (2014:129) observed some weaknesses in Voice of the Customer processes including inadequacies in data collecting instruments and in the surveyed's lack of intelligence, linguistic competences and skill of handling the Voice of the Customer process. Because of these weaknesses in the collected data it should be necessary to use Affinity Diagrams, Tree Diagrams, Conjoint Analysis and Kano's model in order to reduce the negative impact that the information could cause. Figure 3.8 shows a Six Sigma approach to 'Voice of Customer' in which the ideas, concerns of employees, the Quality Regulator, Research and Development, students and other stakeholders are brought together for further feed into strategic roadmaps. Affinity Diagram, Brainstorming, Tree Diagrams can all be used to process the data. The outcome would be a series of comment types, for instance:

- solution-seeking comments like '... hard copy modules are cumbersome'. Such comments seek solutions to the weight and importability of the current module. It is important thus to use other data to infer what the term 'cumbersome' could mean.

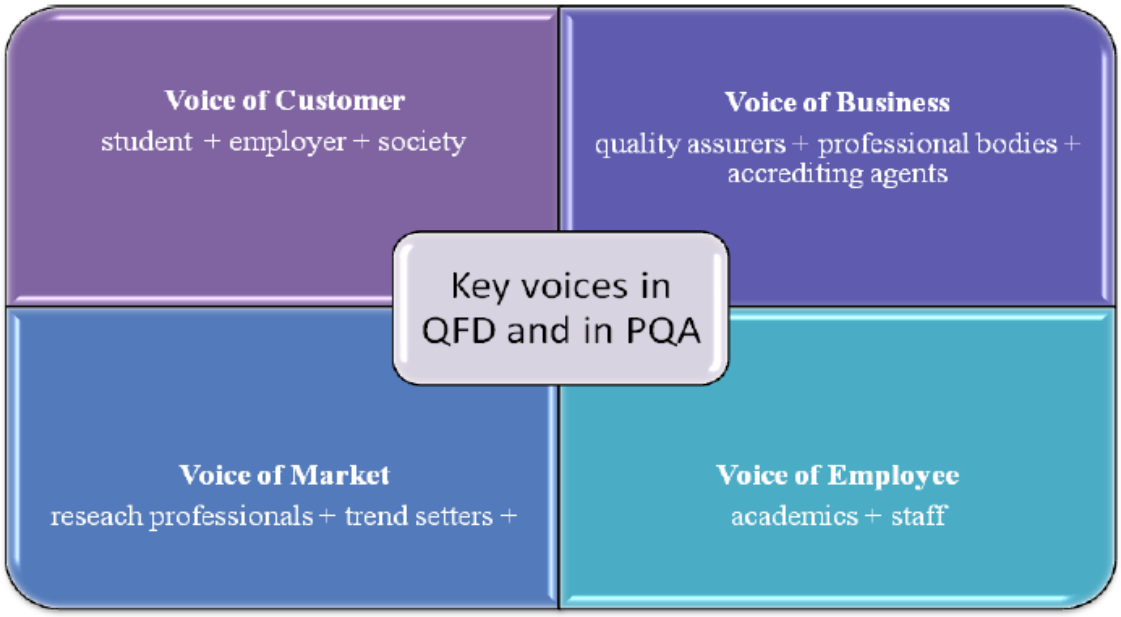

Figure 3.8: Six Sigma approach to Voice of Customer (Ficalora and Cohen, 2009)

- the measure of something, for instance '... the module lacks practicality'. There is a lack of a practical orientation to the level desired by the student. This may mean the student expected more practical activities and more real-life examples.
- target or desired state, for instance '... wish the module touched on real corporate governance issues'. The word real may mean the content is superficial or textbook based with no felt relevance, or may mean content is dated.
- felt needs, like '... time is important for the module to sink'.

These examples show the value of translating the voices. Rarely would customers express their comments or judgments in a lexicon that is of automatic value to the QFD team. It should, however, be possible to draw immediate value from some comments at their raw stage or after the Affinity Diagram / Brainstorming sessions and Tree Diagram stage. The data should however be passed through Kano's model. One of the key deliverables of Kano's model is the gradation of needs sifted from the Voice of Customer into: Type B (basic) attributes or expected or must be; Type O (one dimensional) attributes; Type E (excitement) attributes; Type I (indifferent) attributes, and Type R (reverse) attributes (Franceschini, 2002:47).

With this amount of data the QFD team can go up a further step and display the information linking it now to key strategic issues and 'critical to quality' (CTQ) elements. The strategic value of the data and the processed 'Voice of Customer' thus far is its usability in exhibiting the gap between current institutional state and the targeted state with respect to each translated Design for Six Sigma (Voice of the Customer + Voice of Business) element. Table 3.2 exemplifies this relationship. For example, from a number of 'verbatums' / 'attributes' or voices, the QFD team infers that students want an e-module that can be uploaded on the tablet, laptop, smartphone or iPad. This would reflect their want and need to be 'ubiquitous learners'. However, for the higher education institution the point of prime interest could be profitability which means the e-module must be paid for. There would also be copyright issues which could mean the e-module being designed such that it cannot be transferable. The related solution is to attach the following features to the e-module: a login pin, a four-month revival period, and an option for a maximum of two downloads per student. This

example shows how a QFD team can innovatively move from voice of student / customer through Affinity Diagram, Kano's model to an innovation that delights the customer / student. Assuming that HEIs would take and implement Voices of Students raw and unilaterally is rather naive. Everyone's voice must be integrated with all others and given meaning through the Six Sigma roadmaps.

This example looks at the Voice of Business and Voice of Customer as a synthesis rather than raw phrases from Business or the Customer. In the example, three types of comments are shown: **solution, measure** and **felt need**. Other comments like **target** can also be extracted from Voice of the Customer. This stage in working with collected data begins the interfacing among other QFD stages like 'Goal Setting' and 'Target Values'. These links provide the institution with a chance to view and test the link among its objectives and work. Establishing the objective-work matrix has the benefit of precluding the introduction of work activities that do not link to customer satisfaction. The matrix also prevents the procurement of resources that will not be used by any sector of the HEIs in question. Academics in HEIs have been reported as complaining about overloads, about working on 'rituals' that don't benefit anyone (Anderson, 2006). There are other issues of misuse of funds, particularly in acquiring materials that have no good use to the organisation and its later lose through theft.

Table 3.2: DFSS – a Six Sigma approach to Voice of the Customer (Ficalora and Cohen, 2009)

DFSS [Voice of the Customer + Voice of Business]	Comment type	Key issues	Critical to quality elements	Current state	Target Value
1. Blended learning, student-focused, and market-oriented curriculum	Solution: Replace paper module to e-learning or m-learning module	Student satisfaction: Desire for ubiquitous learning	Portability of module: Alltime, allplaces module	Undesired: 260 page hard copy	Desired: Ubiquitous learning with ATM (All Time Module) -emodule -mmodule
	Measure: Skewed content	Scope of module: Topics included	Relevancy: Quality offered differs to quality expected	Inadequate module: At variance with Voice of the Customer	Trim and Replace: Remove irrelevant topics and orientation; replace with Voice of the Customer
	Need: Curriculum breath	Competitive satisfaction: post-qualification performance	Graduate employability: KASUBB completeness	Absent: No module on Project Management	Inclusion of Project Management module: Module to cover medium to large scale projects

The prime aim of Design for Six Sigma (DFSS), is to design and develop new products and services or improving extant ones in ways that eliminate 'noise' or undue work. Figure 3.10 show the family of the Six Sigma roadmaps. Notice here that the Six Sigma roadmaps arise from permutations of Voice of the Customer shown in Figure 3.9.

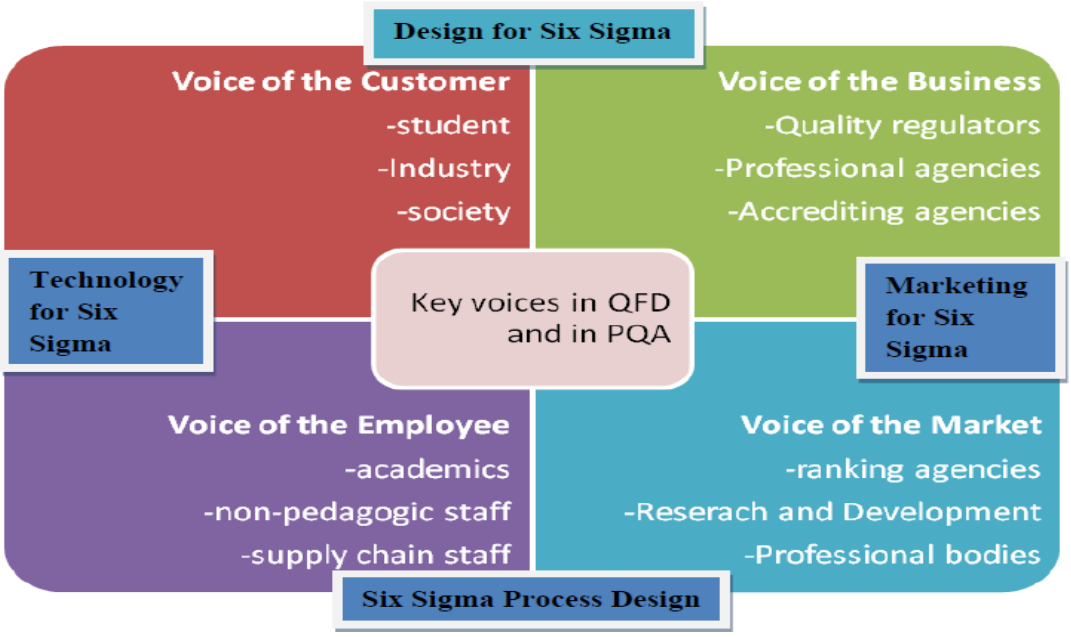

Figure 3.10: Six Sigma roadmaps linked to Voice of Customer (Franceschini, 2002)

Worked correctly each Six Sigma roadmap seeks to focalise the organisation on enhancing customer satisfaction by continually improving quality. As a family each enhances the contributory effect of every other towards improved customer satisfaction. These roadmaps can be deployed within QFD to accomplish a number of goals. The advantage in using QFD is that the team is able to link customer requirements in a very strategic manner to the organisation's work and resources. I explain how each roadmap operates.

Design for Six Sigma (DFSS) by combining Voice of the Customer + Voice of Business

The failure to combine Voice of the Customer and Voice of Business is one deficiency that is ubiquitous in quality and quality assurance literature. Consequently students are not clear about how to rate the gains from their teaching-learning experiences.

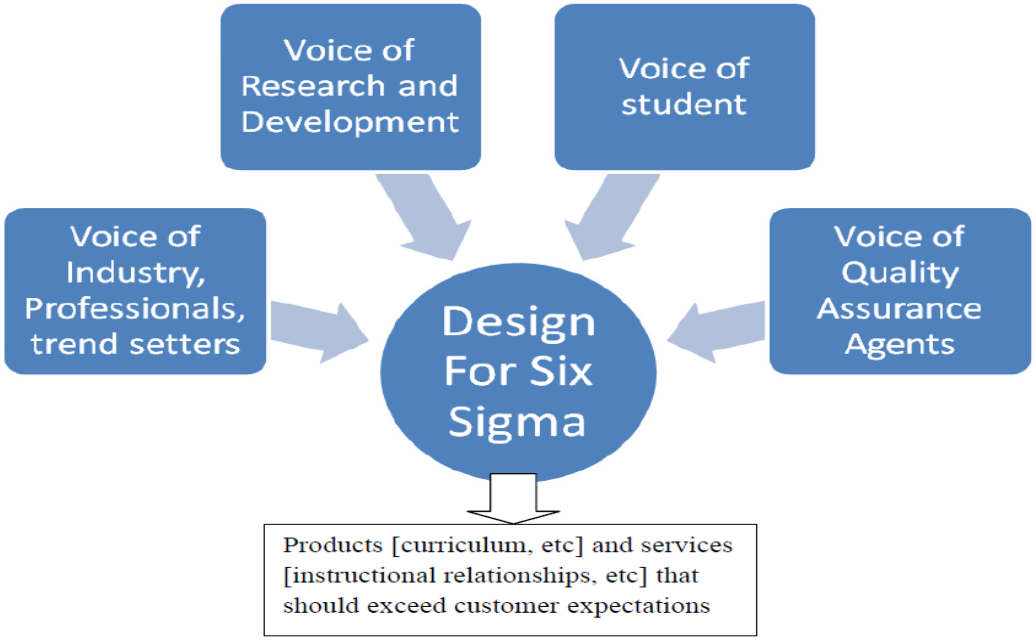

Figure 3.11: Voice of Customer and Marketing in customer orientation as synthesised from literature

There is so much literature that speculates on the value that different stakeholders to higher education can bring to the business of higher education (Altbach, 2009; Mukaddes et al., 2010; Little and Williams, 2010). Very little is said on how these can be made to work. QFD helps to make quality assurance agencies appreciate their work and that of institutions they oversee. Interactions among the stakeholders help to build a systemic and systematic, holistic understanding of the higher education landscape.

In a QFD perspective if HEIs or quality assurance agencies underperform it is only reasonable to blame all stakeholders of high education. Materu (2007) suggests that quality assurance agencies underperformance because they are constrained bt resources and expertise but we must not forget the impact of policy and corruption on their ability to perform. This

means that the disconnect between the voices and activities of the various stakeholders contributes to a discrepancy between hypothesised quality and the quality that is actually planned (Franceschini, 2002:144).

$GAP_{(ar-d)} = Q_{ar} - Q_d$

Where Q_{ar} is hypothesised quality and Q_d is planned quality.

Most other models leave the organisation working piecemeal on the Voice of the Customer data. QFD collates the data, turns it into management and marketing intelligence, deposits it in the organisation's database for future use. This is how QFD writes a concise history of the organisation. Most quality assurance models do not tell or give advice on what should happen with the collected data. It is not enough to inspect for a database, what matters is what has been done further to its collection. Lamentably, for some management the collecting of data is a goal / objective in itself. Voice of the Customer is a decision tool rather than a fin, an outcome in its own right.

Ficalora and Cohen (2009:85) and Mukaddes et al., (2010:1) discuss some of the techniques used in gathering this data (including surveys) and in processing it (including Affinity Diagram and Tree Diagrams). Dealing with creating strategic capacities (Bevington and Samson, 2012) and meta-competences (Dowling and Henderson, 2009) rather than seeking costly and expansive structures for control would improve quality in HEIs in ways that continuously approximate offered quality with hypothesised and expected quality. Altbach et al., (2009:109) and Little and Williams (2010) enumerate ways in which, internationally, students are getting involved in institutional governance as representation in departmental committees; participation in surveys, circles; student representation bodies that have a say in institutional governance and accountability mechanisms; membership of external institutional audit teams; membership of other bodies outside the institutional ambits like press media, etc. In QFD it is not enough, the important thing is the clout the students will have in shaping policy and practice across not only student issues but the totality of education, both downstream and upstream. The contention of the thesis is that unless the voice of the student

coalesces with all other voices their lot before and after their studentship will not be satisfied by either their participation nor by the grace of other stakeholders.

Six Sigma Process Design (SSPD) by combining Voice of the Customer + Voice of Employee

The primary aim of SSPD is to reduce the number and scope of processes in ways that maximise value to customers. Processes are the key media through which organisational resources are transformed in pursuit of customer requirements. It is crucial that all forms of organisational processes from person-to-person right up to system-to-system level are aligned and integrated in ways that, for instance in HEIs, optimise products and services value as perceived by the student, society and industry. One approach common in QFD is running the Six Sigma Process Design roadmap through the following DMACDOC (Define, Measure, Analysis, Conceptualise, Design, Optimise, Control) processes. I explain each procedure below:

- **Define** is about defining the challenges that the current process, the key stakeholder, the programme, the courses and other products and services are facing. It is important that each constituent / stakeholder group define its challenges, suggest how they are caused and propose how they can be surmounted. What is most often lost at these stages is the principle of 'presencing' in the difficulties of the other stakeholder, of shared ownership of the challenges and the solutions and that of vulnerability (that I should be blamed where I deserve to be). In chapter 2 I refer to 'triple focus' as the ability to see things from my inner self that of the other person and the common. This approach in solving difficult issues allows for what are generally referred to as third-way strategies. Defining challenges opens up for the SWOT analysis and organisation's Gap Analysis and doing it correctly should take the organisation half-way in strategic planning as it flags constraints to quality.

- **Measuring** is about sizing the discrepancy between extant products and services performance and the expected. Tools such as Failure Mode Evaluation Analysis (FMEA) can be deployed to help to work through this step. The management best practice principle of measuring and reporting delivers on this aspect. Running this step well should expose the

discrepancy between the offered quality **(Q_d)** and the expected quality **(Q_r)** which can be expressed mathematically as below.

$$Q_{(d-r)} = Q_d - Q_r$$

Where:

$Q_{(d-r)}$ is the discrepancy between planned quality and expected quality.

Qd is planned quality, and

Qr is expected quality.

Franceschini (2002:145) attributed this discrepancy to some seven reasons relating to structural dysfunctionality, interfacing, mental frameworks, technology and power distances. The discrepancy can be due to a 'confused and approximate definition of the roles, duties, and objectives of quality', a phenomenon that is all too common among academics, between the quality assurance agencies (QAAs) and academics; between academics and management; and academics and the student.

The second is the presence in the educational supply chain of staff lacking in KASUBB (knowledge, attitude, skills, understanding, behaviour and beliefs). A third source of such discrepancy would be the inescapable presence of interfaces between roles, structures and processes within and between the institution and other provider organisations. It has been confirmed through research that the presence of obsolete technology within the various work areas contributes to the gap between planned and offered quality. Inefficient control and evaluation systems also contribute to creating or widening the gap. Alstete (1995), Anderson (2006), Coates and Seifert (2011) noted that tall and bureaucratic structures create high proclivity for such discrepancies to occur. And lastly, as observed by Hoegl and Gemuenden (2001:436), poor teamwork quality (TWQ) encourages such discrepancy to manifest. The ZimCHE quality assurance blueprint requires that HEIs provide evidence of stakeholder engagement.

- **Analysis** is about analysing the products and **services** to identify opportunities for their improvement. Tools such as surveys, research and development and benchmarking can aid this stage of Six Sigma Process Design.

- **Conceptualise** is about conceptualising strategies for improving Customer Satisfaction Performance, which involves interface mapping, strategic categorisation, and designing sets of strategic capabilities.

- **Designing** is about designing processes that meet the Customer Satisfaction Performance levels. In (high) power-based institutions trouble would arise at this point. Ideally, process design should be informed by what the QFD / design team recommends, based on the 'Define, Measure, Analysis and Conceptualise' done thus far. Thus decisions should be knowledge / expert based, but in reality it is more often the case that management want institutions run their way, with or without the data from definition of strategic issues, the measures of their current and desired levels, analysis and conceptualisation of the scope of the way forward. In QFD situations, process design should be subordinated to the WHAT / needs – HOW / means matrices: What do students and other stakeholders want and how do we deliver on those requirements? HEIs should be happy saying: ''The customer said – and we did that''. With this kind of alignment institutions would come closer to closing the overall quality gap: the discrepancy between expected quality (Q_a) and perceived quality (Q_p).

$$\Delta\text{Total} = Q_a - Q_p = f(Q_a - Q_{ar};\ Q_{ar} - Q_d;\ Q_d - Q_r;\ Q_r - Q_m)$$

This gap is fundamental in quality assurance as it is a global summation of the other gaps / discrepancies ''... that emerge in the planning-production-presentation-delivering processes of a service'' (Franceschini, 2002). If Quality Assurance mechanisms and agencies are established to make sure or at least show the stakeholder world that they are doing something about making perceived quality meet expected quality then they need to do more about the sources of these quality gaps. Interestingly, the sources of these gaps lie within the controls of the organisation and would be best addressed by the teaching institution itself. However, an external Quality Assurance agent can enforce that conditions for the processes that should dissolve those gaps are present in HEIs.

- **Optimise** is about optimising processes and services for effectiveness, efficiency, and flexibility with the appropriate metrics, targets, and specifications that facilitate controlling for quality.

- **Control** is about controlling the processes and service through a regime of premise control; strategic surveillance; special alert control, and implementation control (Pearce and Robinson, 2009:411-412).

Six Sigma Process Design aims to guide ‘‘... the analysis and design of work flows and processes within and between organisations’’, say Davenport and Short (1990). Organisations adopting the Six Sigma Process Design roadmap should gain the benefit of being more market focused and creating space for more cooperative, collaborative and communicative behaviours among staff. The implication of adopting Six Sigma Process Design methods is that the work unit transforms from department to team and key organisational figures change from being functional executives to process owners and QFD facilitators (Silvestro and Westley, 2002). This transformation is a seal of competence in market-oriented organisations.

Marketing for Six Sigma (MFSS) by combining Voice of Market + Voice of Business

Marketing for Six Sigma incorporates ‘Voice of Business’ and ‘Voice of Marketing’ with the intention of making the needs of an organisation’s business requirements and the marketing requirements succeed, particularly with regard to launching new products and services and carving out new market segments. MFSS can operate at different levels in HEIs. Aggressive, prospector and analyser type QFD teams can use market trends intelligence to picture up current and predict future trends in programme, course and subject content needs. They use this intelligence to innovate and improve curricular with a consequent strengthening of their market and competitive positioning. It must be appreciated that business aspirations of self-funding institutions and programmes cannot be ignored. Quality Assurance schemes that ignore the marketing and business orientations of Business Schools will not be found friendly by the Business school. For instance, in 2012 the CUTGBS proclaimed that it aimed for an increase in its market share by 20% and that it aimed for profitability. It is becoming a trend

for Business Schools to behave as profit-seeking corporations with quite a number now registering on stock markets. Marketing for Six Sigma uses sciences, statistics and data to understand the needs of customers and trends regarding products and services. Once QFD has helped institutions to achieve their business and marketing goals it is important that the institution reinvest by increasing their resources base and creating and acquiring more strategic capabilities.

Technology for Six Sigma (TFSS)by combining Voice of Market + Voice of Employee

Technology for Six Sigma incorporates 'Voice of Employee' and 'Voice of Marketing'. In most cases educational institutions do not have knowledge of trending technology, which could be used to the advantage of course delivery. Technology for Six Sigma requires the technologists' voices on technology capability coupled with market requirements in order to certify and release new technologies to the product designers (Ficalora and Cohen, 2009:29). The distinctive idea in QFD is the analysis, validation and certification of technology that will enhance the Customer Satisfaction Performance of the institution. The implication of Technology for Six Sigma is that organisations should be able to enhance their quality performance and gain on everything that goes with competitive products and services. One example is the design and delivery of e-modules and in meeting the ever-increasing demands to be ubiquitous digital learners using smartphones, tablets and iPads.

In summary the four Six Sigma roadmaps interweave to produce a philosophically, behaviourally and mentally aligned and integrated organisation geared for Customer Satisfaction Performance. They are goal-focused, lean for their purpose, quality-consciously agile, leveraged in technology and beholden to the mentality of accounting to their customers for their satisfaction by responding to Voice of the Customer (see Section 3.6).

3.17.5 Regulatory Requirements

How much and how well QFD can deliver within an adopting organisation is influenced by the balance among power, expertise and organisational culture. Most people feel that the processes of quality assurance in education cannot be left to a few. Thus governments, professional bodies, Quality Assurance agencies, sponsors and agencies of various

gubernatorial powers raise a number of requirements on HEIs' programmes, products and services. Many countries have designed Quality Assurance agencies 'to ensure external accountability' and proper conduct of educational business (Shore and Wright, 2000; Strathem, 2000; Morley, 2003; and Blackmore, 2009). Those quality assurance agencies that are state organs are bound to assume some measure of political behaviour. Intra-institutional regulatory requirements may fall on a continuum from University Council, through Senate to examinations board. Wilson (1998:156), Wilson (2009) and Materu (2007:31) argue that each of the Regulatory Requirements has its impact on the ultimate quality of the provider institution as on its graduates, and all other provisions.

One of the problems in the translation of requirements into projects and programmes is the variance, real or perceived, between a requirement and the values of the implementing institution. Blackmur (2005:88) writing about the South African Council on Higher Education (CHE) and quality in MBA programmes says that the model adopted by CHE has a number of shortfalls, including conceptual inclarity, structural inconsistencies and that it fails to incorporate the market in the determination of MBA quality. Regulatory agencies that are compliance directed may cause enormous frustration on HEIs that are innovative and want to try new schemes. On the other hand, a too-open regulatory framework may soon lose sense of its being.

A regulator may need more the skills of balancing her enabling role and of collaboration to build infrastructures for quality improvement. Most quality regulators emphasise and master more the skills of monitoring and controlling than of facilitation, enabling and probing. In chapter 2, Figure 2.1 we portray such behaviour as long old fashioned, no wonder Haggis (2009) describe most quality assurance efforts as retrogressive. From Dale (1999), through Franceschini (2002), Bergquist et al., (2004:248), Sallis (2002:18) to Ficalora and Cohen (2009), the advantage of QFD is that it helps organisations shift quality assurance responsibilities from the external regulatory architecture to the fabric of the organisation at both the philosophical and the techno-operational levels. At both the institutional and supra-institutional levels there tend to be issues of definitional inconsistency: What is quality and how should quality assurance be handled? What should be the credentials of a quality

assurer? Lenn (1992:1), Materu (2007:3), Dill (2007:1) and Altbach et al. (2009:53) discuss these complexities, including the need to ensure co-existence of innovation and improvement dimensions in quality assurance. By merging regulatory requirements within Six Sigma roadmaps, QFD pre-empts the tendency of quality regulators to focus outward on the 'regulated' without paying attention to their own developmental needs at the knowledge, attitude, understanding, skills and behavioural levels. QFD can, as was observed by Aytac and Deniz (2005:512), improve the quality of educational provision (doing the same but better) and it can innovate (new issues / new approaches). In reference to the implementation of Quality Assurance models in Africa, Materu (2007:24) says that the effort is constrained by a lack of financial resources and the absence of human knowledge and skills.

The ZimCHE passes a number of requirements on HEIs in Zimbabwe. For instance, for accreditation purposes aspiring institutions must pass the criteria of basic requirements in four main directions: programme input; programme process criteria; programme output / impact, and programme review.

Programme Input. This criterion covers programme design, student recruitment, admission and selection, staffing of programme, staff complement, teaching and learning strategy, student assessment, policies and procedures, infrastructure and resources, programme administration services, postgraduate policies, procedures and regulations.

Programme Process Criterion. This criterion refers to programme coordination; academic development for student success; teaching and learning interactions; student assessment practices; rigour and security of assessment; coordination of work-based learning; delivery of postgraduate programmes**.**

Programme Output and Impact. This criterion has two dimensions: student retention and throughput rates and programme impact criterion.

Programme Review Criterion has one special concern: programme review.

Frameworks that regulators use for judging the quality of an institution may reflect one or more of the criteria of quality as excellence, as fitness for purpose, as fitness of purpose, as enhancement or improvement, or as transformation. Requirements may emanate from all other 'voices'.

3.17.6 The Product Planning Matrix

Most QFD efforts focus on customer needs on a one-by-one basis and the Planning Matrix is used as repository for crucial quantitative data on each need. The team responsible for developing products and services will use the Planning Matrix to decide which aspects of the planned product and services will be emphasised during the development project (Ficalora and Cohen, 2009:142). In the case of curriculum design, there are aspects that are definite requisites by reason of the nature of regulations, discipline or other. It is proper to assume that a curriculum becomes more market-oriented the more it deeply engages representatives from students, industry, subject matter specialists, learning psychologists, and media technicians, further to the institution running its own curriculum research work. This approach leverages on the responsive evaluation, consumer-oriented evaluation, utilisation-focused evaluation and market-oriented evaluation models in education. These are discussed at Section 3.4.

The Planning Matrix derives from the Voice of Customer, of Marketing, of Employees, and of Business. The broad-based approach gives the team that develops the product or service a systematic method for comparing the performance of the current product or service in meeting customer needs as against competitors (Chan, 2009:43). Secondly, the Planning Matrix facilitates in developing a strategy for customer satisfaction that optimises the institution's ability to both sell the product and keep the customer satisfied. Thus the Planning Matrix, in the hands of competent academics and staff, can serve as a potent strategic instrument facilitating strategy decision-making that flows from product planning matrix; part-subsystem development matrix; process planning matrix and process quality control matrix. The advantage in QFD as compared to other models is that the Planning Matrix asks the following questions for each customer need:

- How important is this need to the customer (student; industry; society)?

- How well is the institution and the programme doing in meeting this need today through research, teaching, community services?
- How well is the competition doing in meeting this need today? The competitor can range from self-study, freely available teaching material (online, etc.), in-house company training, conventional or distance programmes, etc.
- How well do we want to do in meeting this need with the product and services being developed?
- If we meet this need well, can we use that fact to help to sell the product? It is important to bear in mind that QFD has both moral and economic implications for HEIs.

These questions are similar to those raised by Ficalora and Cohen (2009) and apply both to manufacturing as to the service sector inclusive of education. The Planning Matrix helps the institution understand Customer Satisfaction Performance (CSP), which is the customer's perception of how well the current product or service is meeting the customer, for instance, student needs (Ficalora and Cohen, 2009:151).

The 'Design Scorecard' shown below can be used during Product Planning to assess the overall design quality against all customer requirements (Ficalora and Cohen, 2009:98). The Design Scorecard predicts the probability of defect level and other failure modes in the ultimate product part-by-part, process-by-process, performance area-by-performance area and its reliability. These tools are not available with other quality assurance models. In essence, the Design Scorecard measures how well the institution and programme are meeting the QFD plan, including the regulatory requirements at the overall level (Ficalora and Cohen, 2009:100). Application of these tools in programme evaluation for instance of an M.Sc. Programme should help it absorb best qualities of other best programmes.

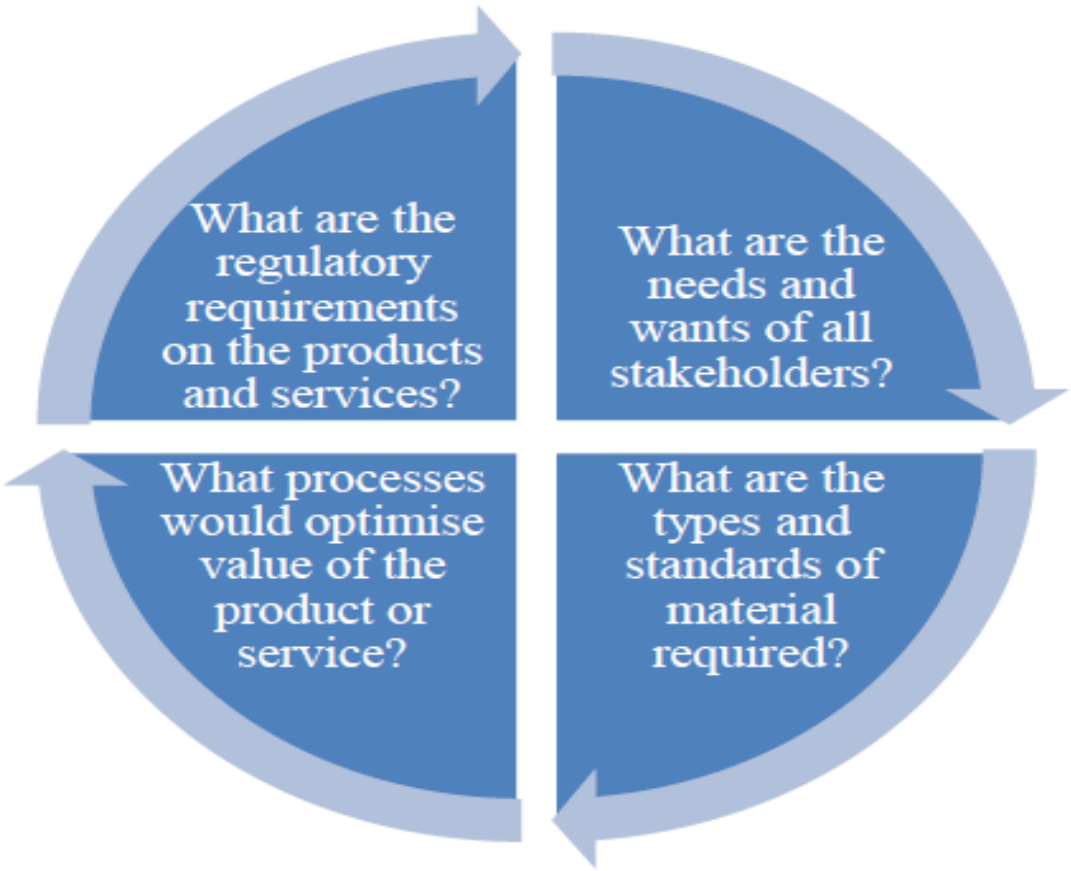

Figure 3.12: The Design Scorecard and elements of Product Planning as synthesised from the literature

The utility of the Design Scorecard rests in its ability to identify all stakeholder needs; all regulated components, materials, etc; and internal value-creating processes. The fact that QFD sums up all important stakeholders' points of view and validates them as they are incorporated into products and services design help eliminate the contest for meaning of quality among different stakeholders. Finally, with the Design Scorecard the team should be able to integrate focus on shared interests of stakeholders, the best resources, optimising processes and the pertinent regulative framework.

3.17.7 Competitive Satisfaction Performance

In chapter 2 I discussed the management best practice principle of being out front, being the best in the park and that of creating greater customer satisfaction. Treacy and Wiersema (1995) suggest that organisations can choose to compete based on either technical excellence

or customer intimacy or operational excellence. HEIs applying QFD can secure competitiveness based on technical excellence and operational excellence and customer intimation. It should be equally possible to use excellence in one to leverage excellence in the next while working out deep integration and alignment of the three forms of excellence. In chapter 2 the thesis mentions that integrating quality and management excellence principles is not a straight-forward simple endeavour.

Technical excellence is created out of correlating the 'Voice of Customer' to substitute quality characteristics (SQCs – Technical Descriptors), a very important aspect of creating customer value through saving resources. Voice of the Customer is also correlated to product planning matrix (PPM), thereby creating operational excellence. Technical excellence and operational excellence are key strategic capabilities for organisations seeking enhanced customer satisfaction. Intelligent application of DFSS strategies should help HEIs achieve technical excellence through TFSS, operational excellence through SSPD and a strong market-orientation through MFSS.

QFD provides a method by which the development team can record the competition's strengths and weaknesses alongside its own (Ficalora and Cohen, 2009:153). One of the techniques used during comparisons of own products and services is benchmarking. It is important that HEIs train their staff in benchmarking skills. Good benchmarking encapsulates learning from and attempting to match or outdo the best. It should involve running a strategic gap analysis with the aim of closing the gap between expected quality (Q_a) and offered quality (Qo) and seeking new structures of thinking and action that would leverage innovation. Despite the huge efforts taken in trying to resemble products and services of high performance HEIs, most institutions still underperform. Sallis (2012:101) highlights some of the mistakes in attempting to benchmark from high performance institutions; trying benchmark as a quick fix or panacea; spying or educational espionage; trying to pace up or copying; educational tourism; and benchmarking for a cost-reduction exercise.

Perceptual maps, radar diagrams and comparative tables are very competent tools when it comes to running competitive satisfaction performance. All the three techniques summarise a

customer's comparative perception and judgment and how the customer identifies a product or service in comparison with the rest on the market. The amount of detail in a perceptual map, radar diagram and comparative table can be varied by the team using them. If these tools are used in non-QFD environments the likeliest is that the objects of comparison are dictated or suggested by management. In QFD these should be discussed by the customer groups. This way QFD aligns measurement to assessment and evaluation within a customer-oriented perspective. This practice should afford the stakeholders space to express their expectations in terms of the learning process and in terms of the attributes developed in the graduate. These issues relate too to Section 3.9 and Section 3.17.6 because competition cannot be divorced from the quality of the product (PPM) and what stakehplders await in the product.

Secondly, in terms of technical responses or substitute quality characteristics (SQC). Here the QFD design team will be concerned with knowing what is present in the processes, habits and methods of those who provide competitor products and services. One such concern could be, for instance, how other institutions are using video conferencing, e-books and other channels of communication in their educational programmes. "One of the benefits of QFD is that it creates a structure that leads developers to ask the right product-planning questions," say Ficalora and Cohen (2009:156).

While literature reports an increase in quality literacy, most people still deposit their faiths with ranking and some constructs that have been unfortunately associated with quality. Knight (2011:14-15) warns of the canard of associating international reputation; international accreditation; global branding; presence of foreign students and international institutional agreements with superior quality.

As explained at Section 3.17.4 there are often problematic issues regarding mechanisms of data collection and processing for both Competitive Satisfaction Performance and ranking purposes (Eley, 2001; Douglas, Douglas and Barnes, 2006; Yorke, 2009; Law, 2010b; Altbach, 2009; Brandenburg and De Wit, 2011).

3.17.8 Technical Descriptors

Mukaddes et al. (2010:3) define 'technical descriptors' as all those attributes about the programme, including teaching techniques, modules, instructional technology, facilities, delivery modes, etc. that can be measured and benchmarked against the competition. Every organisation faces the incessant pressure to improve and upgrade its current set of technical descriptors: organisational culture, human competences, facilities, processes, etc. There is also the need to acquire novel sets of technical descriptors. QFD has an inherent mode of showing the imminent decay and datedness of competences and technical descriptors. It further indicates the trends along which the organisation's technical and strategic capabilities must be developed. In QFD-based organisations Black Belt, Green Belt, Yellow Belt training is a common strategy for building the organisation's .strategic capacity.

Whilst all technical descriptors are important, a learner-centred curriculum must focus more on teaching and learning approaches. Mukaddes et al. (2010:1) however lament that the product of education is largely intangible and difficult to measure because it lies latent in the graduate's knowledge, attitudes, skills, understanding, behaviours and beliefs. The Kano Model can be used to classify technical descriptors according to their importance and deserved priority. See Kano's model in Figure 2.5. Salmi (2011a:6, 2011b:326, 2011b:327) discusses some nine errors committed in trying to establish world-class universities. The idea points that distil from his discussion is that teaching and learning are the high priority attributes and that management easily get trapped in the desire for visibility and can shift resources away from teaching and learning into issues not directly and immediately impacting on learning and teaching. These concerns are echoed by Knight (2011) and Macfarlane (2012) who critique internationalisation of the institution and curricular and professor type respectively. In student-centred, outcome-based curricular the technical descriptor of greatest value should be the ability of the professor-lecturer to grow the knowledge base, transform the attitudes, and help the student attain new and sharper skills of understanding and creating new knowledge. Management can fall in the trap of seeking qualities that are alien to the customer requirements when recruiting staff where QFD is not deployed. Either the lecturer is what Macfarlane (2012) called knowledge producer,

academic citizen, boundary transgressor, or public intellectual has a huge bearing on the curriculum content and learning experienced by those he teaches.

In summary technical descriptors confer the programmes and institutions a distinctive (dis)advantage in competitive markets. What matters is not having what is trending in terms of quality of technical descriptors but knowing how to create quality technical descriptors that work to meet Customer Satisfaction Performance determined by Voice of the Customer.

3.17.9 Goal Setting and Improvement Ratio

In setting the Improvement Ratio the goal is compared with the current performance rating. The Improvement Ratio is a very utile multiplier of importance to customer. In the context of QFD, work improvement is approached from a systems point of view and requires the examination of inputs, processes and outputs (Flumerfelt and Banachowski, 2011:228). In chapter 2 I discuss this point with reference to the Context Input Process and Product model. When there is an appreciation that system elements interweave in an interdependent field then improvement in one component is seen as impacting the whole system (Roberts et al., 2005 and Tsinidou et al., 2010:227). This is the quintessence of the Theory of Constraint I introduced in chapter 2. In strategic planning for quality improvement in the context of QFD, goal setting assumes a key strategic step. The following questions are not uncommon at the goal setting stage: Why set goals at all? There are a number of benefits obtained from setting goals and objectives. Firstly, setting objectives clarifies the real purpose of what people are required to do, thus separating means from ends. For instance value for money is not a definition of quality but a scenario that facilitates efforts to create more resources. The resources can then be used for improving teaching and learning. A great leap in learning implies an enhanced Improvement Ratio which means the students' KASUB has been hugely transformed for the better.

Secondly, objectives proffer explicit directions that allow for consistent decision making over the long term, thus allowing the organisation to link today to tomorrow. In chapter 2 the thesis discussed the importance of aligning the present with the future. It emphasised integrating the deliverables from across the organisation's structure-structure, structure-

function and function-function relationships and the interfaces of the organisation. Further to this it highlighted the need for linking the micro to the macro as a strategy for attaining consistence, excellence and enhance value for money and value for effort. Goal setting is about change-project management and about resourcing for the future. These management best practice perspectives are discussed in chapter 2.

Thirdly, setting goals helps us to be aware of the link between business goals and the skillsets required to achieve those goals effectively and efficiently. Working out the WHAT - RESPONSE matrices is a way of turning the organisation to a fact-based philosophy and methodology of management. QFD expands the traditional conceptualisation of accountability to include accountability to the needs and wants of the customer rather that the thin dictates of top management. Earlier in this chapter I discussed the concept of accountability. In non-QFD contexts accountability is to the quality assurance agency and to the university management. QFD is a game changer, accountability is to the student, industry and society and goal setting is subordinated to that philosophy.

Fourthly we can observe that goals cannot be set as high as possible and at the same level of aggressiveness or ambition. This is because each organisation has limited resources. QFD is a prioritisation tool for prioritising not the supposed goals of management but the needs and wants of customers. This is why it is important to validate Voice of the Customer and pass it through the Kano model. The Kano model tell us which set of customer requirements to give what treatment as their value to both the organisation and the customer is historically determined in space and in time. Earlier I critiqued the internal quality assurance infrastructure, saying that in traditional models the prerogative for the definition of quality, for quality assurance and for strategy formulation including resources allocation and budgeting is confined with top management. QFD, being forward thinking, customer focused and teamwork-based thinks that what matters is what the Voice of the Customer says. Consequently the most important purpose of goal setting is mining as much data, having a robust infrastructure of data processing and having an organisational behaviour system that show unquestioned respect of Voice of the Customer. This is one of the reasons why

organisational research on model adoption needs examine management response to the model and its results on a longitudinal basis.

Fifthly, is the question of whether to excel in all areas. Excelling in all areas may not be feasible based on resources needs. It may not be necessary particularly where it results in over-quality. It may unnecessarily increase costs of the products and services resulting in violation of the 'value for money' principle. More often than not, institutions survive in conditions of limited resources consequent of which choices must be made regarding where to place special emphasis or extra resources and where not to. The point of view of limited resources and of selecting which aspects of a programme or other services will excel and which will not becomes a strategic imperative.

Goal setting is both inward and outward looking as well as customer focused. In the context of QFD, Current Satisfaction Performance and Goal are combined arithmetically to produce the Improvement Ratio. The Improvement Ratio is a multiplication factor that effectively scales the Importance to Customer, and thus reorders the importance of the customer needs. The most common method for determining the Improvement Ratio is to divide the Goal by Current Satisfaction Performance:

Improvement Ratio = Goal ÷ Customer Satisfaction Performance

The Improvement Ratio becomes large when there is a large difference between the Current Satisfaction Performance and the desired Goal. In the beginning of quality improvement effort, many of the problems affecting quality are more visible to almost everyone and are likely to ignite conversations for action. By their nature bureaucratic systems increase visibility of quality issues lying within lower levels of the institution. Top management normally coerce and incentivise to make it quicker and easier to pluck them off. As quality improvement efforts continue and all low-hanging problems get plucked, the institution still has the challenge of searching for and plucking higher-up and more embedded problems. Resistance to change is more often than thought embedded in top management than at lower levels (Senge et al., 2007 / 2012).

Implementation efforts should focus more and more on teaching-learning as this is the only parameter that directly links to quality of graduates. Mukaddes et al. (2010:1) say that it is practically the teaching techniques that help individuals develop creative, critical and perceptive ways of thinking that sharpens their ability to define, formulate and solve problems cooperatively and individually. A number of strategic techniques can be used in seeking improvements: business process reengineering (BPR) of 'troubled' system-to-system, system-to-person, person-to-person processes; restructuring the institution; redesigning cumbersome processes; management by constraints; benchmarking; interface mapping, etc.

3.17.10 Relationship Matrix

Three major techniques: Measurement Systems Analysis, Matrix Diagram, and Design of Experiments can be used to establish relationships among components, processes and other facets of a product or service. The Relationship Matrix is where the team determines the relationship between customers' needs, regulatory requirements and the institution's ability to meet those needs. QFD helps the teams and ultimately the whole organisation to find answers to three fundamental questions. One of the questions is the definition of the organisation's customers and what the needs of each customer are. QFD is a customer or market-focused methodology and the bulk of its effort is directed at gathering Voice of the Customer, processing it and aligning organisational infrastructure, behaviours and belief system to the Voice of the Customer. It behoves the organisation to draw a prioritised list of customers against a prioritised list of their needs and wants. In chapter 2 the thesis explains that many HEIs have selected the student as the primary and high priority customer.

The second question is about the regulator: what is its focus, its specific requirements regarding products and services and what are its metrics. There are cases where there is no specific regulator, for instance, regulation on modules. Here the institution can take what the market considers as best practice in module production as the benchmark. However the commoner situation is where there are a group of regulators fragmented in their approaches and standards. Then there is the question of the institution's ability to meet each of the requirements from the customers, the regulator and 'best practice'.

Relationships matrices help institutions make the links between objectives and means of achieving those objectives; between resources and demands; between demands and their relative importance. In using the Matrix Diagram the team has to figure out what the strength of the relationship between the Technical Descriptors and the customer needs and regulatory requirements is. Each relationship can be classed as nonexistent, weak, moderate or strong. Most other models do not get this far regarding detailed relationship between objectives (whats) and their corresponding technical descriptors or responses. The Matrix Diagram is a simple but powerful tool that stands at the heart of QFD, as confirmed by Ficalora and Cohen (2009). Ficalora and Cohen (2009:100) underscore the importance of matching the measures of quality held by stakeholders and that the system of transferring these into metrics of quality by the institution be well developed, accurate, and understood.

The Measurement Systems Analysis technique can be used and departs from the analysis of all physical and informational components of the whole institutional delivery system. There may be particular reference to variables such as staff quality, novelty and capability of technology, capacity and appropriateness of methods, quality of materials, standards, measurements and the institutional culture. The Measurement Systems Analysis ensures that things are not left to fall below the minimum requirements set by professional boards, agencies, visions and other agreements. The 'Design of Experiments' proffers the only means by which many relationships between products and services performances, materials, components, subassembly specifications can be determined (Ficalora and Cohen, 2009:103). QFD work relies on an assumed relationship between the '**Whats**'-objectives, requirements of customers and the '**Hows**'-responses, means by which the institution accomplishes the **Whats** and all other matrices whose construction depends on that relationship.

The success of QFD plans and subsequent strategies depends on the assumed product-to-component or product-to-process relationships developed, tested and confirmed by those at the coalfaces of each value activity (Ficalora and Cohen, 2009:103). The relationship matrix is a new business development analysis matrix used to analyse the market to find new business opportunities in difficult times. Institutions wanting to stay ahead of the game use this instrument too. From an understanding of the relationship between various institutional

factors in shaping the quality of institutional products and services the following question was generated: Which relationships has the CUTGBS found to be positively contributing to quality improvement? How has staff exploited positive as well as negative relationships?

3.17.11 Institutional difficulty / self-assessment

There are various techniques that are used in identifying institutional difficulties and they include surveys, interrogation, self-evaluation, consultation, records-check and brainstorming. Relation Matrix, Analysis Technique, and SWOT Analysis are more detailed tools for exposing the real sources and what can be done with each difficulty. These analysis tools are at the heart of the Theory of Constraint. Problems that stand in the way of quality improvement may relate to dysfunctional structure-structure, structure-function, and function-function relationship within the institution. Difficulties may arise because each functional sector works in isolation, powered by their own ambitions and guided by their own customs and practices, without a link to other sectors. QFD can utilise audits to establish organisational strengths, opportunities, threats and weaknesses. Audits serve and leverage the following strategic activities: benchmarking, financial statement certification, fraud detection, improvement planning, information assurance, implementation progress, opportunity assessment, risk assessment, security, trust building and to support external audits.

Houston (2010:178), referring to New Zealand observed that academic audit procedures had become ritualised and therefore had lost meaningful impact on the process of assuring quality. Problems can arise in the implementation of academic audits. Among these difficulties are: focus; audit self-studies; conducting visits; reports; follow-ups; training of audit teams, and selection of audit teams (Dill, 2000:xx). Audits have a huge impact on the quality performance of the institution by helping them to evaluate how well they are fairing against their own stated aims, goals and objectives, mission and stated standards (Hayward, 2006:50). Audits have helped institutions to vitalise their quality assurance systems and raise issues of teaching and learning up for top management considerations. Audits have helped institutional leaders develop institution-wide quality cultures and provide institution-wide information on best practices. On a marketing note, audits help in proffering visible

confirmation that the institution is seriously paying attention to academic quality assurance (Harvey and Williams, 2010:8).

The most common deliverable of an institution analysis is a SWOT table like the one in table 3.3 below.

Table 3.3: SWOT Analysis with resultant strategies as synthesised from the literature

Strengths		**Weaknesses**	
1	Strength-1	1	Weakness-1
2	Strength-2	2	Weakness-2
3	Strength-3	3	Weakness-3
4	Strength-4	4	Weakness-4
5	Strength-5	5	Weakness-5
Opportunities		**Threats (challenges)**	
1	Opportunity-1	1	Challenge-1
2	Opportunity-2	2	Challenge-2
3	Opportunity-3	3	Challenge-3
4	Opportunity-4	4	Challenge-4
5	Opportunity-5	5	Challenge-5

This SWOT Analysis table lists under each header the corresponding points. A plethora of actions will be taken in respect of each point on the list. The many actions may result in goal conflict, further organisational fragmentation because each sector responses in its own ways to its opportunities, strengths, weaknesses or challenges. Other weaknesses may involve sectors which may be assigned responsibilities they feel don't belong to them or they may feel that they are not skilled or supported enough to carry out the assigned responsibilities.

The effectiveness of HEIs in developing and transforming depends on their strategic ability to successfully engage and articulate internal and external competences. Tensions often flare up between quality assurance agencies, governments, institutions and external decision

structures. Intra-institutional conflicts flare up occasionally between sectors and individuals and if not skilfully handled they may create difficulties in quality performance. Institutional difficulties may be resources-based where the institution does not have sufficient resources to pursue its well-intended strategies. In some instances working with QFD may require the construction of long tables and personnel may not have the skills to handle and analyse such tables. Working with many objectives and across numerous people and processes is a task that needs sharp negotiation skills, energy and patience. Good negotiation skills are not as quick coming and common as is the temptation to ramrod one's way through.

There may as well be misfits between institutional culture and strategy and between institutional strategy and structure. Running through the process of drawing up the Relationship Matrix the team improves its awareness of the institution's strengths and weaknesses. A SWOT Analysis can be run at this point or the team may decide to draw an order list of the difficulties as relating to external threats and internal weaknesses. If the team does not have guaranteed clout to influencing other resources at the system and strategic levels it can go as far as listing the institutional difficulties and making blow-by-blow recommendations. Institutional assessment must help the institution identify and frame strategic issues. This can be attained through identifying individual strategic issues, creating a master list of key strategic issues and drawing an institution-wide strategic issue statement. With a complete understanding of the strategic issues it becomes of paramount importance deciphering strategic issues from the operational issues (Bryson and Alston, 2005:85). To achieve maximum gains from QFD, management must drum the importance of quality in the institution's strategic plans.

3.17.12 Technical analysis of competitor products

This technique, very similar to reverse engineering, involves a part-by-part comparison of competitor programmes, products and services with those of the institution. The intention should be to ethically determine specific value points for competitor technical descriptors. This step should be linked to benchmarking as it results in a list or narration of the profile of offerings from peer institutions. The institution should learn from the strengths and weaknesses of competitor products and services. The main purposes of technically analysing

products and services from competitors in higher education are three-fold. It gives the institution greater international competitiveness. Secondly, benchmarking drives the growth of information technology, which has a ripple benefits in other areas such as management, data collection and its management. Thirdly, comparative analyses provoke the interest to improve processes, resources and quality.

There are various sources of data that the QFD team can peruse to get a thicker understanding of competitor products and services: one source are recorded data that includes the organisation's annual reports; media articles; press releases; regulatory reports; special presentations; analysts' reports, and speeches. The other source is observations of patents and alumni performances. The third source is the opportunistic data sources that include meetings; seminars; trade shows; workshops and recruiting ex-employees of the target competitor.

3.17.13 Target values for technical descriptors

The Affinity Diagram, Tree Diagram and Benchmarking can be used at this stage of the House of Quality. After it has determined key Substitute Quality Characteristics and benchmarked the competition, the QFD team can go ahead with setting Target Values. By 'target value' is meant the aimed-for result from a measurement or a process. It may be visualised as a series of interdependent but linked throughput procedures, processes and activities which consume resources as they convert inputs into desired products and services.

In QFD, Target Values are themselves targets for continuous improvement and are addressed by the Six Sigma Process Design roadmap. In the context of QFD, the determination of a Target Value is a result of the interaction among customer needs, the current institutional performance and the competition's performance. In this context a Target Value become the object of benchmarking. When the QFD team has determined key Substitute Quality Characteristics for each technical descriptor, the QFD team should establish the procedure, process or activity that will deliver the particular value. A QFD approach helps the institution to complete the value design, management and delivery processes in ways that maximise value to customers. Once target values are established, the QFD team prioritise them

according to their overall importance. Kano's model can be used to classify them into dissatisfiers, should-haves and delighters. Student evaluation of teaching effectiveness (SETE) can be used to help this process. The primary inputs in the setting of target values of Substitute Quality Characteristics according to Ficalora and Cohen (2009:219) are:

- drawing a rank order of Substitute Quality Characteristics into a priority list – priorities;
- drawing up the competition's technical performance – competitive benchmarks; and
- the development team's product technical performance – own performance.

After running an assessment of the competitive market, the QFD team can make decisions for each key Substitute Quality Characteristics to:

- aim to beat the competition;
- concede technical leadership to the competition; and
- match the competition (Ficalora and Cohen, 2009:219).

There are two basic approaches in setting target values. Mathematical modelling can be applied where the process allows for the use of mathematical modelling. When the mathematical modelling approach cannot be used, a different strategy should be used. Among the alternatives are the following. The design team can treat each Substitute Quality Characteristic as if it were the single determinant of Customer Satisfaction Performance on an attribute. This strategy or approach of pursuing excellence is not uncommon in both the manufacturing and the services sectors. A QFD-inspired professor would say ''if my students should love this subject it should be because of its logic'' and optimise the logical aspect of the subject then again ''if student should love this subject it should be because of its relevancy'' then optimise the relevance aspects of the subject. She should go on until all the determinants of curriculum quality are covered and optimised. Optimisation is itself not quality but a roadmap to quality creation. Each subject of optimisation thus becomes a Target Value.

The second approach is choosing the most aggressive of the target values (Ficalora and Cohen, 2009). This approach may involve extra-organisational research work whereby QFD team members use competitor metrics and benchmarks to pin-point what are the current

levels of desired performance in a certain determinant of quality. The organisation then strives to come nearer, perform equally or even surpass the best performer on that determinant of quality. If a market of students consider for instance lecturer qualification as a key attractor of value, universities may soon have well paid professors and doctors irrespective of a fragmented curriculum that has no other value than employing the lecturers.

'Target value' refers to 'how much' for the technical value and this acts as the reference point in related comparisons. Benchmark technique can be used in improving target values. Target values are key in determining the direction and magnitude of Improvement Ratio. In chapter 2 I discussed the management best practice of measuring and reporting and it is important that the current situation be assessed, quantified and collectively people measure how far they want to stretch. Only through stretch goals can target values be achieved.

3.17.14 Correlation Matrix

In the correlation matrix, the QFD team tries to establish how the various technical descriptors affect each other and how to eliminate contradictions among those screaming at each other. The intricate relationships are shown in the Figure below.

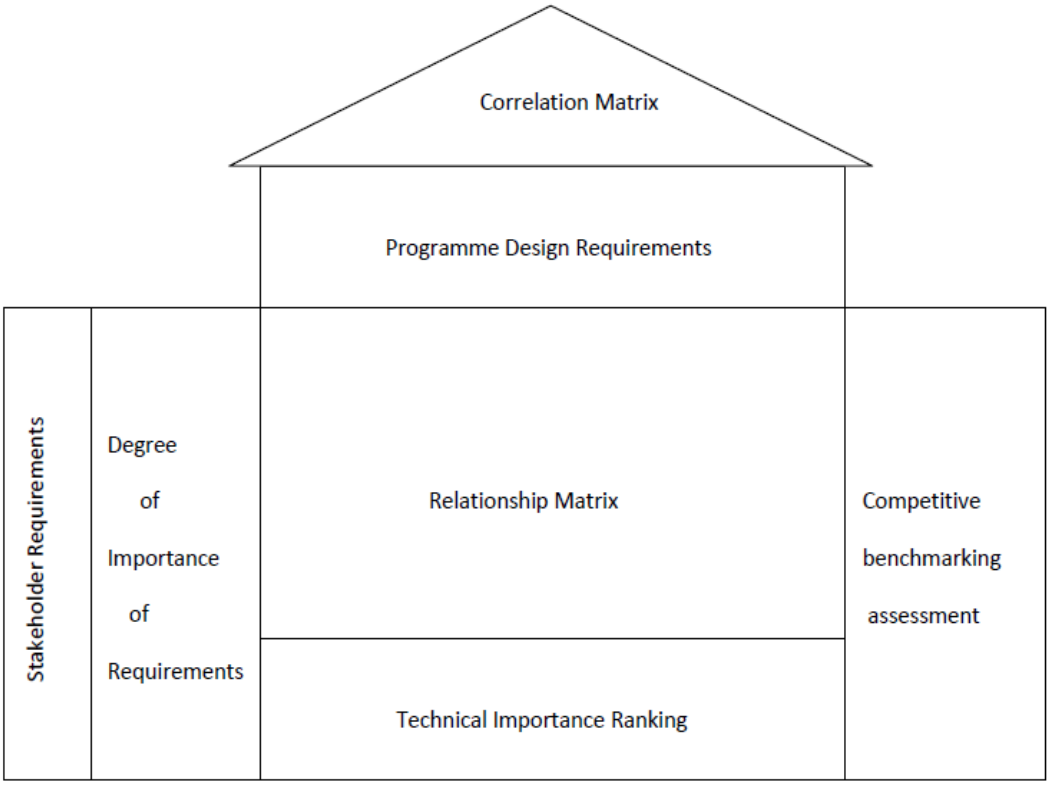

Figure 3.13: Correlation matrix building into the House of Quality (Akao et al, 1987)

Institutions using any of the quality models available on the higher education market must address how the programmes' quality objectives are related to and are translated into operational plans of the various work units. Aligning the goal breakdown structure (GBS) to the institution breakdown structure (IBS) and the work breakdown structure (WBS) is an enormous strategic accomplishment. The team need to look at how the quality values are integrated into the management system and what the programme's approach is for each type of competitive comparison.

3.17.15 Absolute importance

At this stage, the team calculates the absolute importance of each technical descriptor. Three strategic techniques that are the mainstay of good QFD work can be used. These are the Critical Parameter Management technique, Failure Mode and Effects Analysis – Design Emphasis, and Kano's Model. The Critical Parameter Management can be used to manage

the attributes or parameters that matter most in the eyes of the stakeholders, students and industry. The Critical Parameter Management is used in managing the relationship between products, services, subsystems, components, materials and process parameters that derive from designing market-oriented services and products. The criticality of an attribute can be determined by its newness, importance, or level of difficulty, as determined by Ficalora and Cohen (2009:98). The Failure Mode and Effects Analysis – Design Emphasis is used to identify and thus prevent defects and disfunctionality - a hallmark of the Theory of Constraint.

Every failure mode produces some kind of negative effect on observers and users of products and services. It is therefore important that each worker understands the criticality of each failure mode on the customers and stakeholders. Criticality is based on three attributes. The first attribute is the probability of each failure mode occurring and this is denoted by the letter **P. T**he second attribute is the seriousness / criticality of the failure which is denoted by the letter **S.** The third attribute is the difficulty of detecting the failure before the product or service is used by the customer and is denoted by the letter **D**. Whilst most people would think that this stage of QFD is too technical and has no space in the services sector the opposite is true. In higher education where the professoriate design the course outline, does the teaching and marks the examination lots of failure modes can remain embedded latently in commissioned process and may take quite long before an unusual incident spills the bean. In chapter 2 I talked of the management best practice principle of 'being up front' and emphasised that business and ethics should be inseparable. A content misconception may run for years undetected as is inflation of marks for some individuals.

Each of P, S, D is rated on a scale from 1 low to 10 high. The criticality index (or risk priority number) for each failure mode can be calculated using the expression:

$$C = P \times S \times D.$$

The numerical value of the calculated C has a strategy overtone on the institution. For instance, a C = 10 x 10 x 10 = 1000 will have a different impact to a value C = 1 x 2 x 1 = 2. The value to customers of various product or service attributes varies in space and time.

Unlike the Kano model, more often the classification of customer expectations through the 'Absolute Importance' route yields three categories. One of them is the 'Taken-for-granted or fitness-to-standard. With such attributes improvement beyond a banal level is not necessarily followed by further customer satisfaction. This is most common with most of the regulatory requirements. One way of delighting customers on these expectations is to innovate around them rather than improve them.

The second class refers to the competitive category in which an improvement on attributes yields further customer satisfaction. This aligns with the thesis discussion on Goal Setting and Improvement Ratio above. In the Kano model these expectations would fall within Type E needs and wants.

The third bundle are the delighters / surprisers or fitness to latent expectation. These are attributes that when incorporated in a product or service enormously delights the customer because in his eyes they have a huge 'wow' effect. While the thesis appreciate the focus on customer this is not a kind of the organisation blindly following every customer demand. This point is emphasised in the QFD stage 'Institutional or organisational Difficulties' where Voice of the Customer is related to organisational capability and competition. In working out the Absolute Importance the team must use their intuition to and run their data through the processes of: listening for thick meaning; interpreting Voice of the Customer for its implications; responding through alternative offering or directly and monitoring products and services, customer response and organisational capabilities.

3.18 QFD and other strategy models

A point has been made in Section 2.6 that QFD is a measurement, assessment, evaluation and strategy planning tool. At Section 3.4 the thesis discussed the impact of some 10 models popular in educational assessment and evaluation and a point was made that each of the models is restricted in that it focuses on only one aspect of the education process. One thing that comes out clear from the list in Section 3.4 and the one below is that each of the models covers issues that are necessary for effective management and consequently quality assurance in some incomplete form (Bloxham, 2012). The clefts will have to be plugged by

yet another model resulting in the adoption and use of a fragmented quilt of models which are based on different assumptions and designed to operate in organisations at different levels of maturity and development. This scenario is likely to worsen what the models are expected to improve. Table 3.4 compares Business Process Re-engineering, TQM, Six Sigma and QFD with respect to:

- **Level of change**. QFD is suited for any type of change. Other models are specifically efficient with either radical, small leap or incremental change.
- **Scope.** QFD can be suited to single once-off processes as well as galaxies of related yet diverse processes whilst Radical Business Process Reengineering is organisation-wide and the others are small scale initiatives.
- **Focus.** QFD works with nascent and existing organisational issues, Radical Business Process Reengineering with start-up projects and the other two with existing projects that need beefing up in one or the other way.
- **Participation.** QFD is open to and actually encourages organisation-wide involvement. It shares this feature with Revisionist Business Process Reengineering while others are fundamentally bottom-up.
- **Role of information technology.** QFD requires a strong backing with robust technology investment but can have other less technical alternatives. For the other models technology becomes a key enabler.
- **Other enablers.** QFD uses lots of charts, matrices, statistics, mathematics not as much as the other models.
- **Risk.** QFD works in any environment, yet the others pose moderate kinds of risks with the user organisation.
- **Principal goal.** In chapter 2 I discussed how QFD was used in its maiden days and how it is being used today. In my proposition of the Strategy Focus Wheel I linked QFD to the processes of continuous improvement, strategic planning, strategy implementation, change management and the management of the organisation-wide risk interdependence field. The main goal in QFD is to optimise each of the quality excellence principles and each of the management best practice principles so that the organisation's customer and competitive satisfaction performances are enhanced never-endingly.

Table 3.4: Comparison between Business Process Re-engineering, TQM, Six Sigma and QFD (Bryston and Alston, 2005; Ficalora and Cohen, 2009)

	Radical Business Process Re-engineering	**Revisionist Business Process Re-engineering**	**Total Quality Management**	**Six Sigma**
Level of change	Radical	Small leap	Incremental	Incremental
	QFD can be used for limited radical changes but is specially for small leap and incremental transformation			
Scope	Organisation	Processes	Processes	Single process
	QFD can be used as an organisation-wide model however many of its tools can be used at process or project levels			
Focus	Start from scratch	Redesign current processes	Redesign current processes	Improve current processes
	QFD can be used right from scratch but many of its tools can be used to redesign current processes (SSPD) and improve current processes (target values)			
Participation	Top-down	Top-down / Bottom-up	Bottom-up	Bottom-up
	QFD requires organisation-wide participation however it may vary with stages			
Role of information technology	Essential enabler	Primary enabler	Key enabler	Key enabler
	QFD depends on technological investments which may be variably essential, primary or key enablers			
Other enablers	Process owner	Process owner	Statistical tools	Statistical tools
	QFD facilitators are critical success factors just as are mathematical, statistical, charts, matrices, flows			
Risk	High	Moderate	Moderate	Moderate
	QFD is a low risk endeavour when the 'analysis of results thus far' loop is done and broad-based inclusion is maintained			
Principal goal	Cost reduction	Cost reduction	Quality improvement	Quality improvement
	QFD has numerous benefits of which the organisation chooses to optimise but key is customer satisfaction through aligning expected quality with organisational activities			

Apart from internal incompatibility, models may exhibit dysfunctional external incompatibility. External incompatibility is, for example, when a model used for institutional management does not accommodate principles of a model used for products and services creation, management and delivery. One such example would be the use of QFD in the academic areas, for example curriculum designing whilst using Business Process Re-engineering (BPR) in the same unit for administrative issues. To maintain links among the processes it would make sense to use Six Sigma Process Design (SSPD), which is part of QFD. The implication of this reasoning is that when organisations choose a model or strategy they must examine to what extent the candidate-model will cater for the structures, processes and culture of the adopting organisation. Most evaluation tools regard quality and evaluation as functioning separately (Mizikaci, 2006). Thus adopting QFD as a change-project model allows a systems level evaluation of the programme.

QFD is one model that fits in with current trends in higher education, such as increased and genuine stakeholder management rather than stakeholder manipulation (Harvey and Green, 1993; Harvey, 1996; Tierney, 1998; Tran et al., 2011; Lagrosen et al., 2004; Becket and Brooks, 2006; 2008); commoditisation; transparency and blending. Whilst other models enforce radical or leapfrog kinds of change the absolute versatility and incremental approach to change taken by QFD gives implementers chances to self-assess on progress and to blend QFD into their present infrastructures. QFD works on organisations at any scope that the organisation wishes. This gives the organisation the opportunity for differential implementation according to organisational priorities and resources at hand. QFD however shares some characteristics with the rest of the models. Business Process Reengineering, Six Sigma, TQM, Theory of Constraint and QFD seek to improve products and services through a structured approach to performance improvement that centres on systematic design and management of an institution's business processes (Chang, 2006:31). A common family of principles guide these models:

- business processes are assets that are essential for creating value for the customer.
- by measuring, monitoring, controlling and analysing business processes an institution can deliver consistent value to customers and has the basis for process improvement.
- business processes must be never endingly improved.

- information technology is an essential enabler for Business Process Management.

Quality gurus like Crosby (1979), Juran (1993), Deming (1986), Franceschini (2002), have identified what Chang (2006:31) crystallised into eight practices that husband QFD and Business Process Management:

- transform organisational structure toward process-orientation or boundary-less, ambidextrous organisations.
- replace the all-powerful-executive manager mentality with the idea of competent and enthused process / case owners who are ready to champion QFD.
- provide support at the strategic, management and technical level whilst genuinely adopting a bottom-up perspective.
- institute information technology systems to monitor, control, analyse, and improve processes.
- adopt a mentality to continuously multiskill the workforce and continuously improve business processes.
- align employee total reward system to business process performance.
- utilise permutations of incremental and more radical approaches to implement process improvements.

3.19 Conclusion

In this chapter we established the relation between quality and innovation and suggested that this forms the DNA of quality improvement. We have further argued that because QFD can be used as a measurement, assessment and evaluation tool it is the best model for programme quality assurance. QFD's value in quality assurance is further strengthened by its self-evaluation nature and that it is holistic in the sense that each of its stages subsumes one or so traditional and classic quality assessment and evaluation models / approaches. Ten such exemplifications are given. We have linked the benefits an adopter of QFD would gain from his understanding of the model and depth of its adoption and the intensity of use of the QFD tools. This has always distinguished winners from losers with QFD. We explicated the concept of disconnect as the absence of a link that should just naturally be there and suggest that their presence exhibits the poor application of the Theory of Constraint. Two such

disconnects exemplified are that between purpose and metrics / standards, and the mentality of accountability to those with power as a measure of quality. A point is argued that in QFD accountability is to the customer, as it is the Voice of the Customer that defines what quality is and suggests how it can be gotten. With this argument we shift the prerogative to define quality from uninformed guts of management to the processed Voice of the Customer that is escalated through the four Six Sigma roadmaps to transformation and fitness for purpose. We have discussed the traditionally accepted value of licensing, accreditation, ranking, professional associations and external examination as an infrastructure for external quality control. We argued that their persistence is welcome but each's implications for quality is in what it does on the ground than simply by its existence. We suggest with great care that these activities have meaning only in the framework of Voice of the Customer. By so doing we reduce the disconnects and fragmentation with the structures-structure, structure-function and function-function relationships in quality assurance work. In this perspective we shift the locus of quality assurance work to the heart of the organisation's philosophy and methodology of doing work. This is the quintessence of QFD whose structure is detailed and creatively embedded with quality assurance literature in the last segment of this chapter. The proceeding chapter discusses the research methodology.

CHAPTER 4 – RESEARCH APPROACH, RESEARCH METHODOLOGY AND DATA COLLECTION STRATEGIES APPLIED DURING THE INVESTIGATION

4.1 Introduction

I took a structured approach in the investigation of how staff within the Chinhoyi University of Technology Graduate Business School (CUTGBS) responded to a 'quality function deployment' (QFD) -based model for quality assurance in the Master of Science (M.Sc.) in Strategic Management Degree Programme. This chapter shows the research paradigm, research epistemology, research methodology and the methods interlaced within the case study. The chapter closes with a consideration of ethical norms followed during the inquiry and processing of data.

4.2 The choice for a qualitative research approach

Frankfort-Nachmias and Nachmias (1996:281), Marshall and Rossman (2006:3) and Hogan, Dolan and Donnelly (2009:11) among others conceptualise qualitative research as a multifaceted approach that investigates culture, society and behaviour through an analysis and synthesis of people's words, values, rituals, symbols, beliefs, emotions and actions. Tesch (1992:58-59) attempted a classification of qualitative research approaches. The upshot of the effort was a family of 50 different approaches categorised into four fields: language characteristics; discovery of regularities; comprehending meaning of act / text; and reflection-dependent approaches. Fifteen years later, Flick (2007:3) wrote about the continued proliferation of qualitative research methods on four levels: discipline-specific discourses; elements and issues of research, specificity of methods, and theoretical backgrounds; growth in the diversity of area-specific discourses about qualitative research; and variation of what is represented by qualitative research. Still Denzin and Lincoln, writing in 2011, pointed out the difficulty of constructing a one-size-fits-all or omnibus-like definition of qualitative research (p. xiii). Notwithstanding, earlier, Denzin and Lincoln (2005:10) were of the opinion that the term 'qualitative' suggests attributes that cannot be quantified, measured, nor specified through experimentation. These include qualities, values, processes and meanings.

This study views qualitative research as a family of potentially interweaving and open approaches that reflexive researchers use (taking the perspective of the research subject and participant in their contexts to understand the quotidian orientation of phenomena), often departing from a case, to construct elements of theory in ways that help us configure reality. A qualitative research approach suits this study because the research questions focus on how processes, events and structures are interrelated and co-adapt within the figuration of the M.Sc. Programme and the 'gang aft agley' of operational realities confronted by the CUTGBS (Bryman, 1989; Hogan, Dolan and Donnelly, 2009:12). I have, however, encountered instances where I have asked participants to ascribe a numerical value to qualitative 'objects' by use of something like a Licket Scale. Bernard and Ryan (2010:4) describe this activity as the quantitative analysis of qualitative data, and they refer to the following three variants in a four-quadrant model:

- qualitative analysis of qualitative data using resources such as hermeneutics, grounded theory, etc.;
- qualitative analysis of quantitative data when we search for and present meaning in what emerges from quantitative processing; and
- quantitative analysis of quantitative data by application of statistical and mathematical programmes.

A quantitative research methodology would fall short of revealing the precise mechanisms and processes in a research on the adoption of a quality model (Gubrium and Holstein, 1997:11). It would not be able to illuminate the complexities in the structure-structure, structure-function and function-function relationships in an educational institution. Literature generally characterises education as opaque. Qualitative research, as observed by Hogan, Dolan and Donnelly (2009:11), can produce compelling knowledge of how and why people behave as they do in institutional, family or individual roles. Furthermore, this study strived to understand what exactly led to particular decisions or choices strategists and management took and technical staff made as part of the implementation of QFD. It further looks at the triad (or triangle) of mutual influence between resources – management – strategic opportunities. A quantitative research approach would struggle to give a convincing review of such a complex web of interdependences (Deshpande and Webster, 1989). Historically,

qualitative research has been conducted by various means that encompass direct observation of a sample, case studies, the examination of relevant texts, interviews, focus groups, e-mails, text messages, instant messages, Twitter, and online chat, among others (Etherington, 2004:80; Kuckartz, 2014:2). The use of a majority of these techniques has put me in intimate vinculum with the processes in the CUTGBS, participants and literature, thus affording the research process an opportunity for data triangulation (Jackson and Mazzei, 2009:223). I have taken part in several conversations with participants on social networks like Viber, Skype and WhatsApp and found such conversations to be more informal, yet richly informative. Jones, Torres and Arminio (2006:12) and Fischer (2005:411) say that qualitative research is pragmatic, interpretive and grounded in the lived experiences of people who interact in webs of interdependent relationships at the micro-micro, micro-macro and macro-macro levels.

I have not taken quantitative research *ex negativo.* My confinement to a fundamentally qualitative research approach is influenced by the resources at hand and the limitations that go with working at the level of an individual student. In the context of the case, and higher education at large, there are many issues of compelling interest to which quantitative research methodology could be used.

4.3 Epistemological grounds for this study

Maykut and Morehouse (2001) provide advice on the importance of situating the research question in a consistent epistemology, theoretical perspective, theoretical framework, methodology and using appropriate methods for data collection. Jones, Torres and Arminio (2006:32) warn that research that is not properly aligned can easily run adrift, citing that "situating a study necessitates determining within what epistemology, theoretical perspective, methodology, and method the question will be explored". This study uses a constructivist epistemology and the case study (phenomenological) methodology. Three major schools or movements inform constructivism: post-structuralism; postmodernism; and deconstruction theories. There are a number of theories within the constructivist epistemology: feminist theory; critical case theory; queer theory; critical theory and deconstruction, of which none

would be more suiting to this study than a case study approach. The constructivist movement assigns two main roles to the researcher: an emancipator role and an interpreter role (Jones, Torres and Arminio 2006:24). The former is not prominent in the instance of this study as its focus is more on 'response to a model' than 'response to use and distribution of powers'.

Because numbers cannot represent the experiences of the subjects of the research, the researcher opted for an interpretive and constructivist approach in the understanding that meaningful reality and knowledge are co-constructed from human interaction within essentially social contexts (Hultgren, 1989:41; Crotty, 1998:42; Torres, 2004:459), in which humans have views and act according to their individual perspectives (Van Manen, 1990:9 and Davis, 2002:511) unless compelled to act otherwise. The researcher experienced many instances of shuttling between sampling, data collection and analysis of the collected data, wherein each activity informed all others. The lengthy immersion in the research context helped the researcher to make comparisons between views, situations, actions, accounts, and the experiences of respondents. Comparisons also focused on how some respondents 'changed' over time. Contrasts were also studied incident by incident, between data and category, and among categories.

4.4 Adoption of a case study approach

4.4.1 Introduction

A case study approach was used in this research and this section will describe the idea of the 'case study' and the relationship between the case and myself as a qualitative researcher. St Pierre (2009:222-223) recommend the use of a case study when the researcher cannot control the subjects of the investigation because the case study is best framed to capture the dynamics of the interdependency field of the many dynamic elements of the case. Yin (1994:1), Stake (1995:xi), Hartley (2004:325) and St. Pierre (2009) converge in affirming that the multivariate nature of the case justifies the use of a multiple-method approach in data collection, and a multi-perspective approach in the analysis of the data.

4.4.2 The 'theory' of a 'case'

Jones (2014:12) defines an organisation as ''a relatively enduring group of people with some degree of coordination around a common principle that has a more or less identifiable boundary''. In phenomenological qualitative research, the whole organisation or part thereof, can be of researchable interest (Hogan, Dolan and Donnelly, 2009:35). The researcher may choose to draw the boundary along legal, physical, relations of mutual recognition, coordination, common principles, boundary and relative persistence (Jones, 2014:13). The intensity with which organisations adopt certain principles, strategies, models and structures has been of research interest across the disciplines. Numerous researches have focused on the adoption of various management and quality principles. The reports on the success or failure of the principles and the adopting organisations are ambivalent. Apart from focusing on the successes or lack of strategies or models, etc., studies need to cover and draw into the fold issues regarding for example how people within the organisations respond to models and their accoutrements. Organisations don't implement strategies, principles or models, the organisation's staff do.

Jones, Torres and Arminio (2006:53), whilst warning against the use of case study as a unit of analysis, are of the opinion that the case study methodology is frequently used in higher education because many aspects of the higher education system represent cases. However, Stake (2000:435) and Hartley (2004:323), among others, suggest that a case study is merely a choice of what is to be studied and not a methodology in itself. Yet Merriam (1998:12) refers to the case study as an intensive, holistic description and analysis of a single bounded system; something bordering on methodology rather than just a choice. The choice of the CUTGBS as the unit of research analysis fits Merriam's (1998) characterisation of a 'case' as a bounded system because: it is a case of something that has discernible boundaries that separate it from other systems in its context; the qualitative approach explicitly attempts to preserve the wholeness and unity of the CUTGBS; data and methodological triangulation were sustained. Care was taken not to rescind nor repudiate the many complex relationships between the case and the wider environment from which it is 'cut'.

This study uses a reflexive research methodology, which in its essence repudiates a simplistic, lineal relationship between measurements, observations, statements of interviewee responses, the study of archived data and statistical presentations and the contexts from which they arise (Alvesson and Skoldberg, 2000:9). Jones and Abes (2003:473), whilst acknowledging the peculiarities that drove the Merriam and Stake classifications of qualitative case study, are of the opinion that overlaps can and do occur among them. The study has a more intrinsic-heuristic value. This is because it sought to investigate 'how' and 'why' things happened within their contexts, thus on what 'worked' within. According to Merriam (1998) and Stake (2000:437), intrinsic-heuristic case studies should deepen understandings and fecund insights gained from within in ways that lead to new meaning and a rethinking of the processes of the 'case' and related phenomena. Systems in triage and institutions that are looking for breakthroughs need less theory and more of what works. Theories tend to be more domesticating rather than encouraging to 'border-jumping'. Postmodern, fundamentally quantitative, research will not help in learning what works, at least not as much as would qualitative inquiry (Gubrium and Holstein, 1997:11 and Jones, Torres, Arminio, 2006:225).

4.4.3 Myself in the 'case'

The relationship between the researcher and the 'case' is a welcome phenomenon in qualitative research. The choice of a 'case' in itself is a manifestation of some bias. *Why this 'case' and not that or the other?* I chose the CUTGBS as my case study because I had some background knowledge about the institution as a result of previous employment (2004 to 2007). At the time of this research, a few of my former colleagues had left. In conducting this research I never felt beholden to any individual, group, team or office within or outside of either the CUT or the CUTGBS. I have no intention of using either this research or the report as a tool for doing any marketing (negative or favourable) for any individual, nor the CUT or the CUTGBS. I kept myself guided by the theorem of 'symmetry of potential outcome' (SOPOs), so that the data itself would tell the research story. My personal experiences are as legitimate a source of knowledge as the experiences of any other person.

I adopted a phenomenological approach to the study to explore the nature, scope and dynamics of the process of QFD and programme quality assurance, while bracketing, disarming and suspending my own researcher presuppositions. Researcher presuppositions may be biased due to objective science and authoritative sources encountered in literature review. The other source of bias arises from the imposition of criteria of validity that is alien to the phenomenon under study (Van Manen, 1990:47). To guard against these two key presuppositions I completed a thorough literature review and reviewed drafts of other persons with related experience and work embedment. The abiding concern throughout the research process was to garner as much information and data through thick descriptions of quotidian experiences of respondents.

The relationship modelling, types of questions and questioning techniques were designed to transcend respondent experiences and reveal the reasons behind the choice of their behavioural strategies and what they factored most in constructing a response model to the implementation of programme quality assurance through a QFD model. The desire to be representative yet thorough brought the research into a situation of batting average: broader sample and 'thin' data or small sample and in-depth descriptions. The focus of this study, characteristic of phenomenological research, was to generate thick descriptions of experienced lives. The smaller the sample, the better it is to build relationships and attain in-depth immersion in the phenomenon under inquiry (Jones, Torres, and Arminio, 2006:49). Van Manen (1990:77) points out that the quintessence of a phenomenological approach resides in the procedural relationship that the researcher edifies with data sources, with the idea of reflectively apportioning, clarifying and exhibiting the chemistry of the lived experiences.

4.5 Data collection methods

One-on-one in-depth interviews, a focus group, observations and document analysis techniques were used during the process of data collection (Denzin, 1989:237; Barbour, 1998:353). Figure 4.1 illustrates the triangulation approach adopted in this study. By using a multiple-method approach, the research intended to saturate the study with information from which 'thick interpretation' of the 'case' would be made in the hope of enhancing the validity

and usability of the research findings by practitioners, scholars and decision makers (Gummesson, 2000:1). It must be remembered that one of the prime purposes of qualitative case study work is to create or re-inforce theory that would give value to practice.

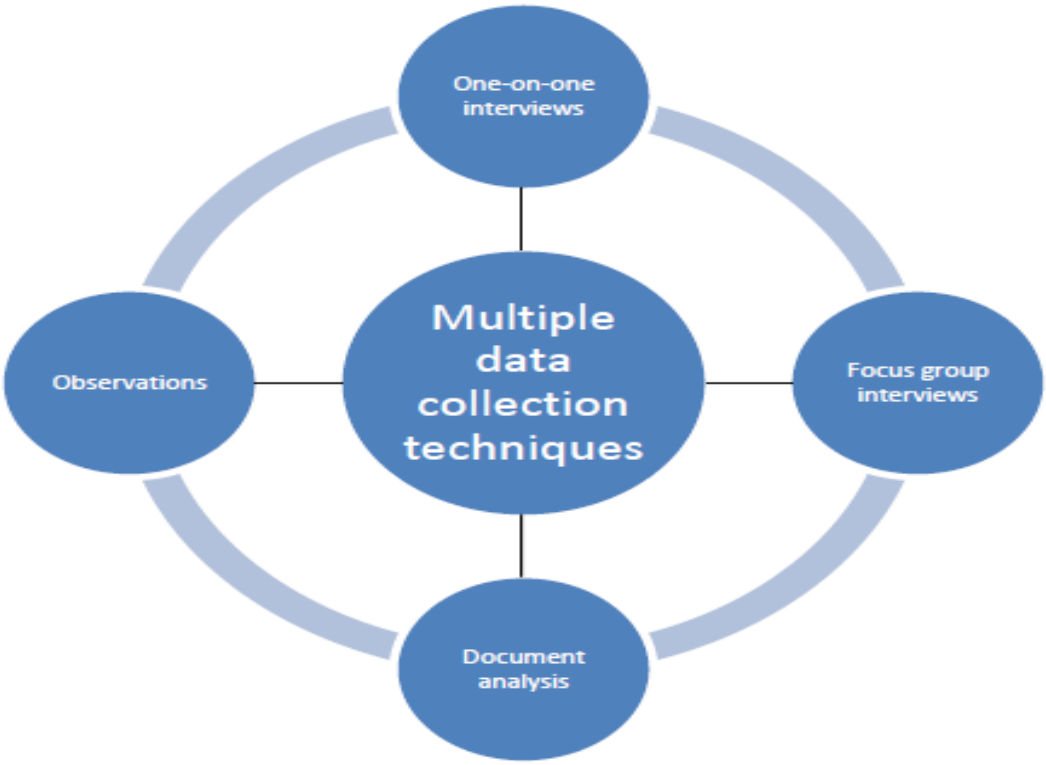

Figure 4.1: Methodological triangulation as synthesised from literature

During the data collection process, I consciously tried to merge diachronic and synchronic analyses with the aim of thickening data and acquiring a more figurative perspective on the study. This also involved the use of many research questions that could be answered through multiple data collection methods. This strategy followed on the advice of Ponterotto (2006:538) that meanings emerging from profound analysis improve the theoretical validity and practical implications of findings.

Figure 4.2 below indicates the strategy used to achieve the thick descriptions. Triangulation was used around each research sub-question to afford the researcher an opportunity for in-depth understanding of aspects of each question and thus of the whole study. See Table 4.1,

page 157 as it highlights the research design showing how each question was focused from different perspectives.

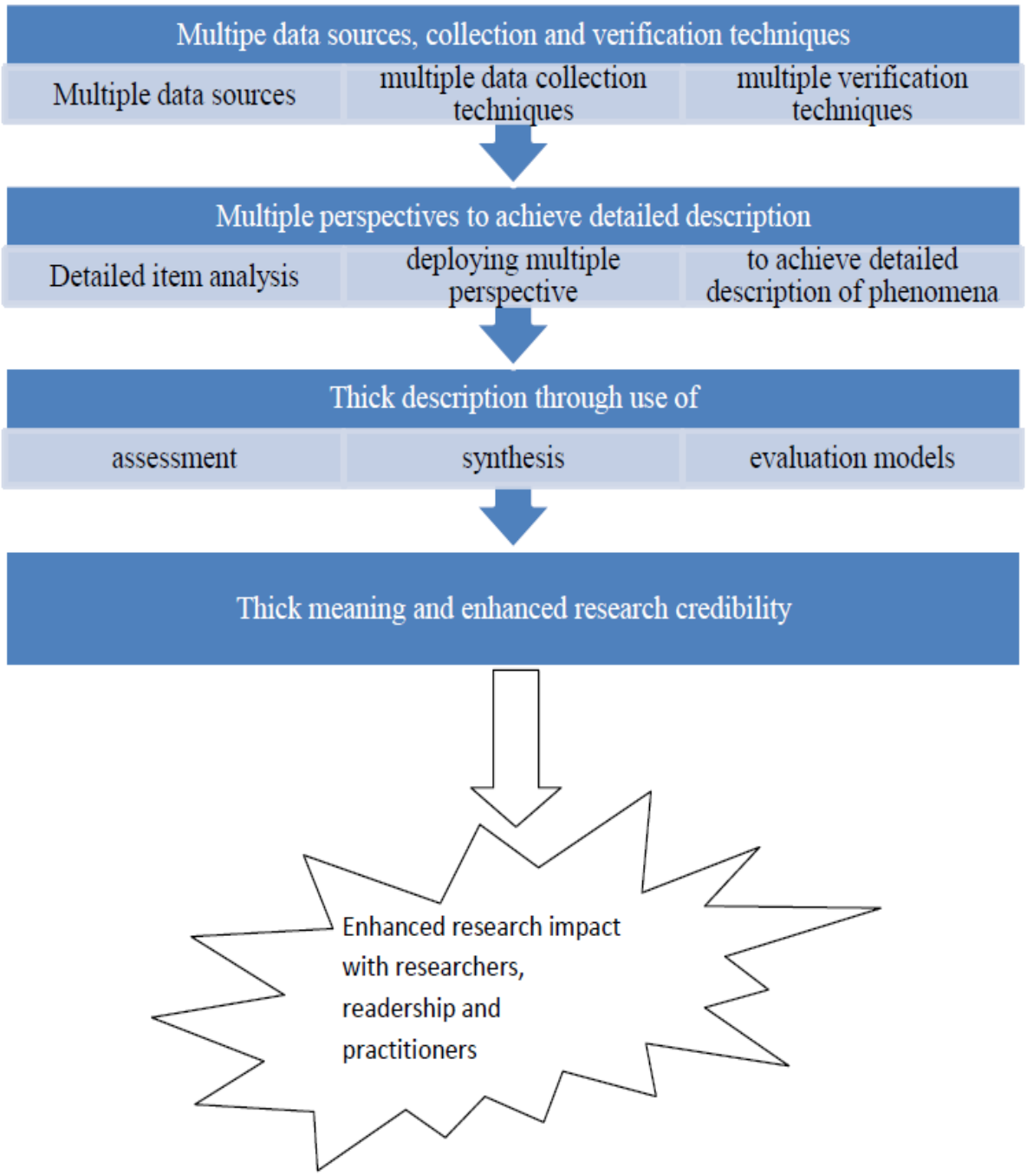

Figure 4.2: Approach to thick description and validity of the research (Ponterotto 2006)

Despite the fact that copious amounts of data on their own do not guarantee any thicker or better understanding of the phenomenon if not well articulated internally as well as contextually, many authors think it is an indispensable condition for rigour in research. Among them are Fielding and Schreier (2001:2), Patton (2002:247), Fredriksson (2004:72), and Lillis (2012:62).

4.5.1 Observations

An observation schedule was drawn up using information gained in literature review, document analyses and interviews. Objects of the observations were facilities at the: library, computer laboratory, dining hall, lecture halls, and lecture rooms.

The idea in the observations was to establish the state of the facilities in terms of fitness for purpose and quality. The ZimCHE singles out the same features when inspecting institutions and assessing them for licensing and accreditation. In drawing the observation schedule, I worked through the ZimCHE forms for 'institutional accreditation' Section 3 on infrastructure. A checklist was used and notes were added.

Elias (2000) suggested that people respond to stimuli on the basis of the meaning they attach to the stimuli. To avoid bias, I would seek discussions around each of my observation session. This way I found myself getting more and more documents and people being drawn into my sample through snowball sampling. Conversations with every new participant helped to unearth nuances to perspectives that had not been captured in previous interviews or had been misconstrued.

4.5.2 In-depth interviews

In-depth interviewing is a qualitative research technique that involves conducting intensive one-on-one or one-on-group exchanges of views to explore perspectives on a particular idea, programme or situation (Patton, 2002; Boyce and Neale, 2006:3). The data obtained from the interviews was collated with information from documents, observations and interviews.

Table 4.1: The research design

Research objectives	Research questions	Data collection strategy	Data collection instruments	Data analysis strategy
To explain the characteristics and nature of QFD	What is the nature of QFD?	Literature review In-depth interviews Documents analysis	Researcher interview schedule	Coding Classification of data
To discover the motivation of the CUTGBS in choosing the QFD model	What strategic planning issues motivated the choice and adoption of QFD in the CUTGBS?	In-depth interviews Documents analysis	Researcher Interview schedule	Coding Classification of data
To assess staff response to the QFD model and the way it was being institutionalised	How did staff respond to the QFD model and its institutionalisation in the CUTGBS?	In-depth interviews Documents analysis	Researcher Interview schedule	Coding Classification of data Transcription
To evaluate the intensity of use of QFD tools and techniques and the implication on the level of adoption of QFD	How effective was the implementation of the QFD tools in the M.Sc. Programme?	In-depth interviews Documents analysis Focus group	Researcher Interview and Document analysis schedule	Coding Classification of data Transcript analysis
To discuss staff perceptions on the implementation and institutionalisation of the QFD model for purposes of quality assurance in the M.Sc. Programme	What were the perceptions of staff to both internal and external quality assurance interventions?	In-depth interviews Documents analysis Focus group	Researcher Interview schedule Document analysis Observation schedule	Coding Classification of data Transcript analysis
To evaluate the responses of management to results of application of the QFD model.	How did management respond to the results of the implementation of QFD?	In-depth interviews Documents analysis Focus group	Researcher Interview and Document analysis schedule	Coding Classification of data Transcript analysis

Alvesson and Skolberg (2009:288) observed that even a single interview combined with other qualified material can make a huge rendition. Interviewing is ‘‘the most familiar strategy for collecting qualitative data’’ says DiCicco-Bloom et al. (2006:314). It is widely used across disciplines (Vellnagel, 2010:2) and aids in discovering information about the past, thus helping to understand the context and motives a lot easier (Fontana and Frey, 2000:657; Wengraf, 2001:3; Vellnagel, 2010:5). In carrying out interviews, I assumed that “each participant is the single person to provide all the data on the case”. I therefore listened to every nuance and reflexively drew each participant into telling more and more of their many episodes. As a result, I conducted many interviews, revisited participants and re-interviewed them.

In-depth interviews were held with participants who were at the Chinhoyi University of Technology and the CUTGBS and have roles at strategy formulation and implementation coalfaces. Interviews were also held with participants outside of the CUTGBS who had a hand in the running of the CUTGBS, either directly or via the university management system. For the sake of comparison, a parallel study was conducted with an almost identical sample from two other business schools. The notable difference was that one of the two enjoyed greater autonomy from the mother university, yet the other was equally struggling with the wishful thought of being less beholden to the mother university. The questions were drawn from the four strands of the Strategy Focus Framework and the steps of the QFD-model:

- Planning for the strategic adoption of QFD and programme quality assurance infrastructure and responses of staff to the strategic planning processes
- Making the strategies work and the responses of staff to the management’s canvassing, inveigling and coercion.
- Managing the implementation of QFD and programme quality assurance and the responses of staff thereto
- The strategic management of risks that can frustrate intentions to institutionalise quality and the responses of staff to all such efforts

Efforts were made to have the participants internalise the non-political nature of the study so that their participation would not jeopardise their employment. It was also necessary to sensitise potential respondents so that they could be in a more informed position and be able to give lots of data. The idea of running 'the scoping' is anchored in epistemologies that view truth as materially based and as having the potential of being misrepresented in people's words, thus the researcher needs to be more anchored in the dynamics of the case under study. In some instances I would share a story tactically so as to encourage participants to disclose more or as a way to encourage deeper reflection (Ellis and Berger, 2003:162).

The venues for face-to-face interviews were negotiated with each respondent and efforts were made to achieve confidentiality, comfort, quietness and ample time. Glesne and Peshkin (1992), Smith, Flowers, and Larkin (2009) consider these to be effective strategies in dealing with respondents. It came to my attention that confidentiality was not a big concern to around half of my academic participants. They were asking for documents and telling secretaries that they needed them for this research. Some appointments were arranged by those who had given me the referrals.

A challenge in interviewing professionals is how to distinguish between when their responses are objective reflections or intellectualisations. The researcher kept a keen interest in seeking backings, warrants, and 'further details' of evidential value to utterances and affirmations made in responses or explanations during the interviews. Elias (2000) remarked that more often than not, warrants for an interpretation or conclusion are latent and do not so easily come with respondents' verbatim. I would challenge participants with requests for backing, warrants and exemplifications (Kilbourn, 2006:534). In this way I was able to gain more data in support of claims made by participants, to enrich their warrants, and deal with incompatibilities between theoretical perspectives and phenomena.

At the end of each interview session, participants were requested to summarise key points. The researcher would reassure the respondents of the confidentiality of the information, sum up their 'take home' points and provide a card with a 'thank you message' and contact details.

Where mobile and e-mail contacts were availed, the researcher would send a thank you message on the same evening, indicating particularly interesting points and giving an indication that further encounters would be most welcome. The strategies adopted during in-depth interviews of both focus-group and one-on-one nature were to attain thick descriptions from respondents and improve theoretical and business implications of the research.

4.5.3 Focus groups

According to Freeman (2009:211), the Focus Group technique generates primary research data that is discursive in nature and can best be addressed through an analytic lens that is sensitive to the intricacies, complexities and subtleties of talk-in-interaction. Four characteristics shaped the focus group technique: students recruited into the focus group had gone through the three semesters of the M.Sc. Programme; the researcher had studied processes in the CUTGBS and had a good grasp of its configuration; an interview guide was constructed on the basis of the understanding of the CUTGBS and its processes, and finally, the interview was designed to focus on experiences of students and how they reacted and responded to the CUTGBS processes. The value of this four-character approach is discussed by Morgan (1998:38) and Freeman (2009:212). The main benefit of the study of the focus group was the synergistic potential of community talk on a shared platform and the whole group was treated as the unit of analysis. This possibility is explained in Tonkiss (2004:194). The danger of focus group interactions is that the individuals may mutually influence one another through body language or utterances (Litosseliti, 2003:92). While this drawback may be common in focus groups involving younger people, its occurrence with older participants may not be commonplace, as was the case in this study.

4.5.4 Document analysis

Most organisational documents are variably beholden to those who write them or cause them to be written (Dolan, 2009:170). It is not uncommon then that some level of bias may creep into some documents. To combat this I tried to understand the historicity of each document I analysed (Hammersley and Atkinson, 1995). Notwithstanding, one advantage of documents is that they relate to a particular time in the history of an institution. This study takes a figurational sociological perspective to the CUTGBS, whereby an institution is considered to

be an open, mobile and networked system made up of multiple processes and in them change is neither seen as dysfunctional nor an aberration (Dolan, 2005:175). The study analysed the standard framework for alignment among the Ministry of Higher Education and Training, the Zimbabwe Council of Higher Education (ZimCHE), CUT, the M.Sc. Strategic Management degree programme, and the various subjects.

Apart from being cost effective (Merriam, 1988:31) document analysis is a systematic, analytic and critical examination of tangible information used with the idea of gaining profound understanding of trends and patterns that emerge from the recorded information (Creswell and Clark, 2007:114; 2011; IAR, 2010:2). Staffs were interviewed against stipulations in some of the documents. Academics were interviewed on how the standards influenced their curricular activities. Other documents that were analysed included:

- the ZimCHE ACT of 2001 to establish the mandate, powers, structure, functions and other issues of legal values of the council;
- the Chinhoyi University of Technology ACT to establish the mandate, powers, structure, functions and other issues of legal values of the council;
- the university ordinance to establish the structures, policies and targets of the sectors of the university;
- the Strategic Plan of the Chinhoyi University of Technology to establish the priorities, future plans and long- and short-term goals and how they were intended to be reached;
- the Strategic Plan of the Chinhoyi University of Technology Business School to establish the place of the M.Sc. Programme and how project-change management would be rolled out;
- the Chinhoyi University of Technology website;
- the ZimCHE website;
- the National Manpower Advisory Council (NAMACO) website to establish how the council established the national development priorities, what they were in each sector and how they were utilised by higher education institutions;
- the lecturer profile to establish the qualifications, work-practical experiences, and publications lists of the lecturers;

- the 'Student Evaluation of Teaching Effectiveness' (SETE) form used in the CUTBS; and
- examiner comments and reports.

Document analysis entails would highlight areas of interest to the writer as well as to the party to whom it is directed. The researcher approached document analysis with the aim of finding how they directed activities aimed at quality assurance and improvement. Secondly, this effort highlighted the variance between what is declared, intended and what is actually done. Each document was referenced many times over in a web-like format. This was done in reaction to 'leads' and clues gained during interviews. Original documents were photocopied and sections of interest were highlighted. These are sections that represented significant themes in relation to quality strategy, making the quality strategy work, processes and risk management.

A two-pronged process of data analysis and theme development emerged during the data analysis process. This process of generating process-oriented codes should help to conserve what could be lost with a pre-conceived coding that is rigidly dependent on the research question. I indicate this point in figure 4.3 below which I explain now. The various research questions could best be covered in different documents. Notwithstanding, some document would be more expansive or detailed than all others. Still all the information would be mobilised. Apart from the document analysis relevant details in each analysis could be mined from other sources like interviews, literature review, and peer reviews, etc. Plugging one data with all others thickened my understanding of participants' presentations at both the global level as of each research question. .

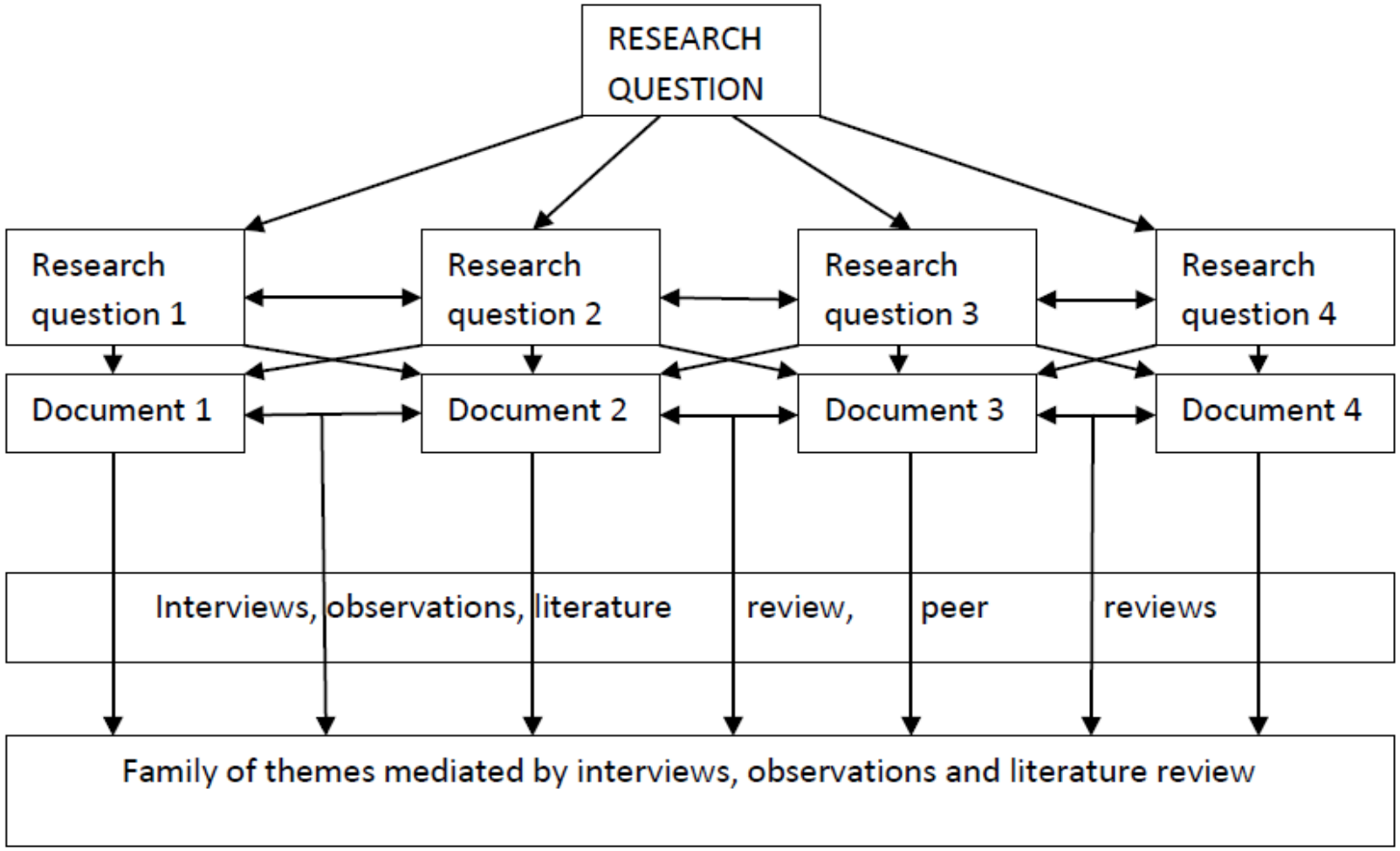

Figure 4.3: Alignment between the research question, data sources and evidence generated as synthesised from the literature

4.6 Sampling

In 2012, a request to undertake this research was discussed with senior officials in the Ministry of Higher Education and Training, ZimCHE, Chinhoyi University of Technology and the CUTGBS. Responses were immediate and many key informants were immediately identified together with their telephone, e-mail, and workplace details. Reaching people and sources of relevant data is an important guarantee for completeness of the study and its subsequent credibility. Marshall and Rossman (1999), Strauss and Corbin (1998:201) acknowledge the benefits of snowballing as a strategy of choice where the study seeks to make comparisons among the voices of participants, go to as many places, study as many documents, examine many events, all with the aim of exposing variations and densifying categories in terms of their scope and dimensions (Morse and Richards, 2002:68).

The following was the sample from which data presented in this study was obtained. I chose the CUTGBS because I was relatively familiar with the context of the university, the CUTGBS, and the QFD-model, which the university used to conduct quality assurance. Glesne and Peshkin (1992:27), Jones, Torres and Arminio (2006:65), and Patton (2002:46) affirm that the researcher's understanding of the 'case' improves the sampling strategy in ways that guarantee in-depth understanding of the case under inquiry. Gradually I found more references and more documents, as well as many invitations from staff within and outside the CUTGBS. In this study the researcher downplayed cost and convenience issues in favour of a more rigorous, purposeful and strategic approach.

In drawing the sample, I was unbiased regarding age, gender, qualifications, length of employment, or whether one was a part-timer or employed permanently. Patton (2002:244) once said that there are no rules for sample size in qualitative research and that the sample size is determined by what the researcher wants to know, the purpose of the inquiry, the abiding interest, what will be useful, what will have credibility and what is doable in the timeframe and with the available resources. In contrast to quantitative research, samples in qualitative research are not defined upfront, what Emmel (2013) call the theoretical sampling approach.

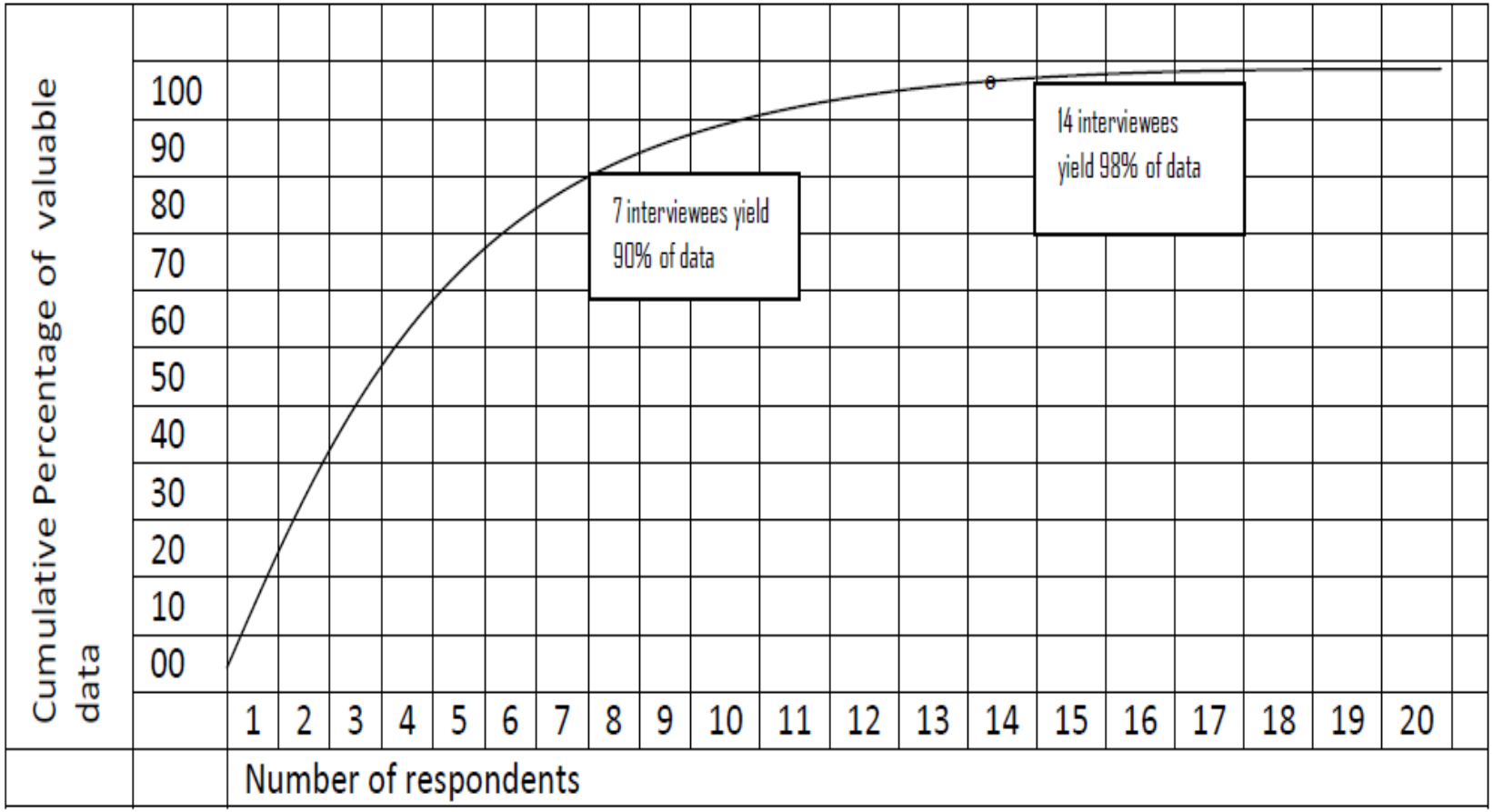

Figure 4.4: Relationship between number of interviewees and cumulative percentage of valuable data as observed from data analysis

The increased communication resulted in the research reaching a point of saturation (Lincoln and Guba, 1985:202) where I began to notice nothing new in incoming data (seen, heard or read) relating to the categories of analysis (Jones, Torres and Arminio, 2006:71 and Meloy, 2008:154-155). Figure 4.4 depicts this. The saturation point was nearly reached with the tenth respondent of the in-depth interviews. With the idea of maximising quality data (Jones, Torres and Arminio, 2006:72), the following sample evolved during the research. During interviews participants were promised anonymity and in that spirit all efforts have been taken to guarantee such. The following codes will therefore be used:

SM1: Senior management personnel-1. SM2: Senior management personnel-2.

SM3: Senior management personnel-3. SM4: Senior management personnel-4.

SM5: Senior management personnel-5. SM6: Senior management personnel-6.

CUTGBS Academics who participated in the study were coded as follows:

AC1: Lecturer – 1 AC2: Lecturer – 2

AC3: Lecturer – 3 AC4: Lecturer – 4

AC5: Lecturer – 5 AC6: Lecturer – 6

ZimCHE participants were coded as:

DR1: Director-1 DR2: Director-2

DR3: Director-3

Student participants (individual)

STD-1 STD-2 STD-3 STD-4 STD-5

Student participants (in focus groups)

FG1-STD 1

FG2-STD 1

Alumni participants: AL-1 AL-2 AL-3 AL-4

4.7 Data analysis

In this section the analysis of the data collected from the field through in-depth interviews, documents analyses, focus groups and observation is explained. The fundamental thing in this stage was plugging transcriptions into each other. This helped build a web of reasoning and rays of perspectives across participants and sectors from which they came. Barbour (1998), Flick (2009) and others variably refer to this as the ‘constant comparative method’.

4.7.1 Transcription of collected data

During transcription of both one-on-one and focus group interviews I tried as much as possible to retain every detail of the interview. This was based on the advice by Bloor et al. (2001:59). All speech was recorded using an ultra-slim SANSUI digital voice recorder. The device is extremely portable, measuring 10 cm x 2.5 cm x 0.8 cm and weighing just 38 g. The recording was continuous, inclusive of silent pauses during speech. The recorded speeches were not edited and transcripts show hesitations, restarts, and pauses. Observable body language was indicated on the transcripts and laughter was also recorded. Changes in the volume of speech were indicated where they occurred. Any other subtleties were ignored. From each transcript I developed probing questions. These questions helped in expanding perspectives and in linking data from different sources. The figure below indicates how transcripts helped in linking points from different sources as well as linking facts from same source over time. Notice how each transcript played a central role in bridging and linking movements among other sources of data.

At the same time it acted like a multiple adaptor plugging in the different data sources. I began to think of and accept doctoral research as what I would call 'the dance of a qualitative research': up-down: forth-back: left-right: in-out and a circle. Follow-ons and probes added layers over and above data from initial interview. Descriptions became thickened over the data collection and research period. In transcribing, I began each sentence on a new line. The lines were double spaced. This gave me lots of blank space to jot in notes each time I perused the transcripts. I did all transcriptions myself. I shared some of my transcriptions with a former colleague, who is a PhD holder, a director of a business school and who supervises some master's degree students. My supervisors had additional points to highlight on my transcription.

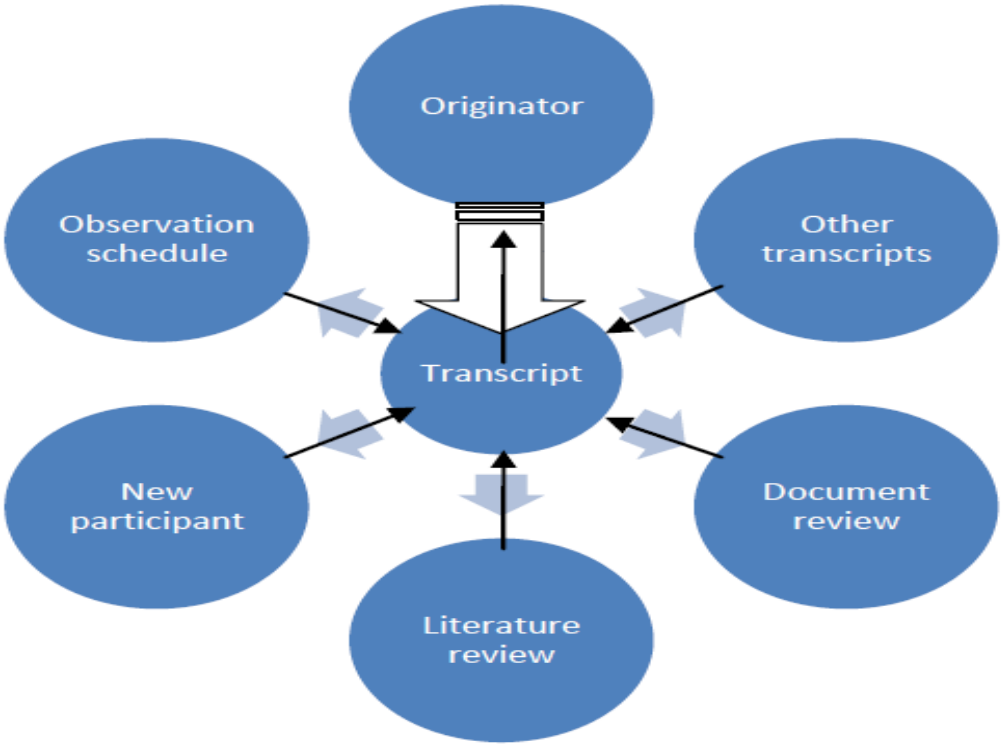

Figure 4.5: Movements between a transcribed interview and other data sources as synthesised from my practice

4.7.2 Coding the transcriptions

I developed hard copy transcriptions that I bound into a portfolio. I copied the interviews into a file, then onto my tablet and iPad and also made a copy on a CD. I could play the interviews from any of these sources, anywhere, anytime. This helped me to understand the data I had collected from the participants. I found myself understanding the interview renditions more densely with more playbacks and over time. I could make photocopies of the transcripts in the portfolio and would jot down ideas and remarks on the page and alongside the related content of the transcriptions. I was also able to keep the 'dirty' transcriptions with me as I was doing my literature reviews. This helped me to move around between transcriptions and texts and to understand where collected data and literature were related. This was the most exhilarating part of the data analysis, and it was a slow, heavy and

frightening process – frightening in the sense that in many of the instances it felt that I had to pronounce my position, my own 'micro theory'.

Mason (2002:150) points out that coding procedures that are built on pre-constructed codes are convenient but that they haemorrhage otherwise important facts that are prima face not relatable to the codes. The other weakness of this approach is that authors of the documents and those who answer research questions are elevated to levels of experts and of authorities. Kvale (1996, 2007) points out that the data analysis process ultimately brings the researcher to a decision point of many alternatives. Each alternative would have some bearing on the global validity of the presented data. Apropos the issue of validity and transcription Etherington (2000:292) highlights the advantage the researcher would reap out of doing the transcription personally.

The nature of the principal research 'question' required the research to focus on the QFD model and thus the data collection questions and data analysis had to pay unfretted attention to the steps of the QFD model: strategy planning and structure; establishment of the cross-functional team; voice of the customer; regulatory requirements; product / service planning matrix; Customer Satisfaction Performance; Competitive Satisfaction Performance; Technical Descriptors; Goals and Improvement Ratios; Relationship Matrix; Institutional Assessment; Competitor Product / Service analysis; Target Values for Technical Descriptors; Correlation Matrices; and Absolute Importance.

Analysis of the intensity with which the CUTGBS treated each of the above steps constituted much of the follow-up interviews and in this case questions were more direct, even though in a few cases answers were elusive. In the conversations, as in the coding, I did not concern myself with the exact words I have used in the framework or the logical order of the above 13 codes. Alternative wording or even descriptions were very welcome and were read for the appropriate / commensurate code and stage. Otherwise a more open coding approach was used in the large corpus of the data.

The advantage this research sought in taking a process-dependent coding is that it is more representative of reality as a mobile network of interrelated and interdependent phenomena. The researcher considered the CUTGBS to be a 'figuration' of a complex co-adaptive and organic system. This position contrasts with most positions adopted in quantitative research that consider the phenomenon under study rather to be a substantive and static entity.

The implementation of QFD and a programme quality assurance infrastructure were therefore considered as transforming aspects of the CUTGBS. Thus in transcribing collected data three types of coding were used: open coding, axial coding and selective coding. The three modes were applied flexibly, in recognition that they are not mechanical and automatic procedures (O' Donoghue, 2007:91).

4.8 The validation of the findings of the study

The appraisal of the research findings which could form part of the audit trail is not uncommon practice in curriculum design and curriculum evaluation (Thijs and Van den Akker, 2009:41). The same would apply to programme and product evaluation. A validation was conducted for the purposes of assessing and evaluating the research findings and improving the overall business contribution of this study (Roberts, Wallace and Pfab, 2006:29). Validation studies of this nature help in showing out alternative meaning or perspectives to research findings as there is always the need to examine how one interprets data and findings from research. They also expose areas where there is need for literature reappraisal.

I prefer to call the persons who took part in the Validation Study contributors than participants, mainly because to me their input was more about 'theory building' over and above generating an understanding of events, processes and issues within the CUTGBS. For this reason the sample for the validation consisted of members from the original sample (CR-1; CR-2; CR-3; CR-4) a Quality Assurance manager in a Parastatal (CR-5), and a Quality Assurance Director in a private enterprise (CR-6). These are contributors (participants) whose comments will be specifically referred to in chapter 6. Some of the contributors had asked for a debriefing on the results and had provided expansive expositions on the model,

university management and comments on the research findings. I dropped copies of my findings with each contributor with a request that they run over the findings in preparation for the discussions. See Appendix 14 for the general question. Three focus group sessions were run in Harare, with CR-I, CR-2, CR-3, at one instance CR-1, CR-4, CR-5, CR-6 at the other instances and with CR-2 and CR-6. I had further to these focus groups, one-on-one discussions with some of these same contributors.

The sessions of the validation interviews consisted of my presentation of findings on each research question and eliciting comments from the contributors. In all cases discussions were free flowing with lots of insights but none too extraneous as compared to the original findings. I took every opportunity to ensure that important issues that had flickered during the research process had a comment (Jackson and Mazzei, 2012:vii-viii). I elicited comments on some 'models' I had constructed from my interpretations of findings and literature reviews. These 'models' are presented as figures 6.2, 6.4, 6.6 and 6.7 in chapter 6. In every instance of their critical analysis I made sure I increased the vulnerability of my propositions as a way of provoking and eliciting more 'attacks', more talk rather than defend my interpretations (Bazeley, 2013:374). I found the validations quite powerful and I strongly recommend these sessions to case study researchers.

4.9 Ethical considerations

Approval to carry out this research was given by the Chinhoyi University of Technology authority to whom the nature of the study was explained. Issues of confidentiality and treatment of university data were discussed. Copies of the following communications are appendaged:

- Letter from researcher to CUT registrar seeking permission to undertake the research
- Letter from registrar to researcher for the director of the CUTGBS authorising the researcher to undertake research
- Consent letter from researcher to participants / respondents.

Nearly every research decision and action has ethical connotations and how skilfully researchers navigate their way through is a function of their experience, reflexivity and principled standing (Jones, Torres and Arminio, 2006:154). Issues of ethics in research relate to research design, sampling, researcher-participant relationship, interpretation and handling of findings, presentation of findings, language and communicative patterns. Throughout the project the researcher avoided the use of marginalising and devaluing language and always addressed respondents with dignity, respect and honour. The study has tried to deliver on the promises communicated implicitly and explicitly in the statement of purpose and to cover as completely as possible the research questions. The protracted effort to complete this project is part of an intrinsically felt moral-ethical obligation owed to family, the University of Pretoria and all, including respondents, who gave their precious time to provide input into this research.

There was need to display genuine sensitivity to the manner in which participants received and perceived interview questions and the researcher's presence in their space. In a voyeuristic search for good stories and narratives the researcher avoided looking too pressing on respondents. Participants were allowed to flow, undomesticated in their experiences, their talk and their reflections. During questioning the researcher avoided looking overly pestering yet kept looking for ways to get detailed descriptions of narrations. Further to ensuring rigour in the analytic process, this document provides full evidence of the claims it makes. The data gathering process proceeded over a year with lots of loops, cycles, and work-backs, all in an attempt to attain high levels of rigour. The long period facilitated a fuller embedment in the CUTGBS, and in establishing intimate relations with many who contributed to the research. Jones, Torres and Arminio (2006) say of the long interaction between researcher-phenomenon-participants "this is the truth-telling dimension in the ethics of qualitative research" and they further argue that "the researcher must spend significant time with the data and the analytic process to get the interpretation of the data close to participants' meaning". Long period and researcher-researched relationship both help to co-construct the truth.

Sections of the document that make special reference to the NAMACO, ZimCHE, the CUT and the CUTBS were proofread by senior officials in each of these institutions. Apart from contributions from supervisors, many have read and commented on the document. This was to seek a multiple perspective on almost each key aspect of the study. Jones, Torres and Arminio (2006:171) say that it is ethical to have several other people read, proof and comment on one's research. An 'inquiry auditor' went through 50 per cent of randomly selected transcripts to check on the congruence between what was written against transcripts generated from the research.

4.10 Conclusion

This chapter discussed the appropriateness of the qualitative research and case study approach. A triangulation approach was adopted to thicken the descriptions of aspects of the 'case'. Plugging data from one-on-one interviews, focus groups, document analysis, observations and literature densified understanding of the 'case' and strengthened the value of the findings in theory building as in shaping policy and practice. A Validation Study was conducted with the purpose of ensuring that the renditions by participants were adequately represented and truthfully interpreted and proportionately plugged into literature, theory and each other as primary data. The Validation Study thus served as an ethical exercise, a means of improving the generalisation of findings, validating research conclusions and particularly the potential applicability of some four 'models' herein proposed. The next chapter discusses findings from the study.

CHAPTER 5 - FINDINGS AND THEIR ANALYSIS

5.1 Introduction

In this chapter findings gathered through observations, one-on-one interviews, focus groups and document analyses are presented and analysed. I begin by discussing the transformations in the higher education landscape. From here we set the basis for evaluating the sense in trying out a complex model like QFD. In Section 5.3 QFD is discussed from three poles – the CUTGBS, the academia and the practitioner-consultant points of view. Such a multilateral analysis should highlight the common, the peculiar and that which was specific of QFD to the CUTGBS: what was QFD? Why QFD now? How did they do the QFD? The latter two questions are subjects of analysis in Section 5.4. The best way to approach an assessment of how a multi-stage model was implemented is to discuss the depth and frequency of use of each stage of the model – how the model was dismembered and re-membered over time. After all quality assessment is a step-by-step process and not a broad-spectrum development (Williams, 2011:2; Veiga, 2011). This implies an in-depth analysis of the profundity and frequency (intensity) of use of techniques and tools pertaining to that particular stage (Altbach and Salmi, 2011:138). Such an approach should preserve the unity of the model, thus affording us a fair assessment of its adoption and diffusion (Kennedy and Fiss, 2009).

A stage-by-stage analysis affords the study an opportunity for differential and poignant appraisal of what the stage meant to the CUTGBS as well as why it was treated the way it was. Such specifics would dissolve, vanish and lose their taste and visibility in a blanket and generalised discussion of the adoption of a model. This is the focus of Section 5.5 which will form a fairly long section because it covers the various stages of the QFD model. Section 5.6 analyses results on the variable use of the many QFD tools and techniques - a measure of the amount of permittivity of QFD in the CUTGBS and its adsorption and assimilation into the quotidian life of the processes in the CUTGBS. In Section 5.7 staff perception of the efficacy of QFD as a programme quality assurance model is analysed. The chapter closes with what management has done in response to the application of QFD in the CUTGBS. This is the domain of Section 5.8. From such results we can infer whether management felt QFD was a worthwhile assert or investment or the attempt to adopt it was just but another fad or game.

5.2 The higher education landscape today: a literature review

Massification, commoditisation, marketisation and increasing diversification of students, curricular and modes of delivery are the trends in today's higher education delivery system. Altbach (2012) refers to the MacDonaldisation and commoditisation of higher education, a phenomenon in which learning centres are being franchised to host programmes from other universities. All these phenomena point to an increase in the intensity of competition in the higher education arena. Technology has also almost completely removed the need to be physically present in front of a human teacher by digitalising classrooms onto iPhones and smartphones (Cochrane, 2014). Technology has been exploited to create a new generation of ubiquitous learners or students. Business schools have also joined the leagues of well-paying employers, as other universities and business schools have gone on the stock market (Altbach, 2009). Other business schools are treated as Separate Business Ventures by their mother universities. Postgraduate students in Zimbabwe pay their full tuition unless they are sponsored.

Selling education has become acceptable 'big business' attracting many players that include private for-profit, private non-profit, church-owned, government or state higher education institutions (HEIs) and offshore branches of foreign institutions. Equally so, the number of garage universities (World Bank Report, 2000:32), pseudo universities (Altbach et al., 2001:8, 2007, 2009), and demand-absorbing (Lin et al., 2005; Bing, 2009; Wu, 2009), low-quality HEIs as well as good-quality HEIs has increased. Quality literacy is also growing. A director with the ZimCHE [DR1] said the regulator was experiencing a surge in the number of inquiries on the authenticity of higher education institutions and some programmes. Despite lots of research, the cleft between expectations, standards, and measures between external quality management (EQM) and internal quality management (IQM), continue unabated (Taylor et al., 1998; Newton, 2000, 2012; Gallagher, 2010; Ramirez 2013; Vukasovic, 2014:45). A senior personnel in the Zimbabwe Ministry of Higher Education and Training explained that the focus of the ministry was to ensure that academic standards were lifted beyond a threshold and that it will be left to the perceptions of individuals that university X is better than university Y. Due to the stiff competition, universities were adopting different models of management, curriculum design and delivery modes with the

aim of increasing their competitive standing. The most common issue sought in building a competitive advantage was the perceived quality of offerings. HEIs are engaging in advertisement campaigns and image-management activities to increase their visibility to the market of prospective students, employers and sponsors. Ambush marketing strategies, market signalling and adoption of other marketing behaviours based on Optimum Distinctiveness and Strategic Balancing have become part of the competitive game of institutional and programme posturing.

The CUTGBS, the subject of this study, adopted a QFD-based model in a structured M.Sc. Programme launched in 2005. A synthesis of CUTGBS staff comments indicates that their idea of the QFD was to built internal strategic capabilities for defining quality in terms of market dynamics; develop tools and resources for creating, managing and delivering that quality, and create a competitive advantage based on organisational learning. The diffusion, called for or unintended, of typical business-world behaviours and concepts into the higher education terrain has gone up exponentially in the last few years as explained in Chapter 1. It behoves and requires on us therefore that when we deal with the migration, by exportation (push) or importation (pull) of the business jargon or philosophy we examine these most critically.

In Section 5.3 below I discuss the definitional characteristics of QFD from an academic literature point of view and compare this with the points of view on the blogs of the practitioners and with the expressions of CUTGBS staff. Such a comparative analysis is called for given the record of inconsistencies between scholarship and the practice of quality (Ramirez, 2013:127). Even within the practice of quality the discrepancy between offered quality and perceived quality and between perceived quality and expected quality continue to haunt higher education (Altbach, 2009; Lomas, 2007). Similar concerns of discrepancies between hypothesised quality and planned quality; between planned quality and offered quality; between offered quality and expected quality, and between marketed and perceived quality were echoed among students, academics, ZimCHE staff and other participants.

In summary the higher education landscape has a rough topography with lots of disconnects

yet offering new opportunities for scholarship, new modes of delivery, the challenges of quality and of transformations and real collaborations among all stakeholders. For more disconnects see Roberts and MacLennan (2006:31) Bolden et al (2010:53), Palmer (2012:306).

5.3 The nature of QFD

In this section I discuss the nature, that is, the content and processes of QFD in response to the research question: What is the nature of QFD? Whilst it is not important that all definitions in literature should have exactly the same word sequence, at least they should convey a common meaning. In Chapter 2 Ficalora and Cohen (2009) are quoted as saying that QFD is a versatile tool and that practitioners can make a decision as to how much of QFD they want to use. Franceschini (2002) alluded to the versatility of QFD and from his research he found that QFD was being understood and used variably across disciplines. This is in line with the normal differentials in emphasis because of a trade-off among the four elements in Figure 5.1 below: audience, assessment, purpose and format.

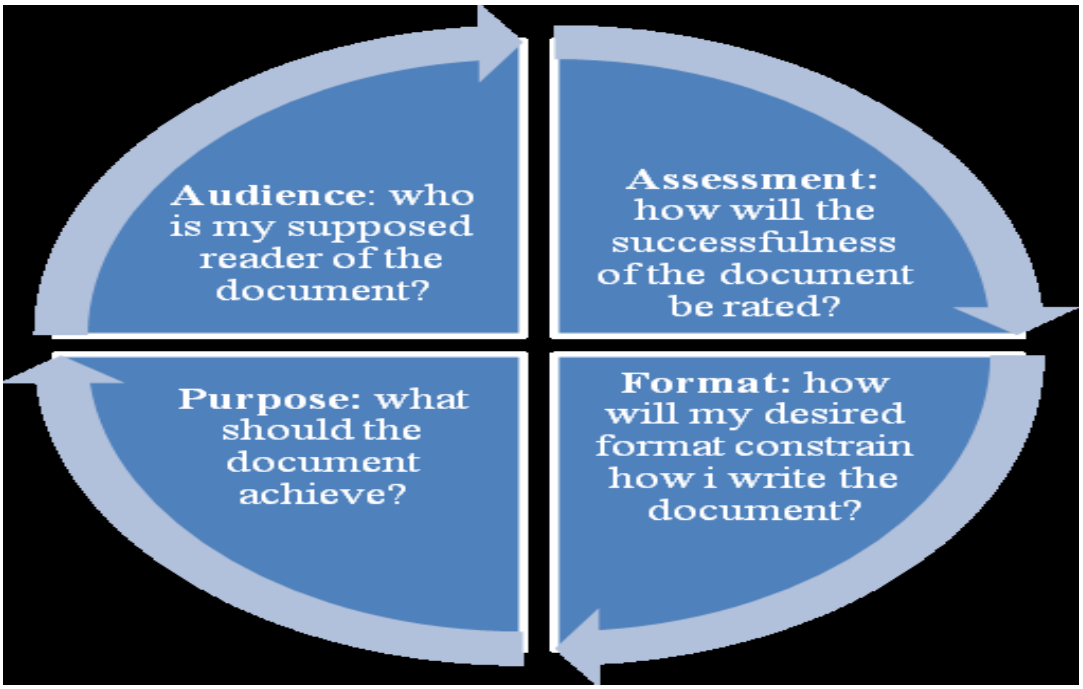

Figure 5.1: Communication matrix and dilemma of how-much? as synthesised from literature.

In Chapter 2 the use of QFD in education was discussed with all examples provided indicating overwhelming success. But apparently what each author was referring to as QFD was but a stage or some techniques that are mainstay to QFD. None of those researches, apart from claiming examining use of QFD ever used all the stages of the QFD framework or model. This study focused on the definitional aspect of QFD persuaded by the fact that definitions matter in that they influence people's relation with the action that relates to that definition (Vagneur, 2008).

Secondly there are normally variations between scholarly perception and practice (Ramirez and Berger, 2014; Kleijnen et al., 2014). In answering the research question 'what is the nature of QFD? I had three poles in mind: scholarly perceptions of QFD; consultant-practitioners' perceptions and the perceptions held in the CUTGBS. From all three poles I found some variation in emphasis of aspects of their perceptions of QFD. I got scholarly perspectives from literature review and for the QFD consultant-practitioners' perspectives I visited many QFD consultant-practitioners' blogs. I synthesised participants' perceptions of QFD from their explanations and narrations. It would not have helped other parts of my research to ask participants for a cut-and-dried definition of QFD. What I wanted from participants was what QFD was to them and how they were translating it in their day-to-day work-life. There was no variation in the broader understanding of QFD by scholars, practitioners and the CUTGBS staff. There was again no variation in why QFD should be implemented.

Answers from all three poles of my research pointed to the need for alignment, integration, customer satisfaction and revenue generation. An arresting observation was the way CUTGBS staff were articulate with market issues, management issues and the QFD lexicon: they had a strong focus on the pragmatic meaning of QFD and its implications. Sources however varied in emphasis of what QFD was. The 'theory' of the communication matrix explains variations in emphasis during communication in terms of a trade-off among purpose, assessment, audience and format. Figure 5.1 attempts to explain this phenomenon.

Both scholarly and blog sources defined QFD as:

- a philosophy (Mukaddes et al, 2010; Sallis, 2012);
- a system (Jnanesh and Hebbar, 2008; Hafeez and Mazouz, 2011:33);
- an approach (Akao, 1990; Crow, 2014);
- a methodology (Bosch and Enriquez, 2005:30; Ahmed, 2006:193; Najafabadi et al., 2008:26; Gonzalez et al., 2003, 2008:38; Paryani et al, 2010:1; Sallis, 2012);
- a method (Akao, 1994:339; Sahney et al., 2004b; Jnanesh and Hebbar, 2008; Quinn et al., 2009);
- a process (Quinn et al., 2009; Paryani et al, 2010:1);
- a tool (Karsak et al., 2002; Jnanesh and Hebbar, 2008; Mukaddes et al, 2010; Hafeez and Mazouz, 2011:33); and
- a technique (Singh et al., 2008:162; Jnanesh and Hebbar, 2008:1; Kay, 2008:501; Zailani and Sasthriyar, 2011:128) and a means. Figures 5.1 and 5.2 indicate all these characteristics: variable emphasis and the definitional attributes respectively.

In trying to establish consistency in the perception of either the scholarly or pragmatic meaning of QFD I searched for the meaning of the terms or concepts that were being used in defining QFD. Appendix 1 carries the meanings of these concepts. The view of QFD as a philosophy means that in QFD we hold a system of ideas and ways of thinking about the universe and the organisations within it. The implication in viewing QFD as an approach means we accept QFD as a particular perspective or view anchored in some assumptions on how people behave in their pursuit of some goals. Establishing an understanding of the conscious, intentional architecture of the university and the CUTGBS, ideas and the overarching strategic framework held by CUTGBS staff facilitated in making some inference on the CUTGBS's *formal design.* By formal design is meant a people's way of defining quality, of defining themselves, of defining the processes they designed and of defining their relational choices with each of these aspects.

In Chapter 2 the thesis discussed the Theory of Constraint and the 14 Excellence principles which are basically the way people think organisations create their failures or their successes. Chapter 3 discussed assumptions around what quality is and quality assurance work can be

run. In chapter 6 a point is made that to improve quality performance at either the global or the narrower levels of a course or programme it is important to examine and change the epistemology, the mental models and philosophies that created the strategies, methodologies and models that are the hard-to-see causes of the underperformance. In viewing QFD as a methodology the implication is that QFD should be looked at from differing scopes of complexity. At a more sophisticated level QFD is a system of interweaving methods maybe operating with different stages of a model or strategy.

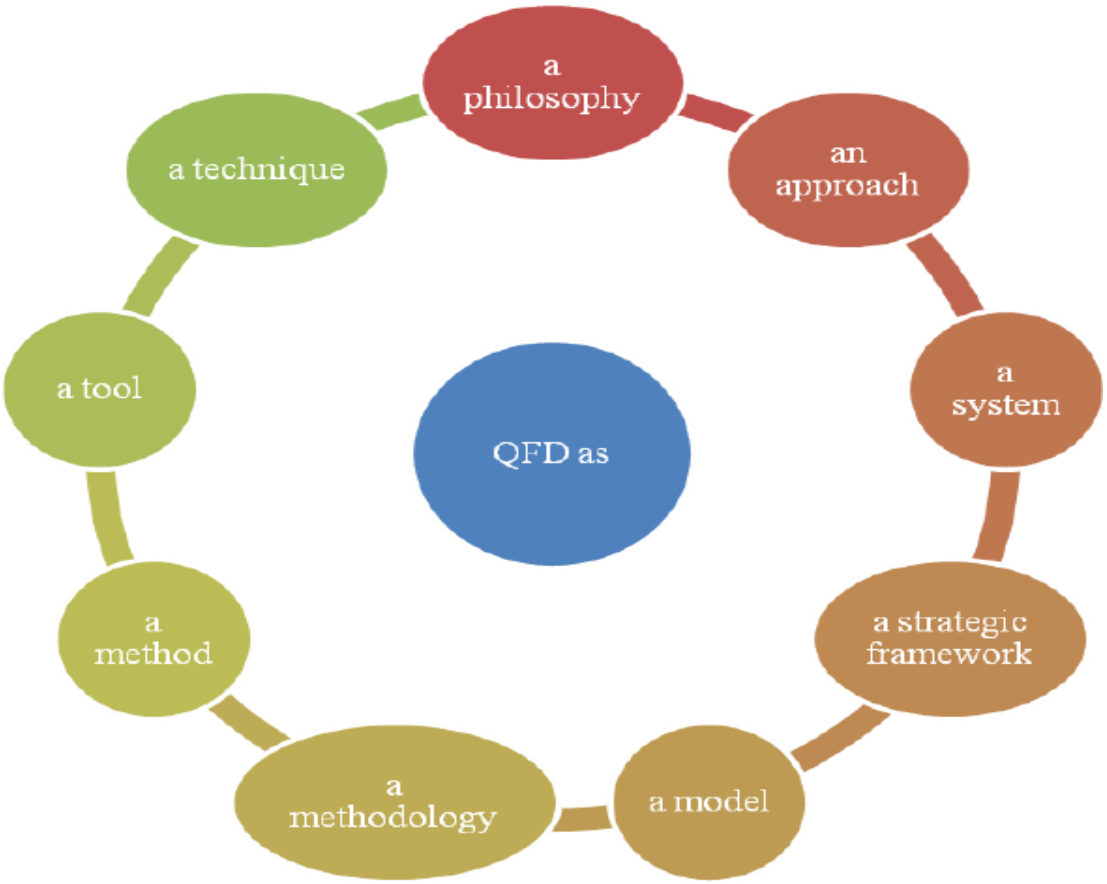

Figure 5.2: Definitional aspects / characteristics of QFD as synthesised from literature and transcripts

Each method will be enacted through a system of processes, procedures, tools and techniques. This view is evinced in Chapter 3 when the study discussed the different techniques and tools used at each of the stages of the QFD model. My research participants used the terms in Figure 5.2 in their reference to QFD and what was happening in the

CUTGBS. SM1 once referred to QFD as an approach then as a philosophy. AC3 and SM5 both talked of QFD as a method and as a system. This double 'meaning' is frequent in literature. Jnanesh and Hebbar (2008) in the same document refer to QFD as a system, a method, a technique and a tool. Mukaddes et al, (2010) in the same document also refer to QFD as both a philosophy and a tool. Sallis (2012) refer to QFD as both a philosophy and a methodology in the same document. Akao (1994) similarly refer to QFD as an approach and later in the same document as a method. Hafeez and Mazouz (2011) writing in the same document refer to QFD as a system and again as a tool. Even where no explicit use of the term ''QFD'' was made, participants were using the terms 'process', 'method', 'system', 'philosophy' and means quite frequently and effortlessly. Participants also used the term 'total quality management' in reference to the strategy of ensuring production and delivery of competitive products and services in the CUTGBS.

A more profound analysis of the definitions suggested that the two key words are philosophy and methodology and the rest were perceived as aspects of these omnibus-like terms. QFD as a philosophy apparently subsumed the concepts of 'approach' and 'system'. QFD as a methodology apparently embraced aspects such as 'method', 'process', 'tool', 'technique' and means. Whatever definition a participant subscribed to, two aspects remained conspicuously clear in the narratives: that QFD was about a way of thinking, a mental model and that QFD was also about a practical path of doing or achieving something through some pragmatic action. I call this phenomenon the dual nature (duality) of QFD. Retroflection to Chapters 2 and 3 show how a methodological (technical) approach to quality and quality assurance is impotent. The inverse is equally true.

A purely philosophical (rational) approach to quality and quality assurance is barren. The base-line observation of the study is that philosophy and methodology are mutually inclusive and where they are managed creatively they have the potentiality of an 'enhancement' or the 1+2 = 5 effect. This phenomenon is not uncommon in organisations and it is called the 'synergistic effect'. In plant photosynthesis it is referred to as the 'Emmerson Enhancement Effect'. The implication of the duality approach is that a quality approach that synergises the philosophical and methodological perspective of QFD will have an aggregate rendition

bigger than would be gotten from the two operated separately. Indeed to beat the challenges for quality and quality assurance in higher education it is necessary to harmonise HEIs' *formal design* infrastructures with their emergent designs (the way that people naturally redesign HEIs as part of their actor-hood and evolution). Monolithic models cannot run the quality show solo. Figure 5.3 below indicates the philosophy-methodology duality of QFD.

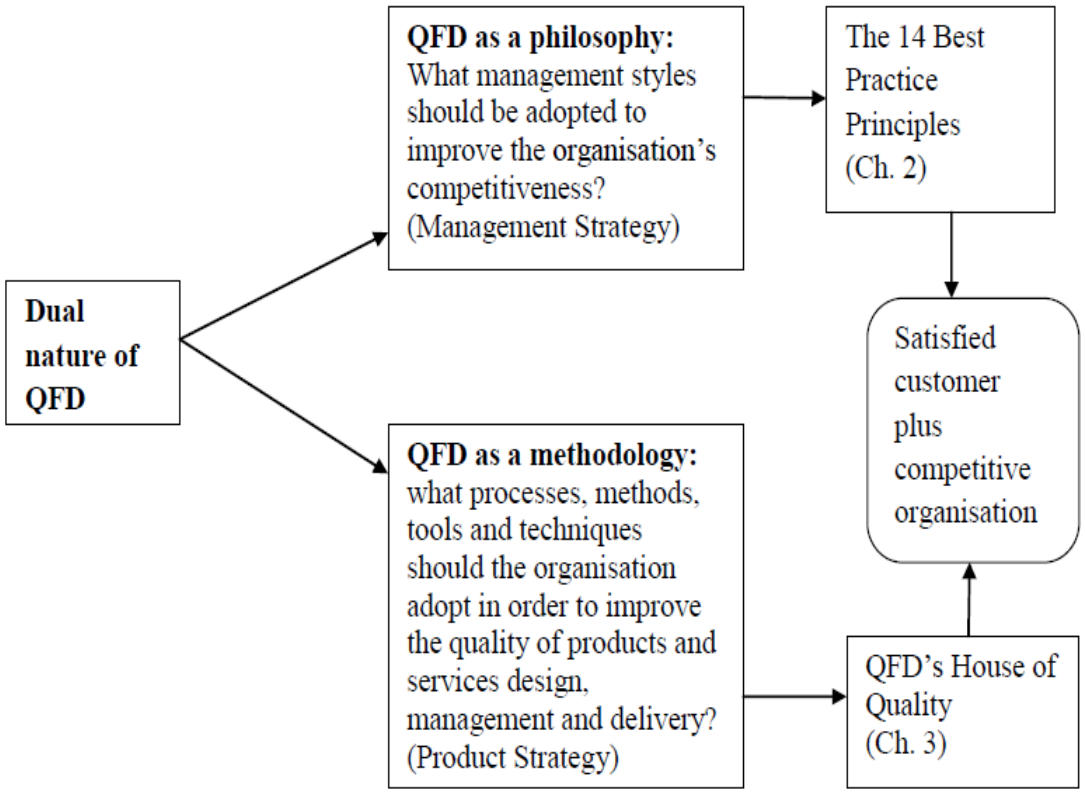

Figure 5.3: The dual nature of QFD and its relationship to market orientation and the organisation's competitive advantage as synthesised from literature and narratives

So whether QFD was referred to as one or the other, it was about emphasis and the inherent trade-off among the elements of communication (purpose, format, assessment and audience) that narrators make during discourse. The duality, inherent in QFD, creates its unparalleled efficacy as a model or framework for improving the competitive performance of an organisation. Its philosophical nature informs the management strategic orientation while its methodological nature informs the products and services strategies. I reiterate this point and exemplify it in Figure 5.3 above. By interweaving a management strategy and a products and

services strategy those using QFD should be able to align management to customer needs and wants. A QFD approach helps the adopting organisation to take cognisance of the often taken-for-granted cultural, policy, practice and contextual assumptions in ways that other quality models don't. Research has found that these nuances define the success or fall of a model (Blackmur, 2007; Law, 2010; Ramirez, 2013). Therefore to be fair to those whose data was used in this thesis, I took the broader understanding of QFD as both a philosophy and a methodology. Literature and the voice of my participants portrayed QFD as a vehicle for improvement and innovation. I refer to this as the quality improvement-innovation helix. Like the DNA in living organisms this helix denotes the genome of never-ending quality improvement which the Japanese fondly call *kaizen*.

In summary, QFD is what become when a philosophy and a methodology mutually embed in each other to offer their tools and techniques an enhanced synergistic effect that allows the resultant QFD to deliver to the satisfaction and delight of the customer. It is like a jet that can take any orientation without dismembering. The pragmatic value of QFD is that HEIs can use the QFD model to pursue their own 'kind of' quality as demanded by their own 'kind of' customers.

5.4 Emergence and motivation for adoption of QFD in the CUTGBS

5.4.1 The context for a new strategy

In this section I discuss the factors that motivated the CUTGBS to adopt a QFD model in response to the research question: ''What strategic issues motivated the choice and adoption of QFD in the CUTGBS? Normally the adoption of models or strategic frameworks is motivated by a number of diverse factors within and from outside the adopting organisation. Some of the motivating factors may be temporary and contextual while others may show a life-long endurance. In 2005, a university-wide Strategy Retreat was held at the Kadoma International Conference Centre (KICC). Representatives were drawn from the University Council, the University Senate, all university functional areas, students, academic staff, non-academic staff, and external stakeholders that included the university banker, the hosting municipality, local government officials, the industry and social institutions like chiefs. The Retreat agenda included the mandate of the university, presentations from Faculties and

departments, progresses and challenges faced by the different sectors of the university. It was not unusual that 'confrontations' and new understandings were outcomes of some of the Retreat sessions. One participant who attended the session and was attached to the CUTGBS said that some parts of the sessions were characterised by sharp differences and some kind of anger and personality clashes yet (s)he was quick to highlight that there were lots of agreement, with people concurring on what needed to be done and mapping up a common and shared future [SM5]. Other participants who attended the Kadoma Retreat explained that the 'Kadoma agenda' brought lots of issues for discussion and prominent among them was whether the Chinhoyi University of Technology was sticking to its mandate and what that mandate meant to the different constituents. Other topical issues were the ''relevance of departments and courses to the mandate and purpose of the university'' as well as the distribution of resources to the various sectors of the university [AC4].

Jockeying for power, resources and influence is not uncommon in function-based organisations and the more the power and influence are valued the more and the deeper the jockeying become (Brennan and Shah, 2000; Berger, 2000; Bolman and Deal, 2008). However, senior management downplayed the 'squabbles' as shown by a focus on other issues than the differences among some constituents. A senior management personnel said it was not unexpected to have such talk of differences because each party was speaking for itself. (S)he expressed the value of the discussions in that people saw and should have understood the context, position and strategic issues the university was experiencing. Alignment, resources and their distribution as well as organisational mandate are key strategic issues in both the public and the private sectors (Pearce and Robinson, 2009; Ficalora and Cohen, 2009; Ramirez and Berger, 2014) and that people would carry strong emotions in debates about their use and distribution is common sense to seasoned managers.

A personnel staff who attended the Retreat said that one of the important achievements of the sessions was that people came back with new fears, new ways of looking at their Departments and new dispositions to share ideas and generate resources. These pressures, felt at the university level were key strategy shapers at the level of the CUTGBS and other Faculties. A top management level participant said that the reason they had gone for the

Retreat was to seek integration and to sharing ideas on how the university could stand and operate as a strong and coherent organism [SM6]. Apparently some sectors had gone to the Retreat with held positions to defend. A top management official indicated that they had a preconceived and shared posturing from which they would influence the amplitude and direction of discourse at the Retreat. I find this a reasonable strategic behaviour. Whilst management takes a detached position in corporate discourses of this nature, it is important however to hold the handle and keep pulse with proceedings. Clashes are not altogether malice in conditions of deliberative democracy (Gutmann and Thompson, 2004). Sevier (2003), writing on strategy development in universities, described it more as a path to pain than to plenty (p. 18). This was also the first massive and most inclusive Strategy Planning session the Chinhoyi University of Technology had ever had.

The other strategic issues that emerged at the Conference Centre included the need to generate funding; producing five-year and ten-year projections of programmes and faculties; designing market-oriented curricular; having strategic plans on quality improvement at department and course levels; and the need for staff to self-develop and seek tenure. One of the key challenges was that the main source of funding for the departments was fees and the bigger the enrolment the more income the Department would have. However, increases in enrolments were becoming a strain on resources and there was a feeling that this was pulling the quality and reputation of the institution down.

In a nutshell, QFD was not chosen but became the emergent epitome of a response to the many strategic issues that arose in a seriatim of self and context analyses. From the above description of the interplay between external and internal forces for a new model for doing business I turn to a discussion of the pull and push factors for adoption of QFD in the CUTGBS.

5.4.2 Motivation for the adoption of QFD in the CUTGBS

In this section we answer the research question: What strategic issues motivated the choice and adoption of QFD in the CUTGBS? Figure 5.4 show the interrelatedness of the factors driving the choice for QFD. In the previous section I suggested that the net impact of any one

pull or push factor is historically determined in space and in time. These motivating factors included identity management, economic pressures, financial needs, quality management aspirations, legitimacy and strategic balance concerns. The carry-home message from the Kadoma Retreat was that departments had to run self-assessments and come up with strategies for their long-term performance. Further expansions were strictly discouraged. In the CUTGBS, wide-ranging consultations were held using both informal and formal channels. A brainstorming session raised a number of issues that included quality, management styles and funding. There were numerous discussion sessions where challenges and proposed solutions were presented. A felt best response was the adoption of a single strategy that would bundle all the CUTGBS concerns and resolve them systematically. A senior academic said that the adoption of QFD was somewhat like a Pugh Concept Selection in which the model emerged from a *datum* of investigative presentations from both internal and external stakeholders to the CUTGBS [AC4]. SM5 said that quality issues mattered a lot in the strategies and discussions prior and posterior to the Kadoma Retreat.

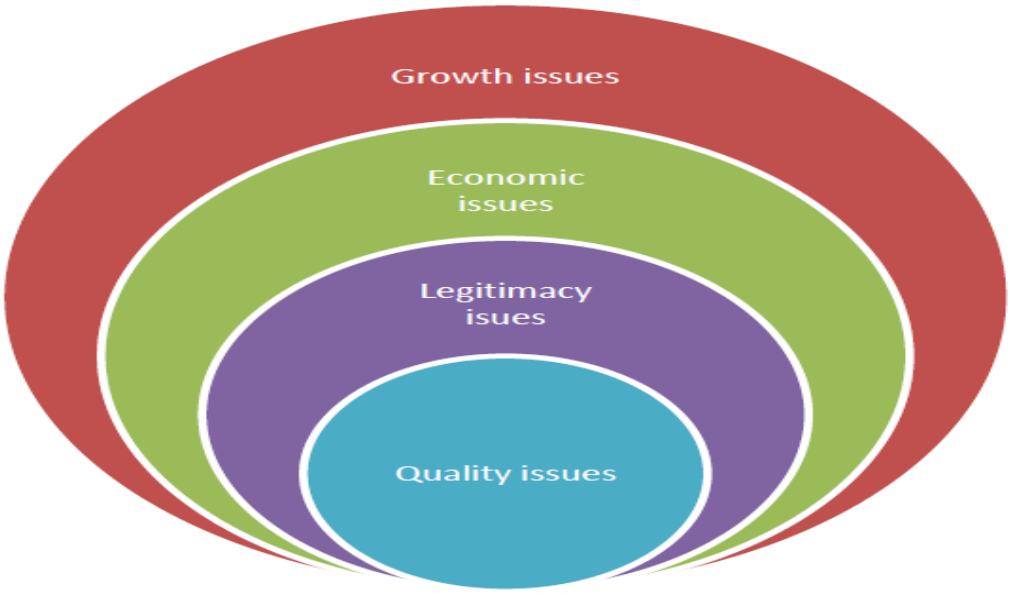

Figure 5.4: Organisational challenges faced by the CUTGBS as synthesised from data

(S)he also said that understanding the context and aligning the programme to the broader trends and the particularities of the university context was a strong strategic aspiration.

(S)he explained that finding a competitive niche for the M.Sc. Programme and the CUTGBS were critical pursuits. The factors that were continuously discussed in conversations on

strategy choice were about legitimacy, at least in terms of meeting the 'national skills and knowledge priorities'; profitability; marketing and responses to the international trends in the provision of higher education. From the conversations the thread of thinking that was most salient was that if the war on quality is won, then the battle for legitimacy will be simpler to fight. One phrase that was most repeated was 'profit or perish', suggesting that everything that would guarantee a good stream of enrolments would matter a lot to the CUTGBS. One academic stated it bluntly that their lives and careers were tied to the profitability of the CUTGBS. The phrases 'profit or perish' and 'if you can't make it, close shop' were often repeated by participants. This could be an indication of the ruthlessness of the master's degree market.

The closure of departments and courses is not unknown in the history of higher education. Alvesson and Skoldberg (2009:288) once observed that we can garner rich and interesting insight into the values people carry in their doing of something and commitment to something by how they ''show their understanding of the driving forces and social conventions as regards modes of expression and legitimate motives''. A senior manager at the Chinhoyi University of Technology said there was no pressuring of Departments to make particular choices of models or strategies [SM3] and the choices of what strategies to adopt was quite free and open [SM5].

The question of why and how organisations adopt new strategies and models has been addressed by Abrahamson (1991), Davis and Greve (1997), Palmer, Jennings and Zhou (1993) and Jones (2014). Kennedy and Fiss (2009:897) say that adoptions may take place along two vectors. One of such vectors is the rational actor model that is based on the logic of economic gains. The second is the social legitimacy model which hinges on the logic of legitimacy. The economic focus was well ventilated in the conversations with the assertion that the QFD approach was helping in cutting costs and in improving relations with stakeholders and enhancing market-orientation of the institution and its products and services. Indeed one of the CUTGBS objectives was to increase the 2012 market share by 20 %. The CUTGBS sought legitimisation by heavily pursuing Voice of the Customer and linking with outside stakeholders and powerful constituents [AC1]. These tactics for seeking

legitimacy are cited by Houston and Paewai (2013:265). The logic is that once there is wide support then everything will fall in place and with the rational model the assumption is that once the organisation is efficient and economically strong everything will fall in place.

Actually the CUTGBS sought more than legitimisation and economic gains. The CUTGBS sought to brand itself with a uniquely high level of optimal distinctiveness on the market. The following five statements help to show the penchant desire to pursue a strategy or model that focus on quality and stakeholder satisfaction and also on image, reputation and impression management:

... we want to be the Harvard and Yale of Zimbabwe [AC-1]
... we aspire to the Harvard standards [AC-2]
... we benchmark from the best [AC-4]
... we don't teach MBA stuff here, we don't teach people to be general managers [SM-1]
... this programme is for decision makers, CEOs [SM-1].

The identity of an institution has become of important marketing value in Zimbabwe. Institutions tend to look for anything that can be exploited to enhance their images. And because an enhanced identity of an institution carries along an enhanced image of its members, staff may have a double motive in seeking optimal distinctiveness (Galvin, 2009) of the CUTGBS. Self-verification apparently was another reason the CUTGBS had adopted a QFD model and were hard pressing on Voice of the Customer and 'going all-out' to the industry (gemba).

In QFD contexts the *gemba* is the actual place where the customer uses the product. However the Strategy Balancing aspect of this mode of Voice of the Customer in terms of optimal distinctiveness pursuits and products and services improvements cannot be separated one from the other. In the perspective of Strategy Balancing Theory the market of employers and students was showing some sensitivity to the institutions' resources including strategies by which they were known to deal with many of their management and products and services issues. See Goleman and Senge (2014) as they reiterate Deephouse (1999), Brickson (2005)

and Glynn (2008) in very profound perspectives on how people and institutions create identities of self with relation to their inner and outer worlds. Profound changes require lots of systems thinking; networks that enhance the compound value of external competences; triple-focus; deep learning and an infrastructure for overcoming our own learning disabilities; top management's earnest desire to change the 'we support' mentality and bluff to deep commitment in activities initiated at lower altitudes of the organisation.

In a summative form, because QFD arose from a datum of concerns as the most appropriate bundle of responses to CUTGBS's strategic concerns it was charged with the expectations of meeting the desire for image management and of creating the much needed critical success factors in terms of economic, financial, management, competitive and quality performativity.

5.5 Response of staff to QFD and the institutionalisation of the QFD model

5.5.1 Introduction

This section answers the research question: How did staff respond to the QFD model and its institutionalisation in the CUTGBS? Therefore the purpose of this section is to describe findings relating to how staff behaved with respect to requirements of each of the stages of QFD as narrated in Section 3.17 of Chapter 3 and depicted in Figure 5.5 below. The description will cover how staff in the CUTGBS responded to QFD by assessing how they planned and organised the execution of each of the QFD's milestone stages. An adopter of a model may respond to the model by selective implementation or execution of its stages, by superficial execution of every of its stages, or by first a blanket or aggregate and superficial adoption followed by an incremental and in-depth institutionalisation of the whole model. Another form of response to a model is to hybridise it with one or two other models with which the implementer is already familiar and in which he has built up sizeable trust. Outright rejection and jettisoning of a model soon after its implementation can be classified as a response to the model.

To fairly assess the depth of response to QFD one should analyse what staff did, and how they did it and how their way differed or followed that stipulated in the model. The CUTGBS adopted all stages of the QFD but was putting more emphasis in some stages of QFD than

others. The emphasis also varied in terms of the intensity of use of the QFD tools. The presence of teamwork was evident and a process of continuously obtaining Voice of the Customer was equally present. There was evidence of a strong effort to shift the locus of quality assurance from the external quality management infrastructure into the realms of the internal systems of the CUTGBS. Thus QFD was becoming an important and effective tool for strategic quality planning purposes. Figure 5.5 below should help in understanding the model of QFD the CUTGBS staff worked through.

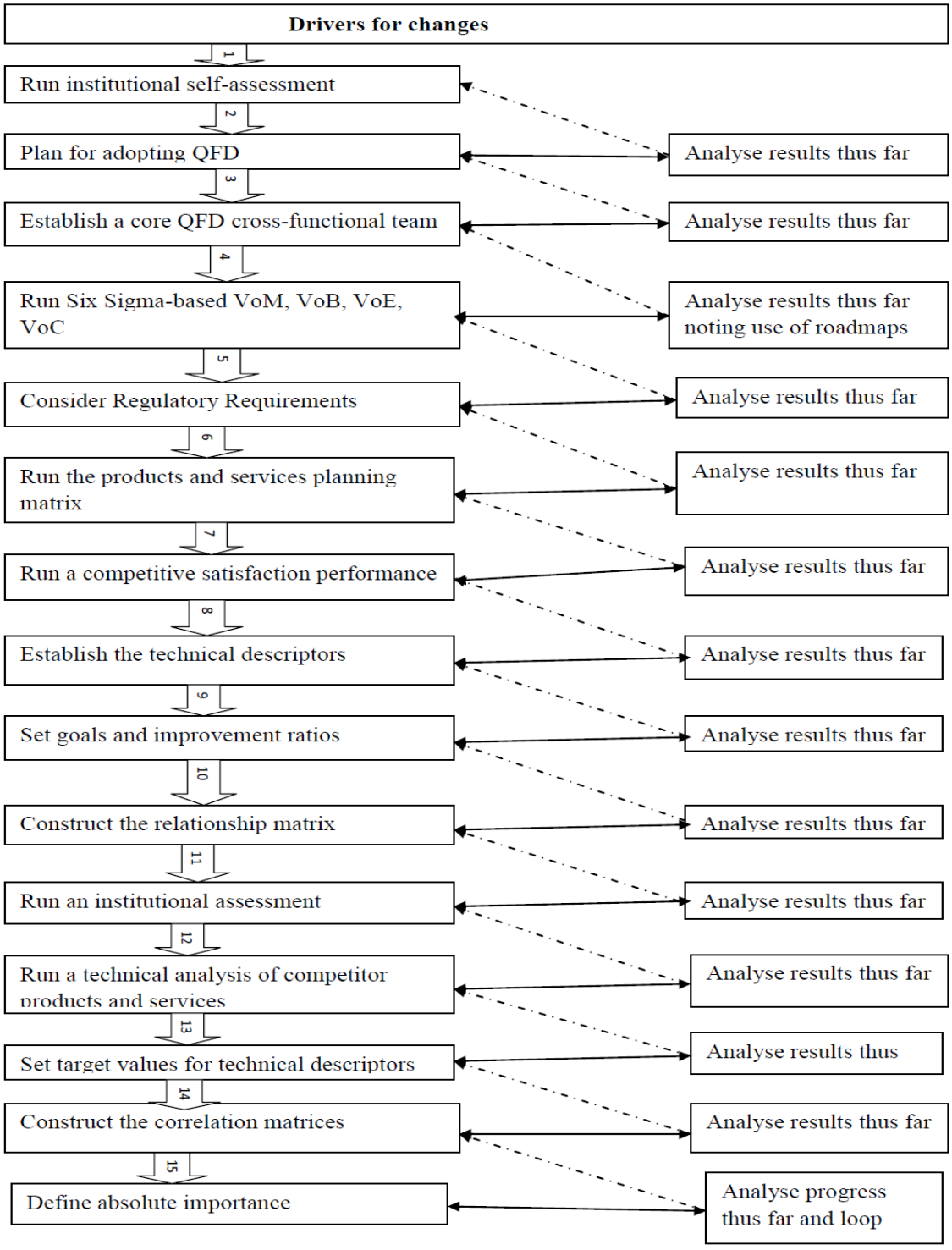

Figure 5.5: Stages of the QFD adopted in the study (Franceschini, 2002; Ficalora and Cohen, 2009)

In the preceding two sections I discussed the first two aspects of the QFD model. Participants clearly articulated the contextual influence of the higher education landscape and that of the Chinhoyi University of Technology on a deep-going self-assessment on the part of the CUTGBS. They further indicated that QFD emerged as the model of best-fit and that preparations for its adoption and diffusion were an intricate part of the organisation's life. Indeed a strategic approach to the adoption of QFD was followed. The QFD model or what may be understood as a strategic framework arose out of an on-going analysis of both the internal and the external environments of the CUTGBS.

Strategic frameworks that are imposed or chosen by a vote are less likely to generate sufficient support and commitment from either the technical or ground level or from the top-level management. They may also soon lose favour with the organisation as they often show incongruence with many aspects of the context of the organisation as a result of people withholding their support. People commit more and give value to what they have chosen than to those things imposed on them.

5.5.2 Institutionalisation of QFD by establishment of a QFD team

Because the word management can be misleading in the sense that management of something may as well refer to an episodic event that never happened or happens again with any measure of frequency the word 'institutionalisation' will be preferred. See the definition of institutionalisation given in Chapter 3. In this light this section shall answer questions on what is expected to be of a fully evolved, TWQ-based organisational steering team.

- Was there a QFD team?
- What were the responsibilities of the 'team'?
- What was the composition of the 'team'?
- What was the dominant mental model of QFD shared by the 'team'?

The presence of a steering QFD team is an important facet in QFD. Its presence in the longevity and its ability to successfully manage the rest of the stages of QFD and making them a permanent feature of the CUTGBS can be viewed as institutionalisation of QFD, particularly at the stage of permanently moving to adoption of a teamwork organisational structure. Traditionally HEIs have worked on the concept of collegiality or committees

system. Group working is not actually what QFD refers to as team-working. In QFD, the team is assumedly a cross-functional team with representative members coming from all important sectors of the organisation and from outside sources of support, competences and experiences. The number of teams in an organisation depends on the nature and frequency of assignments that require such team effort. In some instances, a central QFD team can take the responsibility for coordination and organising key activities as a steering team. This was the basic nature of the QFD team in the CUTGBS.

The core QFD team in the CUTGBS was running some strategic, planning, organising, staffing, monitoring and other work responsibilities. However the team did not have complete locus on these leadership-management facets. The CUTGBS team was apparently pushing and pulling for greater autonomy from the mother university. The shifting of more power to the CUTGBS and the increasing prominence of local leadership at the level of the core team was having far-reaching implications. The professoriate were taking more charge on leading and planning particularly with regard strategy formulation. The second was leading and controlling as a means of legitimising the M.Sc. Programme and the CUTGBS as an institution. The third was on the connection between leading and motivating as a means of accomplishing staff stability, buy-ins and retention. AC2 explained that the CUTGBS staff was actually setting an example, that they were determining their frame of work and conditions of service.

In Section 5.1 I discussed the dual nature of QFD. It was the responsibility of the QFD team to ensure that the products and services strategies tied in seamlessly with the organisation's management strategy. What was generally referred to as the CUTGBS 'core team' was a cohort of four senior lecturers and the Director of the CUTGBS, two secretaries and the CUTGBS administrator. Each of the seven would so naturally refer to themselves as a team using the term 'team' quite naturally in the interview sessions. Part-time lecturers were being called in to 'every major event', 'particularly meetings at a CUTGBS cost-to-company basis' [SM1]. However, some of the part-time academics said they were not able to attend all CUTGBS meetings and sessions as they would normally have engagements at their places of employment. There was no other person from outside of the CUTGBS that was part of the

core or steering team (2013, March). The cross-functionality nature of the team was basically their different areas of academic specialisation. The team took the local leadership role, acting as the key strategy formulation unity in the CUTGBS. Each of the team members was elaborate on what the CUTGBS planned with regard to management issues and the design and delivery of products and services. The core team consisted of persons with diverse backgrounds ranging from industry, educational management, lecturing, and some were engaged in PhD studies. Despite members expressing a felt sense of benefiting from each other's experiences I do not think experiences should be taken *in lieu* of the actual membership of persons in the cross-functional team.

CUTGBS staff varied age-wise with the youngest around 32 in 2013 and others in their 50s. Their exposure to research varied, with some having published more than three articles and others not. There were promises that each member of the core-team would continue as chairperson-in-waiting for the future programmes that were on the verge of being launched. The advantage of such an arrangement is that the chairs-in-waiting would have long preparation periods. The disadvantage is that the decision forfeits the opportunity of appointing to chairpersonship people of superior practical experience and abilities should one appear in future staff compliments.

Literature on teamwork and its dynamics alludes that teams evolve over time, passing through a number of stages. The orientation in the development is basically from political, socio-oriented concerns toward task-based concerns. In the research it appeared that the team had passed the stages of 'who is who here' and sounded like they enjoyed cooperation, communication and collaboration among them. One thing that would come across quickly and quite strongly was the task-focusing of the staff and the trust in achieving what they wanted.

To establish all facets of teamwork culture I believe one would need to do more than just ask people but embed in with the members. The research however limited itself to inferences from which I can say participants felt there was good link and coordination among CUTGBS

staff and between the CUTGBS and its key stakeholders, including committees at the mother university.

> ‘‘We work together, how could we not, when we belong in the same university? But it doesn’t remove that we differ in the way we would like some things done.’’ [AC2]

This was corroborated by two other academics, [AC3] and [AC1], who felt that much could be done to achieve coordination on things that matter the most, particularly when it came to working with teams outside of the CUTGBS. The participants did not however feel that the current level of coordination was detrimental to anything.

Balance of member contribution. Within the CUTGBS core team staff felt there was respect among members and that ideas could be brought forward and attended to by the team. There was a feeling that the CUTGBS needed to move more toward totally inclusive behaviours. The balance of member contribution is about allowing each other space to talk and to display expertise. AC3 referred to some tendency to block-out on others and not show total inclusion behaviours. He worried that there were apparent tendency toward groupthink and that sometimes ‘‘undiscussible’’ issues were quickly glossed over.

Mutual support, Team effort and Cohesion among team members were felt to be present within the team. Structurally, most participants felt that a greater level of autonomy would work best for the CUTGBS and for its relations with the mother university. The situation by 2013 was that most decisions would be tabled at forums and committees that had membership outside of the CUTGBS. CUTGBS staff felt that this *modus operandi* made the institution more sluggish and was not in line with the CUTGBS’s principle of ‘being time based’.

> “... we try to be a time-based Business School, and we take time, every second as a critical resource. But we find it (*the time-based principle*) not working most of the time because our resources are controlled elsewhere where time is not important, we see things differently.” [AC3]

The reason for the much-felt friction was the lack of understanding of how the CUTGBS was setting standards and modes of doing things. Top university management was felt to be rather slow and ‘traditional’ for the current dynamics and competition’ faced by business schools

today. Whilst there appeared to be much stronger strategic cohesion within the CUTGBS, strategic bundling across the university was not felt to be visible enough. Staff in the CUTGBS said being beholden to the mother university was not perfectly favourable to their hopes of adopting a QFD-based mode of operation.

In a nutshell the core team of academics in the CUTGBS was the structural-functional epitome of a QFD team. Thus it embodied boundary-spanning roles, management responsibilities and the responsibilities that would normally fall within the charges of a Quality Cycle or a QFD team. This duality creates huge opportunities and yet challenges as well. Both should be attractive to new study of QFD adoptions. The CUTGBS QFD team coordinated with other external institutions.

5.5.3 Institutionalisation through implementing Voice of the Customer

In this section, as in all others, we discuss the institutionalisation of the Voice of the Customer. A number of questions helped the study assess the depth of use of Voice of the Customer and its implications to quality in the CUTGBS. The following questions guided my fieldwork on Voice of the Customer.

- Who was the CUTGBS's primary customer?
- Who were the CUTGBS's other key customers?
- How was the Voice of the Customer collected?
- How would Voice of the Customer be processed?
- How well did elements of formal design and 'emergent design' of the CUTGBS relate to Voice of the Customer?

The 'Voice of Customer' is widely ventilated in marketing literature as a process of collecting information from the market of consumers, customers, regulators, company employees and the competition with the idea of improving understanding of the competitive performance of the products and services. The CUTGBS was working consciously on Voice of the Customer with the Director being an active subscriber and participant in this activity. Running 'Voice of Customer' is a very crucial stage in QFD. It tells the team what the customer expects from the product or the service.

In Chapter 3 the study discusses how poorly collected or processed data can lead to incorrect design and production decisions. The CUTGBS was running 'Voice of Customer' with various instruments and with a number of academics partaking in the 'Voice of Customer' market research. Whilst there may be designated instances for running large-scale Voice of Customer, in QFD environments the standing presumption is that 'Voice of Customer' is an ongoing activity. The second presumption is that Voice of Customer is the basic informant of the Strategy Planning processes. There was a shared position that the student was the primary customer of the CUTGBS, albeit some participants felt that the CUTGBS-to-student interface far from confirmed this claim. An academic – AC1 commented that at some occasions some staff would sometimes get overwhelmed by the students and their requests and in the heat forget our commitments to total customer satisfaction.

However, a staff member says that the main problem in the CUTGBS-student interface was that the M.Sc. Programme was 'microwaving' the student. As a result, students were 'late' with everything 'like fees are outstanding', 'there is no communication with the supervisor'... 'assignment issues' and 'a host of these subtleties'. There was concurrence from academics, the non-academic staff and some students that the structure of the M.Sc. Programme exerted 'unbearable pressure' on the student.

Voice of customer (student)

Voices of students were captured by both formal and informal channels. An academic who had been involved with the M.Sc. Programme for a long time said:

> "...things have changed greatly over these years, we now have meetings with students at the beginning of the semester, we run course outlines and they feedback ... we again conference with them at the end of the semester and we discuss the throughput, the processes and arising issues. We get their feedback per course and per lecturer, and these are deposited in the database and we act on that data." [AC4]

This quotation gives evidence as to how deeply and sophisticated the mentality of continuous improvement had sunk in with the staff in the CUTGBS. A perception that even the apparently small issues and changes are of value in enhancing Customer Satisfaction Performance is evinced here.

Another academic had this to say:

> "We take the students and we say these are the options on board, they discuss these and we hear and note their comments .... we get some options that don't get takers because they are felt to be not so useful, we take it that it is their choice.''[AC6]

This quotation exemplifies the responsive nature of the CUTGBS and that they perceived Quality as fitness for a purpose defined by the student herself as their primary customer. A Student Evaluation of Teaching Effectiveness (SETE) instrument was used. Student comments were said to be more on what they liked and disliked about the teaching and not about what they actually wanted taught. Some students had this to say:

> "... yes we may know what we want taught but who do we tell, when and do we wanna get that in the end? We are here for a very short time for each course (subject) and we are more worried about getting it through and we move on to the next thing." [FG1-ST3]

Another lecturer said they get comments from students in an opportunistic way.

> "We try to be very open with them. It helps in making them feel free to talk to us. These are adults and this has two advantages: they don't just come with everything like high school kids would, yet eeeh they also have the temerity to approach you and talk to you like an adult. Most of the issues that the students bring relate to studies per se, things like being unable to attend one or so lectures and concerns about the research component of the M.Sc. Programme." [AC3]

Informal communications between academics and students is a valued practice in the CUTGBS. Academics said they engage informally with their students. It is also important to manage the distance in very professional ways so that neither party overstep the professional lines. In this regard, SM5 expressed the university's worries with relations that seem to cross the professional student - lecturer boundaries:

> "... it's quite difficult, here are two parties wanting to do or are actually doing a transgression. Both are taking care not to be discovered. It's difficult actually to discover them. We can't say some transgressions are not happening, we can only say we haven't discovered this or that. Maybe that we don't have any may mean that none of these transgressions is happening. We have a very sophisticated system of sniffing, doing surveillance and catching on anything once we get a hint."

The tool used for Student Evaluation of Teaching Effectiveness consisted of various criteria and items. Students were using the Student Evaluation of Teaching Effectiveness instrument to express their sentiments and to appraise the lecturer. However literature says that further to these two functions, students can also use Student Evaluation of Teaching Effectiveness instruments to punish lecturers. None of the three focus groups admitted to having used the Student Evaluation of Teaching Effectiveness instrument in punishing the lecturers, but they thought it would happen. I inquired on what type of punishment and how the students thought the lecturer would actually get punished?

> "... you see if one does not pitch up for his slots then suddenly brings in a difficult test." [FG1-ST4]

And

> "... one is so niggard with the marks." [FG2-ST2]

And

> "Yaa we have these rude professors with lose stuff you can't tell where you are from and where to with the course then suddenly there is a difficult paper with stuff that never was in the lectures." [FG4-ST1]

I find two issues in these comments. One, that the students demand value for their money, and that they really show an interest in receiving good quality instruction. The second is their potential to (ab)use the Student Evaluation of Teaching Effectiveness as a stick to ramrod those who can stand in their way of progression, either for good reasons or for bad ones. I researched on issues of mark allocation and found that markers can be consistent, too lenient and actually niggard. Aware of these 'mishaps', institutions allow for internal, cluster or external moderation of a sample of script papers. The fact that students can settle felt scores with lecturers is not uncommon in literature. Anderson (2006) said student surveys could be missing their purpose unless the student appreciates how they could benefit from these surveys. It is important that management must factor this undesirable potentiality. One way is to design survey instruments that focus on issues that have value to the teaching-learning interactions and to consider timing of the Student Evaluation of Teaching Effectiveness.

Other students indicated that they tried to be fair in their evaluations. Asked what 'fair' looks like, the impression was that lecturers who are 'good' needed to be rewarded with good

ratings. One student [FG1-ST4] expressed 'goodness' as meaning being mature and understanding the complexity of being a student and a worker and a parent and maybe a patient of some illness. Lecturers' expectations were that students would rate them fairly, but they did not repudiate the possibility that students could settle felt scores through the Student Evaluation of Teaching Effectiveness process. Lecturers felt that student comments mattered in that they were input for their own self-assessment and as part of Voice of the Customer. Management was using the Student Evaluation of Teaching Effectiveness as input in subject allocation decisions which mattered a lot to the lecturers because it was a source of income to them [AC6]. Both part-timers and full-time academics are paid an hourly rate over and above their salaries for teaching in the M.Sc. Programme.

In a conversation with a lecturer in the comparative case there were similar feelings about the potential abuse of Student Evaluation of Teaching Effectiveness by students. He explained that it would be easier for lecturers of some courses to show lenience than lecturers of courses like Statistics and Financial Accounting. Interestingly, CUTGBS students did not link high ratings with rigour and strictness on the part of the lecturer. However, the Director of the CUTGBS was quick to say that he expected that students would answer Student Evaluation of Teaching Effectiveness questions accurately and without fear or favour. He admitted that the CUTGBS took the Student Evaluation of Teaching Effectiveness 'quite seriously' and that they did them because they believed in their value as part of their Voice of the Student.

In Chapter 3, the Voice of Customer was discussed and the point made was that Student Evaluation of Teaching Effectiveness are only valuable to the extent that they are appropriately designed, that they get useful data about the student and that the data can be processed and factored into institutional strategies and decisions. Anderson (2006:166) says of Student Evaluation of Teaching Effectiveness that they are a very powerful tool, but unfortunately in the hands of those with marginal understanding of how they should work.

I observed from the conversations that both parties can manipulate Student Evaluation of Teaching Effectiveness instruments. The degree to which academics are likely to manipulate

Student Evaluation of Teaching Effectiveness is influenced by the clout of the completed Student Evaluation of Teaching Effectiveness to influence distribution of office (promotion or tenure decisions) and social benefits like recognition and standing among colleagues or the number of assigned courses. The latter becomes of interest, particularly in instances where lecturers are paid over and above their salaries for teaching what they are employed to teach and the allocation of subjects is based on previous Student Evaluation of Teaching Effectiveness ratings.

Voices of Business

Voice of Business in the context of QFD may refer to the business concerns of the organisation. For self-supporting, for-profit institutions or programmes it is important to consider the institution's desires to create a profit. However, Voice of Business may also refer to the voices in education of the various experts and connoisseurs whose inputs can improve (or destroy) the quality of education delivery. Voice of Business was gathered mainly from external examiners who were hired each semester and the many individuals who participated in the various review teams that did audit and assessment work in the CUTGBS and the mother university. However, there were no opportunities for the external examiner to directly discuss with the concerned subject lecturer either before or after the moderation exercise. The dangers with distant indirect interaction are that the lecturer may not always feel that the comments of the external examiner were based on the peculiarities of the institution or were tolerant of the academic's or student's viewpoint. This is not uncommon with subjects such as Corporate Governance. At master's level lecturer practical experience and his professorial orientation tint their approach to a subject, its didactics and the instructional-pedagogical values accompanying the teaching-learning interaction.

Most lecturers were active in researching, particularly on content relating to their subjects. This helped them keep abreast with developments in the higher education landscape. It was widely assumed that knowledge gained from professional activities like seminars, workshops 'and all that' would be 'ploughed in to fecund the curriculum and the instructional processes' [SM1]. There was encouragement to focus research on consultancy and on strategies of developing institutional performance. How much incentive would shift lecturers from

researching for their publication records to researching for the benefit of practical knowledge needs to be explored. There were various agencies exogenous to the CUTGBS whose voices were being considered in the CUTGBS, for instance, the ZimCHE, the Ministry of Higher n and Tertiary Education, and the CUT Directorate of Quality Assurance.

Voices of Employees

Voices of employees were gathered in meetings and on performance appraisals. Some staff felt that there wasn't a fair space and favourable ambience for them to put forward their requirements. There was a preference for a shorthand system that is quick to respond and to understand better their concerns. A respondent explained that the CUTGBS was part of the university and bound by wider university policy regime, and many of employees' complaints or requirements should be channelled through the wider university system. As a growing institution, the CUTGBS ought to be at pulse with the sentiments off all its workforce. This would need a robust Research and Development or survey system to constantly gather such sentiments. However an academics felt that top management was paying attention to their presence, to their ideas and aspirations about the CUTGBS. [AC1; AC2; AC3;AC4; AC5]

Voices of Market

Every academic staff member in the CUTGBS engaged in collecting 'Voice of Market'. The Director of the CUTGBS took it upon himself to go into the industry and get first-hand information. Senior management personnel [SM1] explained that the main targets in such exercises were the alumni because:

> "... they are the ones who have gone through this course and are best placed to say this I got it but it does not work, this and that were time wasters, you see, then you can say how do we improve"? [SM1]

The Chinhoyi University of Technology had the office of the 'Directorate of Quality Assurance', which oversaw quality issues across the whole university. In 2013, the Directorate was ''... still busy putting up systems in place.'' [SM2]. The ZimCHE had legal and professional channels of communicating with the university on issues relating to its work. The Chinhoyi University of Technology was one of the first universities to establish

the office of the Directorate of Quality Assurance and by March 2013 had the highest compliment of PhD holders among their teaching staff. Despite all the efforts to link and gather data from various stakeholders, there were some professional institutions that could help in a number of issues. For instance, the National Manpower Council (NAMACO) has a wealth of experience in curriculum design and research and working with them should benefit the CUTGBS. Four of the participants felt NAMACO's activities were more suiting to diploma-level studies. A Talent manager who had experience with NAMACO and university lectureship felt that NAMACO had a huge contribution to degree level education insisting in that the practical focus of the diploma level education needed to continue through higher education. (S)he lamented that "... we can boast and say we are a very educated country, but what does a degree serve when you cannot think contextually, create, and innovate''. In the following section the value of listening to both downstream and upstream audience is spelt out. But there was a concern raised by a student relating to the Voice of the Customer. (S)he suggested that lecturers teach what they want and are comfortable with so suggesting anything to them would not make them change their course outline [FG1-ST2 and FG2-ST3].

First level of institutionalisation: turning Voice of the Customer into WHATS

Both formal and informal channels of gathering Voice of Customer were being used. However, much of the processing of the data was qualitative. Communication channels were widely available, designed for both reactive and proactive action. My observation was that the data processing could be further improved by employing more rigorous statistical and technical tools. The more processes and decisions get anchored in facts rather than superstition, the more customer-oriented organisations become. In their research, French et al. (2014) found that universities that were using multiple measures to anchor discussions and interpretations of Voice of Customer improved their practice in assuring learning (p. 37).

Summatively, the student and Industry apparently contested for the key customer position with other voices being collected from academics and other sources of competences. Voice of the Customer was being collected mainly by surveys, interviews and focus groups for purposes of Product Planning Matrix, Customer Satisfaction Performance, and Competitive

Satisfaction Performance. More software and technology could be deployed in the collection as in the processing of the Voice of the Customer. The translation of Voice of the Customer into management and products and services strategies was evident.

5.5.4 Institutionalisation of QFD by running the Product Planning Matrix (PPM)

The most important products and services in the CUTGBS were:

- the M.Sc. programme;
- the M.Sc. programme curriculum;
- the course outlines;
- the modules;
- the various course handouts; and
- management interventions

The observation made by QFD gurus like Franceschini (2002) and Ficalora and Cohen (2009), among others, is that the Product Planning Matrix becomes the repository for important quantitative data about each customer need. The M.Sc. Programme was based on a felt need for skilled senior managers [SM-1] and its curriculum was designed and delivered to meet the senior managers' needs for examplar leadership performance. The CUTGBS staff claimed that their curriculum had been validated by Industry and by the student through Student Evaluation of Teaching Effectiveness over the years [AC-1; AC-3]. However some felt there was need to re-orient the focus of some concepts and in some instances contextualise some of the theories [AC-2] because a good number of the students were indigenous business owners not actually formal employees [AC-1; AC-3]. In this perspective, the study investigated the intensity with which the curriculum documents, course outline and assessment records recognised this emergent need from a 'new' type of student wanting to be an employer and services creator.

Institutionalisation of QFD by aligning Voice of the Customer with the M.Sc. programme and curriculum

The design of the curriculum was basically in the hands of the CUTGBS as a university department. The proposed curriculum would be escalated to the School Academic Board,

which would appraise and then escalate the prototype curriculum to the Senate for appraisal. The study did not establish that there could have been direct external involvements in the design of the M.Sc. programme curriculum. In the quixotic sense, contributors in curriculum development would be the National Manpower Council, the ZimCHE, members from professional associations, accrediting boards and Instructional Technology development specialists. It should make good sense to involve academics who lecture at undergraduate and diploma levels. It could not be established that these had actively and directly participated in the drawing up of initial curricular or in the validation of the prototype or actual curriculum. Curriculum mapping should improve both vertical and horizontal integration of content and perspectives. Well implemented QFD tools could help ensuring that the M.Sc. Programme is built on the foundations of prior studies and that it enjoyed sufficient internal horizontal integration. Some students testified that some level of 'redundancy of content' [IST2; IST3; IST4] across some M.Sc. Programme subjects could be felt and too vertical redundancy whereby undergraduate content was 'unnecessarily' consuming instructional time [FG2-STD3].

Temtime and Mmereki (2010) observed this phenomenon in their study of graduate business education in Southern Africa. An academic admitted that some duplication can be possible, particularly with subjects like Strategic Human Resources, Labour Relations and Strategic Management (AC6). An academic felt that such redundancy was useful in helping the students realise the inter-linkages among subjects and disciplines. This was consistent with the findings of Biglan (1973) and Royal, Gilliland and Dent (2014). SM1 and SM5 said that the CUTGBS ran comparative analysis of course outlines. While content redundancy for purposes of scaffolding is a desirable deliverable of curriculum design, undesirable redundancy that wastes student time should be interpreted otherwise, particularly in time-based organisations. I feel that where content is revisted, it should be within the perspective of current level thus showing how it is evaluated or applied or analysed at a higher level using new perspectives rather than sheer repetition.

While the philosophy for curriculum design was perverse the methodology was apparently not well appreciated. An academic expressed that curriculum planning was one area the

higher education sector needed to give lots of attention, yet he lamented that there was very little interest in learning curriculum designing among university academics [AC5].

The M.Sc. programme course outlines

The idea of 'googling' course outlines and curricular and modelling upon them was widely shared. An academic explained that the M.Sc. Programme was designed on the 'template' of an offshore Derby University M.Sc. programme when this offshore programme was withdrawn out of the country. Salmi (2011a), writing about errors committed by those seeking to build world-class universities, says that 'buying' or copycatting curricular from developed countries 'is not the most effective way of building the academic culture of a new university that aims to reach high standards'. Most of the CUTGBS staff did not have prior training in the design of curriculum. One academic lamented that curriculum development deficiencies were rife in higher education and 'the most worrisome thing' was 'the absence of efforts to remedy the situation' and 'the academics' reticence in researching on curricular issues' and 'refusal to be honest in participating in such research' [AC5].

Course outlines were designed by each lecturer for his subject, presented to a board at the CUTGBS and discussed at the School Board level. Some four lecturers said they had adopted course outlines they had found in operation and that they had, however, included some modifications. Development of course outlines was somewhat a 'lone ranger heroic' endeavour (Senge et al., 2012) which some lecturers defended on the basis that the approach allowed them to piece together different perspectives and benchmark without 'distraction' from fellow lecturers who don't have the subject expertise. Salmi (2011a:6) says that it is unrealistic to think that 'reproducing' the 'organic, academic models' of top-class business schools 'is possible'. He goes further to say:

> "...it is impractical to envision shopping around and bringing curricular fragments from a variety of top-notch institutions across different countries and cultures and guessing everything could easily gel together and fall in place to create an authentic learning and research culture in the new university."

In the designing of course outlines, most academics were worried about how other lecturers and students would react to the course outlines and whether there would be sufficient time to go through the course outlines. The concerns were about depth, scope and length in the light of customer expectations. Other academics pointed to the heterogeneity of the classes as both a huge resource and as posing difficulty in piecing up a course outline that would satisfy every student [AC5]. Some lecturers portrayed a somewhat different picture saying that they were using Voice of the Customer database to align course outlines with students' expectations.

The heterogeneity of the class means students brought in a cauldron of expected learning outcomes and diverse quality expectations. Lecturers were finding it difficult to construct a one-size-fits-all course outline and instructional experiences [AC6]. This brought in a discrepancy between the offered quality and the expected quality for some students. Some students did express some concern about what they had expected and what was actually being gained. With the use of technology, which allows for the exchange of documents concurrently, working on them using different coloured ink and merging documents from different sources, it should be possible for a huge team to work on a curriculum or course outline from long distances, as virtual teams.

Google^{+}, Twitter, Posterous and Drive are optimised communication channels that can facilitate this process (Cochrane, 2014:66). The two Six Sigma roadmaps of Six Sigma Process Design, and Technology for Six Sigma were not being exploited fully within the CUTGBS. These two roadmaps are discussed in chapter 3, which discusses in depth the methodological aspects of QFD. One way of covering up for losses due to a broad curriculum is to allow for individualised out-of-class lecturer-student instruction or mentorship. However, with large classes this type of interaction is constrained by the ensuing large demand on lecturer time and by the difficulty of accommodating all the students at any one time most of the times. These deficiencies highlight the need for new approaches to technical and pedagogical support through a robust TFSS (Technology For Six Sigma) approach and the need for sustained interaction and provision of support for communities of practice through SSPD (Six Sigma Process Design).

From the presentations from academics and students there was incremental inclusion of students' voices and expectations in the offered curriculum, even in those courses or subjects the current lecturers had taken over from previous lecturers. New lecturers were making efforts to accommodate comments and concerns from students as well as those from industry and own lecturers' research efforts. An appreciation of the value of Voice of the Customer and its inclusion in products and services was institutionalising. However, the process seemed to be taking rather long and was apparently *ad hoc* in some cases.

Lecturers were encouraged to develop modules for their respective subjects. The Directorate for Quality Assurance's website had a guideline on the production of modules and course outlines. The Academy of Teaching was equally supporting this effort by providing training. Some subjects already had some kind of module and some lecturers were busy writing modules for their subjects. However, some felt that they had too large a load to have any time for writing modules. Two of the lecturers, [AC1] and [AC2], suggested that the University should grant leave to those engaged in writing and support the process financially. The current scenario was that lecturers would write a module in their spare time and then be paid an amount of US$500 (July 2013).

Handouts were considered an important part of the teaching-learning process. An academic said that they would e-mail handouts to their students before they came for the resident session at the CUTGBS. The nature of the handout contents varied. Some lecturers said they needed students to come with a picture of what the session would be about so they could give outlines and references to consult. Others would give a list of questions and invite the students to sketch some responses. In other cases, the handouts would be a research assignment requiring students to prepare a presentation. Students said the handouts were helpful, whatever form they would be, but they had different ideas on whether they worked on them before they came to the residence session. Most students said they worked on the handouts, with a majority not going above 80% of the requirements of the handouts. Some students said they would not have sufficient time to go over the handouts by the time they came for the residence sessions.

In summative form, the Product Planning Matrix (PPM) approach was deployed in the development of the M.Sc. Programme, course outlines, and other teaching-learning materials. There was room for exploitation of charts, tables, and other more robust software and matrices in order to improve the WHAT-HOW alignments and both vertical and horizontal curriculum alignments.

5.5.5 Institutionalisation of QFD by emphasising Customer Satisfaction Performance

The CUTGBS was using a number of techniques, like formal and informal discussions to assess the sentiments of students and the industry in respect of their various products and services. The CUTGBS followed a broad-based approach in strategy planning, with the idea of brainstorming on issues affecting the Business School. One of the strategic planning techniques used for measuring Customer Satisfaction Performance of the CUTGBS was the SWOT analysis. It was said to offer the CUTGBS an understanding of what challenges and constraints the products and services were experiencing, and the potential sources of such constraints.

The theoretical perspective underpinning this study is the Theory of Constraint. Each stage of the QFD methodology or one or so of their tools can become a major constraint or just a significant one, which would cause the quality of products and services to suffer. This fact has been considered with huge concern and throughout chapters 2 and 3. The study investigated what students rated as the key satisfiers in the M.Sc. programme. The nature of the M.Sc. programme in terms of the subjects making up the curriculum had high rating. However, students did not seem to like the duration of the M.Sc. programme. Apparently many preferred a longer duration with more in-depth learning. One of the CUTGBS staff described the M.Sc. programme as ‘microwaving’ students. Apparently the duration of the M.Sc. programme was just the same as similar master’s degrees in other universities abroad and in Zimbabwe. However, in Customer Satisfaction Performance we listen to Voice of the Customer; in fact it is one of the errors that providers of goods and services make: turning to ‘norms’ however undesired they are.

The process of Customer Satisfaction Performance analysis was however not in the

perfection of typically QFD-organisations. The Student Evaluation of Teaching Effectiveness instrument and the instrument used in surveying stakeholders were designed from research and collation of a number of similar instruments used elsewhere by other institutions. In real QFD contexts and where the market is a special niche the ideal situation would be for stakeholder representatives to work together in producing a system of metrics that derive from concepts of the products and services they desire. In chapter 3 we lamented the discrepancy among products and services, throughputs and metrics for control and monitoring of quality. Students could check each question / prompt on the Student Evaluation of Teaching Effectiveness form with some numerical figure and spaces for commenting were availed. The data was not however computed into Weighted Average Performance values. This shortcoming could mean that the CUTGBS is failing to segment whatever products and services it could. Segmentation could improve Customer Satisfaction Performance, cut on costs and improve institutional competitiveness. These were the same reasons that staff mentioned as having motivated their decision to pursue a QFD-based strategy. In a comparative case, two Business schools were muting more specialised Master's degree programmes than the more general ones.

A number of alumni and the 2013 students indicated that they had chosen the CUTGBS M.Sc. programme in response to the CUTGBS marketing, word of mouth, and other factors, including it having been the first response they received after their applications. Alumni and students variably sited career progression, competitiveness and role modelling as reasons for seeking postgraduate studies, with no specific preference for the CUTGBS being cited by over 50% of the participants. Over 50% of participants felt that the CUTGBS was a satisfactory provider of postgraduate studies. They however had numerous suggestions on improvements, ranging from parking, catering and process alignment and interface mapping to removal of what they felt were unnecessary procedures and requirements.

Directors in the ZimCHE felt that the CUTGBS was doing well and complying with the regulator's requirements [DR1, DR2, DR3]. An academic at the CUTGBS sited that the ZimCHE had ranked the CUTGBS number 5, but did not understand the measures, standards and procedures of the ranking [AC2]. A comparison of Customer Satisfaction Performance

with each stakeholder group generated a long list of qualities and standards of satisfaction. This is evidenced in the preceding paragraphs. It would need a huge budget to move swiftly to meet every requirement from every stakeholder. As resources are not mentioned in most of the demands it makes sense to draw up a priority listing. In QFD environments organisations would use the Kano model to assess and evaluate Customer Satisfaction Performance of products and services. The CUTGBS was not deploying the Kano model in its deep technical sense in Customer Satisfaction Performance analyses. This should be one of the causes of discrepancy between planned quality and perceived quality. In traditional quality models definition of products and services quality resides with the provider, in QFD it resides with the customer.

In a nutshell the CUTGBS was fond of improving its Customer Satisfaction Performance and was gathering customer feedback on its curriculum and other offerings. Students were satisfied with the M.Sc. Programme as was the ZimCHE with the performance of the CUTGBS. There was room for further exploitation of technology to process Voice of the Customer data and escalate it into Product Planning Matrix so that products and services align more strongly to Voice of the Customer.

5.5.6 Institutionalisation of QFD by running Competitive Satisfaction Performance

The procedure of running Competitive Satisfaction Performance was explained in Chapter 3. Competitive Satisfaction Performance data was being collected largely through informal channels. This had the danger that a large mass of the data would be fragmented and amorphous. In this state the data would consequently be of little benefit to the strategy planning effort. Ficalora and Cohen (2009:157) equally lamented that most organisations have Competitive Satisfaction Performance data ‘not as neatly wrapped as we would like it to be’. In the deep technical sense, the Affinity Diagram was not being used to help the CUTGBS deal with the data it had on its purported Competitive Satisfaction Performance analysis. The CUTGBS however was collating the Customer Satisfaction Performance data with customer needs at the qualitative level in an attempt to ‘close gaps and catch up with leaders in the class’ [SM2]. Again this mode of turning Competitive Satisfaction Performance data into strategic factors for enhanced products and services performance was

rather *ad hoc* in some instances. Academics claimed that they benchmarked the content and course outlines. Some students felt that the M.Sc. Programme was ‘‘...not actually a five star programme...’’ [IST1] but ‘‘...met their needs and wants on a huge scale’’ [IST3]. Maybe these comments need to be pictured in the context of a very open postgraduate market with online and franchised programmes from all over the world.

Student participants agreed that it was too difficult to obtain information about any programme in its completeness and that each business school ‘had some level of bluffing’ [IST1]. This bluffing and the rush for higher qualification were some of the push factors that influenced enrolments in ‘anything that came first’. Franceschini (2002:146) expressed this kind of discrepancy between marketing quality and offered quality mathematically as:

Gap = marketing quality – offered quality.

$GAP = Q_r - Q_m$

This discrepancy is attributable to the inadequacy in communications between individuals and teams within the Department or sector and secondly to externally directed marketing communications that emphasise what the organisation is already excellent at, while downplaying its shortcomings. Jabnoun (2009) in reference to provision of MBA degree programmes by for-profit institutions in Vietnam refers to the gap or discrepancy between marketing quality and offered quality and attributes it to, among other factors, the stiff competition for students. An alumnus said of the discrepancy:

> “... yeah it is the ‘moment of shock’ you say so is this what the stakeholders they claim to have consulted told them to teach us? ...” [FG2-ST4]

Paul Cooper (2007:19) talking of the same gap in UK higher education and elsewhere attributes the discrepancy to quality uncertainty and informational asymmetry between students and the provider institution. Akerlof (1970) suggests that some level of misinformation is deliberate and directed at covering the shortcomings of ‘lemon programme’ whilst wooing students. Literature generally refers to this practice as ‘market signalling’, which has the risk of helping low-quality products and services displace high-quality products and services from the market (see Cooper, 2007). Things as simple as nomenclature of subjects can do a lot in marketing. As institutions do benchmarking they

need extra care, otherwise they benchmark 'lemons' that are over marketed in what has come to be known as the 'Enron Effect'. Complains may not actually be based on the programme being of any inferior quality, but because of globalisation students may be comparing programmes in a developing country with those in developed countries and largely disregarding the local focus of the programme in their comparison.

In summary, the CUTGBS was improving the Competitive Satisfaction Performance of the M.Sc. Programme and had in place a robust system of scanning the market and incorporating trending issues into its management, products and services strategies. The analysis of Competitive Satisfaction Performance was basically qualitative with the exploitation of tables, charts and matrices not having fully cemented.

5.5.7 Institutionalisation of QFD by relating Technical Descriptors Target Values to Goal Setting

In the context of QFD lexicon, a 'Target Value' is an indicator of how much of some technical characteristic a customer wants, for instance students may want e-books on which they can highlight, and write over. It also means how much the organisation sets as a target for it to reach, something akin to a goal. In conceptualising target values one needs to give special attention to methods of measuring the value, the appropriateness of the yardstick (metrics) and the appropriateness of the value itself (Ficalora and Cohen, 2009:133).

It is said in some literature that leadership, the number of books in the library, and computer laboratory are some of the representations of quality. In this research a handful of students did not think they would represent quality on the part of the CUTGBS because they already had own laptops, could buy own e-books, and use e-journals to get better content. One student jokingly said (s)he could teach the CUTGBS's best Computer teacher ICT (Information and Communication Technology), implying that she had good computer skills. One student showed this researcher her (his) e-library with more than 50 e-books on his (her) laptop and many students had personal laptops, iPads and tablets. Improving aspects that had no impact on teaching and learning and which would be more accessible to students by their own means would have no sales impact on the M.Sc. programme. In the case of a service like

the provision of higher education, target values may not be too easy to define, but still people would have an understanding of what it is they aspire to do or have. Target values may mean quality of facilities, competencies, process features, the intended learning outcomes, and even mental frameworks. Participants variably indicated sentiments that there was still some need to improve management and curriculum design in the teaching and learning aspects of the M.Sc. programme. The same participants said they would recommend the programme to third persons. The balance of subjects was appreciated by many students (see Appendix 3 for structure of the M.Sc. programme).

In summary, I observed that selecting teaching objectives, teaching material and the pedagogic approach has become more complex because in terms of skill and knowledge the student may be quite near to or even surpassing the levels of the lecturer.

Teaching approach

Students said the structure of the teaching was good particularly that they received handouts electronically for most subjects before they come for the sessions and that some lecturers continued to send them more information after the sessions. However, students felt that they were not maximising their gains from the M.Sc. programme because of the short duration of the programme. Most students did not think that cutting the number of subjects was a solution, but rather extending the duration of the M.Sc. programme from 18 months to two years. There were plans by July to introduce e-modules and students were welcoming the idea of becoming ubiquitous learners.

Resources

Academics felt that the locus of decisions that had to deal with procurement and use of resources lay more with the mother university than with the CUTGBS. CUTGBS did not actually worry about the use of finances, but about the speed of responding to their requests for different procurements. The tension appeared to be one of policy and the time-based nature of the CUTGBS where agility and a desire to be out front dominated most decision processes in the CUTGBS. Resources are a critical factor in policy dispensation as they are in strategy implementation. The implication is that there is need for a strong policy-strategy

alignment that should allow for appropriate resource utilisation. This reflects the point suggested at Section 5.3 that to meet the challenges for quality and quality assurance in HEIs it is critical to harmonise the formal design infrastructure and the institution's emergent designs.

Strategy – structure fit

The CUTGBS was a teamwork-based organisation. The main target of value of most staff was to move toward a dexterous, learning organisation without boundaries in which learning and speed are chief characteristics of how work is done. Bevington and Samson (2012) as well as Pearce and Robinson (2009) make an argument that these are some of the chief determinants of competitiveness in the service sector. Strategy-structure fit would affect QFD in that where it is absent resources are likely to be wasted in pursuing issues that have no bearing on customer satisfaction. Some participants felt that the structural relationship between the mother university and the CUTGBS was not always a favourable one to the CUTGBS. Staff in the CUTGBS described how they existed as a small company and as a university department at the same time.

Consultancy work

Fundraising through consultancy was highly encouraged in the Chinhoyi University of Technology. Staff at the CUTGBS were welcoming the idea, but still wondering how much time they would have for research, consultancy and teaching. The relation between consultancy work and QFD is that QFD improves efficiency, resulting in huge financial savings. These must be invested to raise even more capital. It also opens opportunities for staff and students to have a brush with the industry. Temtime and Mmerrki (2010) observed the need for staff to have in-depth understanding of the industry in order to improve their effectiveness at teaching master's-level courses that were industry related.

Work-breakdown Structure – Organisation Breakdown Structure alignment

Aligning CUTGBS work breakdown structure (WBS) with the organisation breakdown structure (OBS) was a pronounced need. An academic said that they were restructuring the CUTGBS in ways that recognise new job assignments that capitalise on QFD to deliver

outstanding products and services. In this regard each of the four permanent academics had the responsibility of steering for future launches of new programmes. The Director of the CUTGBS explained that it was difficult to realise economies of scale and benefit with a single M.Sc. programme.

Conditions of service

In the QFD context, target values are not exclusively intimately directed at the products and services. Target values both for academics, other staff and the CUTGBS as an entity were being set. Academics felt that their remuneration package was satisfactory. The package included cost to company facilities like transport, housing, and teaching allowance that was rated per hour of classroom teaching. They were paid for every cost incurred while on business outside of the university, sabbaticals and attendance of workshops and conferences. There was a shared feeling that they needed to improve on team-working skills, particularly when it comes to membership with others outside of the CUTGBS. The feeling that the CUTGBS would work more effectively and efficiently with greater autonomy on a number of issues was not repeated all too often. There were concerns that the current 'institutional culture' (August 2013) was in 'many ways incompatible with the ideal strategies of today's business schools that aimed to be relevant'.

Target values from international research

Literature reviews indicated that there were a number of issues that research was uncovering on postgraduate scholarship. The target values related to relevance of curriculum; cost-effectiveness of higher education; issues of access; accountability at levels of lecturer, course, programme; faculty and universities, as well as governments. Morality in the delivery of higher education is yet another target value that is a key condition in the functionality of QFD. The ethics-morality Target Value relates to what Sallis (2012) call the moral dimension of quality. The thesis argues that the ethics-moral Target Values have a gradation of implications from student through lecturer, programme, and right up to national level. The CUTGBS was taking note of these developments and taking opportunities to factor them in their decisions and 'into the CUTGBS own target values from operational to strategic levels'.

Target values from the viewpoint of industry and alumni

I held focus group discussions and one-on-one discussions with CUTGBS alumni and two established recruitment agents (see Chapter 4). I continued communications with each of the focus group members after the first interviews. An analysis of the data collected showed 19 conspicuous points that alumni and personnel from industry confirmed they found really important in the industry at almost any level of employment. The factors had to deal with academic intelligence. This correlates with W.R. Scott (2008:37) who mentions the value of a broad-based curriculum that builds manager skills of synthesis and evaluation. The second category of skills falls within individual's emotional intelligence, which covers self-awareness; self-management; relationship management; and social management. The third related to spiritual intelligence; an area that covers characteristics of maturity, compassion and humility. These academic or curriculum related target values correlate to the characteristic of 'ideal master's graduate' discussed in this thesis at chapter 3.

In summative terms, there are challenges with precision in the defining and finding the best fit between the HEIs' ability to know and deliver what exactly matters for expected quality. If Target Values could be defined with precision then curriculum goals would be easier to set and Improvement Ratios even easier to operationalise with the consequent result of taught curriculum (offered quality) approximating more and more to expected quality.

5.5.8 Institutionalisation of QFD by self-assessment and SWOT analysis

The CUTGBS was running self-assessments every often [AC3]. Yet another staff said that they had never (January 2013) undertaken a full scale assessment of the CUTGBS apart from an end-of-year assessment of how various issues arose and were dealt with [AC1]. Another staff felt that the various encounters, formal or informal, were quite helpful for anyone who needed a pulse of how the CUTGBS was running [AC2]. From these explanations it can be said that the CUTGBS valued a continual flow of data of decisional value. The apparent weakness of totally relying on internal perspectives is that the organisation could lose opportunities to fecund own ideas and the opportunity to see issues from other's points of view. In these two types of assessments referred to above the organisation could hear about what was going on around. Staff felt they needed a ''... full blown session in which they

would talk about the fundamental issues...'' [SM1]. Self-assessments are generally conducted to help the organisation have a detailed appreciation of its strength, weaknesses, opportunities and challenges. However some organisations and even literature end this process with a list of these factors in each category. In QFD, self-assessments should help the organisation discover, most importantly, the difficulties it faces and these must be detailed in terms of customer needs and wants and their satisfaction. I hereby propose an enhanced SWOT analysis table which was widely recommended as helpful during the validation of my research findings. I present the scheme below.

Table 5.1: Enhanced SWOT Analysis table

Enhanced SWOT Analysis			OPPORTUNITIES		CHALLENGES
		1	Opportunity 1	1	Challenge 1
Assumption/goal-1		2	Opportunity 2	2	Challenge 2
Assumption/goal-2		3	Opportunity 3	3	Challenge 3
Assumption/goal-3		notes			
	STRENGTHS		Strengths-Opportunities Strategies		Strengths-Challenges Strategies
1	Strength 1		How do we use our strengths to exploit opportunities within our goals and objectives field?		How do we use our strengths in confronting challenges and/or turning them into favourable factors?
2	Strength 2				
3	Strength 3				
notes					
	WEAKNESSES		Opportunities-Weaknesses Strategies		Challenges-Weaknesses Strategies
1	Weakness 1		How do we use the opportunities to tackle our weaknesses and/turn them into strengths?		How do we use our strengths and opportunities to manage away our weaknesses and challenges or turn them into favourable or strengths?
2	Weakness 2				
3	Weakness 3				
notes					

In this model there will arise six classes of coherent strategies from the self-assessment sessions:

- Strength-weakness strategies that use organisational strength to overcome its own weaknesses.

- Strength-challenges strategies that use the organisational strength to confront its challenges.
- Strength-opportunities strategies that use organisational strengths to exploit opportunities and optimise organisation's performance.
- Opportunities-challenges strategies that use the organisational opportunities to confront its challenges.
- Opportunities-weakness strategies that use the organisational opportunities to confront its weaknesses.
- Weaknesses-threat strategies that aim to relieve the organisation of any facet on it that attracts the challenges and those that create or depend on the facet that the organisation is weak on.

A sincere operationalisation of the above six strategies guarantees enhanced focus on customer satisfaction. An important aspect of strategic planning is to guarantee that each member is listening to the other and that there are sufficient aids to help make the whole proceedings clearer. AC-1, SM-1, AC-2 explained that there was need to be very assertive in talking about what the CUTGBS was failing on and how issues could be improved. They agreed on the need to use more technology in strategy analysis:- projectors, flip charts were occasionally used in meeting and other discussion forums.

5.5.9 Institutionalisation of QFD by deployment of correlation matrices

Staff in the CUTGBS indicated that they felt that some of the work the system required them to do was of little value and of no positive impact to the M.Sc. Programme. Between non-pedagogic and academics each felt was spending some amount of time doing the other's roles. There were sentiments that with incremental institutionalisation of QFD and its eventuating into the mode of doing business in the CUTGBS there was going to be more transparency and better alignments (AC-2). The CUTGBS had gone through one process of aligning courses to proposed future programmes, defining roles within common tasks. A staff member explained that this was not a formal demarcation of jobs but a way to see how synergies could be deployed to exploit each other's expertises (AC-1). More correlations should involve issues such as correlating enrolment goals to staff projections; sector goals;

sector strategies; processes at different levels, etc. Correlation matrices are a good point of departure in interface mapping and in the development of strategic categories. The more intensive the structure-structure, structure-function and function-function correlations the more an institution approximates expected quality to offered quality. Using the Qualitometro method (Franceschini, 2002:148) we find that there are four critical qualitative correlations that help the above approximation. In aligning planned quality with hypothesised quality the CUTGBS was focalising on generating comprehensive data for Product Planning Matrix, focusing on designing processes that reduced and eliminated failure modes (SSPD), market-in, balancing economic and quality goals.

Secondly the CUTGBS was focusing on correlation of offered quality with marketed quality through marketing for Six Sigma (MFSS) by improving teamwork quality (TWQ), intra-CUTGBS communications, and communications between the CUTGBS and other sectors, and being up front. The CUTGBS was focusing training, coaching and mentoring on learning needs in the hope of improving customer satisfaction, doing some interface mapping, focalising on local leadership and the adoption of technology to reduce failure modes (TFSS). All these efforts were directed at correlating planned quality with offered quality. The CUTGBS was heavy on Voice of the Customer but quite light on its subjection to the design of the four Six Sigma roadmaps I explained in Chapter 3. With more open, teamwork based organisational structure in which more decisional and strategic power resides with academics there were huge potentials for approximating expected quality to hypothesised quality.

In a nutshell, the CUTGBS was actively trying to align its goals infrastructure with its objectives network, right from policy-to-strategy correlation through to perceived quality and offered quality and the strategy to the aspirations and ambitions of its staff.

5.5.10 Institutionalisation of QFD by establishing the Absolute Importance

The CUTGBS considered the instructional process as the epitome of its construct of Absolute Importance. A senior official in the CUTGBS linked this perception to the value they gave to the academic staff, teaching technology as well as the acquisition of learning resources. The

CUTGBS was transferring 15 % of its income from tuition fees to the library for the purchase of books for the M.Sc. Programme. They were recruiting only PhD holders or professors. An academic said that their conditions of service were good and that they were treated well. However, this researcher does not find a direct relationship between hardcopy text books and their usability by postgraduate students. This is in the light of some students' claims that they had their own laptops, i-pads and tablets and they could buy the same texts as in the library or better texts online. It is important to realise that student or customer satisfaction is mobile and institutions need to constantly align their policy and concept to the dynamics of customer satisfaction.

In a summative way, the CUTGBS was resolute on that the quality they sought was based on 'fitness for purpose' and that transforming the knowledge base, attitudinal make-up, understanding, belief system and behaviour was their key means of achieving fitness for purpose.

5.5.11 Summary of the institutionalisation of QFD

The CUTGBS adopted the QFD model with differential emphasis, creatively and in a more or less complete sense, every stage of the QFD model was covered. In chapter 3 the thesis

		Level of model adoption	
		Selected parts	Whole model
Mode of adoption	Creative	Selected stages of the model are creatively adopted to fit the context.	Creative adoption of every stage of QFD with variable emphasis
	Dogmatic	Selected stages of a model are adopted as is in the model.	May work with technical; scientific models but unsuccessful with non-technical models particularly for services.

Figure 5.6: CUTGBS's mode of adoption of QFD as synthesised from transcripts

discusses modes of institutionalisation and springboarding from that analysis I propose the above framework in which I indicate the mode of adoption taken by the CUTGBS. The CUTGBS adopted every stage of the QFD model as shown in this section. There was however elements of selectivity in the deployment or use of some tools and techniques (see Appendix 5 and Appendix 6) as was with respect to some conceptions. Figure 5.6 represent this analysis.

5.6 The intensity of use of QFD tools and techniques and the implications on the level of adoption of QFD.

5.6.1 Introduction

The purpose of this discussion is to examine to what degree staff deployed the various QFD tools and techniques with the intention of embedding them into the infrastructure of the structures, procedures, processes and other activities of the CUTGBS. Doing so answers the research question: How effective was the implementation of the QFD tools in the M.Sc. Programme? The analysis is based on the understanding that adoption of a strategy framework happens on a continuum from sloganeering through shallow to deep embedment of the model's tools and techniques in the modus operandi of the adopting organisation. The mix-and-match of tools may differ according to contexts which include perceptions, skills and the configuration of the organisation's factor dependency field or the organisation's emergent design.

5.6.2 Deployment of strategic tools / techniques in the CUTGBS

In this section the research question: ''How effective was the implementation of the QFD tools in the M.Sc. Programme?'' is answered. The use and the modes of use of the QFD tools reflects the depth of understanding of the tool the CUTGBS staff had and the expected level of benefits the CUTGBS could gain from the deployment of the tools. QFD can be used as a high-level strategy planning model and its success lies in the appropriate use of its tools at every stage of the QFD model. Assessment of the profundity of use and the frequency of use of the QFD tools gives a reflection of the level of response, the depth of adoption and the speed of diffusion of the QFD model within the CUTGBS. One of the reasons the CUTGBS had adopted QFD was its realisation that competitiveness is based on proper use of QFD

tools rather than the rituals and traditions of traditional universities. Proper application of tools optimises the three conditions necessary for a transformative education:

- Excellence or optimum performance and contribution of every tool (function) to the QFD effort,
- Consistency of all inputs (materials, procedures, methods, information, people, skills, knowledge, training and facilities) and every activity with the quality goals as expressed in translated Voice of the Customer,
- Effectiveness and efficiency of all structures and functions so as to maximise value for money and value of effort at every stage of QFD.

These three propositions advocate for a new perspective and understanding of excellence, value for money and consistency as means to improved quality performance. In essence, QFD challenges the Harvey and Green (1993) definitions of quality. Studying the transcripts one realises that CUTGBS staff frequently made reference to their use of the techniques in Appendix 5. The purpose of the focus on the tools was on their appropriate use, depth of their use and frequency with which each tool was used. I found a number of vectors along which the strategic tools were being used:

- **information gathering** – interviews and focus groups,
- **environmental scanning** – environmental scanning,
- **competitive analysis** – benchmarking, multiple scenarios and product life cycle analysis,
- **futuristic projections** – forecasting, future studies, trend analysis and sustainable growth model,
- **knowledge building** – Delphi Method, Dialectical Inquiry, Nominal Group Technique,
- **strategy formulation** – Critical Success Factors, Experience Curves, Market Opportunity Analysis, Metagame Analysis, Multiple Scenarios, Product Impact Market Studies Analysis, Situational Analysis, Strategic Gap Analysis, Strategic Issue Analysis

I do not make claim that this classification is watertight. It is my own distribution of the techniques based on how I interpreted my participants' narrations and my perfunctory comparison with literature. Some of the tools could fall into more than one category but I have decided to ignore the weaker in favour of the one with a stronger link.

Frequently used tools

The tools most used relate to strategy formulation or planning. This reflects that the adoption of QFD had opened the scope of activities for the CUTGBS team and that there was a lot of rethinking / reorientation in a number of areas as well as the shift of certain roles from the mother university to the CUTGBS and these roles drag with them the need for use of those techniques. Shah and Nair (2014) refer to academics as disinterested in strategic planning. The situation was quite different with the CUTGBS staff. Also among the frequently used were those tools relating to futuristic projections and competitive analysis. The set of such tools speak of an aggressive institution looking for a secure niche and a robust strategic balance. AC-1 said it was regrettable if any of the M.Sc. Programme lecturers was 'sneaking' MBA stuff into the M.Sc. Programme. This reflected the CUTGBS's concern for a market share and a competitive position and the CUTGBS was working hard to meet its goal of '20 % increase in market share', 'profitability' and 'survival'. The CUTGBS was very concerned about its future and its competitive positioning. I find this high interest logical if we look at it in terms of the initial motivation for the adoption of QFD expressed in Section 5.4 above. Futuristic or forward thinking is a basic engagement of strategists in times of new product designs and during setting up of systems in competitive environments.

Seldom used tools

Seldom used tools included those relating to knowledge building. This does not mean the CUTGBS actually cared less about building a corpus of market intelligence. This argument is premised on the reasoning that the same tools in strategy formulation, in comparative analysis and futuristic projections are equally efficient in knowledge building. In the class of knowledge building tools are the Delphi Method, Dialectical Inquiry and Nominal Group Technique. Knowledge building and management are critical success factors for any business. ''In profound change there is learning'' said Senge et al (2007:22) and learning is the unique competitive advantage of today's higher education institutions. These areas of activities corresponded to the strands in the Strategy Focus Wheel that forms the conceptual framework for the study (see chapter 2). At the lower side of the seldom used tools were

those relating to environmental scanning. However if we should take Voice of the Customer as an element of environmental scanning then 'environmental scanning' jumps the grades to highly used tools because the CUTGBS was heavy on Voice of the Customer.

The importance of improved use of QFD tools has an implication on management proficiency. The apparent shrinking of the distance between leadership and the instructional levels within the CUTGBS could have the effect of aligning management to teaching-and-learning; policy to action, and of integration within the CUTGBS. Aligning and integration help in strengthening the link between the micro and the macro. This is a strategic achievement of QFD in the higher education landscape. Literature is dotted with examples of huge gulfs between the quality as perceived by leadership, policy-makers and management and quality as perceived by academics, students and industry. Academics within the CUTGBS are aware of these incongruence (see Section 5.2) and this may explain the desire for enriched autonomy and CUTGBS's heavy emphasis on strategic planning. QFD has, further to aligning and integrating structures and functions within the CUTGBS and between it and key stakeholders opened for the deployment of the 14 management Best Practice Principles within the CUTGBS.

5.6.3 Deployment of technical tools in the *CUTGBS*

The list of tools on Appendix 6 was constructed from literature review with the initial table consisting of 57 items. On analysis of the initial list I observed that many of the tools or techniques were heavily related to manufacturing in the purest engineering sense and there could be no way most reasonable persons could try and wedge them into the services sector. Consequently the list was trimmed down to 35 tools and techniques. I then looked for tools that carried different names or processes that could be described by different terms and removed the less common terms or names leaving only one which is more common. This procedure reduced the list to 32 tools. I then ran through the transcripts to identify tools and techniques that were already prominently referred to and described during participant narrations. I wanted to springboard my investigations from that prior knowledge. Using this data platform the study observed variable use of QFD tools that are more technical and relating to the methodology of product design and service creation. I did not have a desire to

go into deep statistical treatment of the data beyond assessing the intensity of their use at a qualitative level.

Often used tools

The more often used tools included Benchmarking, Brainstorming, Capability Analysis, Career Path Mapping, Check List, Customer Context Map, Customer Segmentation Table, Failure Mode Evaluation Analysis, Flow-Chart, Initial Capability Analysis, Process Success Criteria, and The Validation Translation Table. This list of tools is indicative of the CUTGBS's orientation towards a teamwork approach and a strong focus on products' and services' Customer Satisfaction Performance. There was an appreciable balance between strategic planning and strategy focusing on quality assurance.

Fairly used tools

The second most used cohort of tools suggests a heightened focus on improvement and innovation as a strategy for quality assurance in the CUTGBS and the M.Sc. Programme. (see Section 3.8). The third family of fairly used tools consists of the Control Chart; Flow Chart; Process Decision Diagram Chart; Tree Diagram and The Validation Translation Table. All of these tools generally are deployed to assess and help in the design of remediation interventions. Because of their assessment capability they are a premise for innovative interventions as well. Relating the intensity of use and the focus of the QFD tools used I propose the following relationship: 'The strategic tendencies of an organisation reflects the net strategic tendencies of the strategist and the teamwork quality of those with the clout to decide what goals to follow and how they should be pursued'.

The CUTGBS core team is composed of Business, Management and Marketing lecturers who appear ready to show optimal distinctiveness by a record of success. This is reflected in the quotations at Section 5.4.2. The CUTGBS was heavy in the use of tools relating to data gathering than to escalation of the data into operational strategies. This should not however be construed to mean that this is a permanent feature of the CUTGBS. Data gathering, data processing or results analysis can feature prominently at different stages of project implementation and presumably institutionalisation of QFD. Most of the tools were fairly

used. The intensity of use of tools and techniques depends on project size and the level at which QFD is being implemented. With a small project like a M.Sc. Programme the use of some tools could cover for the non-use of other tools.

Scantly used tools

The following QFD tools were however not being used: Design of Experiment; Histogram; Robust Design Method; Scatter Plot; Stratification and Matrix Data Analysis. The non-use of these tools may not have serious repercussions on products and services if their other equivalent tools are deployed. QFD proffers the glue for the application of the various tools and techniques by flagging where more knowledge or capabilities are required to enhance customer satisfaction. The quintessence of QFD is to link customer needs to every function of the organisation. Failure in the use of one critical tool within a QFD stage may cause stage-failure. Failure in one part of QFD system creates problems elsewhere, leading to yet more failure, and more problems downstream.

In summary, the CUTGBS was using most tools used in QFD and strategic planning with variable intensity and profundity that matched the importance the CUTGBS was attaching to different stages of QFD. There was evident need to understand its customers, to plan products that aligned to customer needs and to generating market intelligence. In the next section the thesis discusses how the CUTGBS responded to results of both internal and external quality management.

5.7 Staff perception on the implementation and institutionalisation of the QFD model for the purposes of quality assurance in the M.Sc. Programme.

5.7.1 Introduction

The purpose of this section is to discuss staff perception of the management and use of QFD to ensure quality in the M.Sc. Programme in response to the research question: ‘‘What were the perceptions of staff to both internal and external quality assurance interventions?’’

The feeling that QFD could help in internal quality assurance was widely shared within the CUTGBS. Most exhorted in QFD model was its provision of a roadmap of doing Voice of the Customer and linking it to processes that guaranteed Customer Satisfaction Performance.

5.7.2 Response of the CUTGBS to internal quality assurance

The CUTGBS had adopted the QFD stages as part of its internal quality assurance infrastructure. By so doing it had tried to guarantee that every stage of products and services generation was linking to Customer Satisfaction Performance, a point I highlighted in Chapter 3. Staff were required to have detailed lesson plans, mark-lists and a host of other stuff which some felt uncomfortable with. One staff felt these requirements were reminiscent of those for primary school teachers. However, some staff felt that the requirements of detailed lesson plans, remediation and assessments were a good thing as that would show how the teaching and learning was going on. Self-assessments and audits were being encouraged. There was evidence that the CUTGBS was drifting towards taking fuller initiative in quality assurance work.

Staff emphasised that it was basing internal quality assurance on: collecting Voice of the Customer and responding to it [AC-4]; restructuring the CUTGBS to achieve a strong quality-focused team [SM-1]; improving curriculum focus, content and processes [AC-1]; to align training to customer satisfaction [SM-5]; to build the strategic capability required for sustained quality assurance work and ultimately making a QFD approach the CUTGBS instrument of quality [SM-1]. The CUTGBS had also taken the ZimCHE instrument and escalated it to policy and a guide for internal quality assurance. In this light what is discussed below fits both internal quality regulation as well as external quality assurance requirements. Some of the points raised here may sound pedestrian. Those familiar with the discipline of QFD should understand that QFD is about taking an organisation from the state of some currently undesired status to a new and better one. It is therefore possible that a non-QFD organisation can be having superior performance in one or two aspects when compared with a QFD-based organisation at some moments in their development.

Conditions of class / lecture rooms

The M.Sc. programme was launched well after the infrastructure of the university was put in place. A second point to note is that that infrastructure was designed for diploma-level students. The other site that was being used for lectures was formally built as part of a motel's conference room. The third site was initially a farmhouse and part of its extension

was now being used as a lecture room. There was very minimal room for altering seating arrangements. This restriction prevented the use of alternatives forms of student intra-class interactions. The structure would preclude huge group setups which are most important in 'third academy'-based teaching approaches. Here was a case of infrastructure affecting the core of the institution: teaching and learning.

Despite these setbacks the arrangements of seats allowed for clear vision of the screen, flipchart stands, and the whiteboard. There were safety features like emergency escape routes, fire-horses, sand buckets, and fire extinguishers. The CUTGBS had reconfigured a majority of the infrastructure to align with needs of master's level students and also with technology, evident use of Technology for Six Sigma (Voice of Employee + Voice of Market).

Findings on conditions of offices

Offices were quite spacious at the CUTGBS campus with lots of 'free' space for both academic and other staff. Academics were happy with the conditions of their offices, with some saying they had input in the redesign plan. Some of the offices had been previously used for other purposes but were restructured to meet work requirements for secretaries and lecturers, evident of use of Design for Six Sigma (Voice of Customer +Voice of Business).

Conditions of the library

The library in use by the M.Sc. programme students was the same for the rest of university students and staff. Effectively it was catering for more than four thousand people. The CUTGBS was giving the library 15% of its income from tuition fees for the purchase of library material for the M.Sc. programme: a very positive response to Customer Satisfaction Performance. A good number of the students said they were not using the library because they were not getting the required books, or they would rather use the internet to get the same information, while others said they were not borrowing from the library because of the difficulties they would have on returning the books. Lecturers were sending out electronic handouts and suggested reading lists evident of the use of Six Sigma Process Design (Voice of Academics + Voice of the Student).

Findings on conditions of auditorium

An auditorium-cum-theatre was present at the mother university and was 'always available for use by the CUTGBS'. The other two centres in use by the CUTGBS did not have auditoria. Staff in the CUTGBS did not find the auditoria of much use to them and had done nothing about its reconfiguring.

Academic staff promotion

Effectively the CUTGBS was appointing entry lecturers to senior lecturer position with commensurate benefits. This was designed to motivate and retain ''high-quality academic staff'' said a senior manager [SM1]. At the time of data collection (January 2013) there was talk that for tenure a lecturer would have to have at least 10 publications. There was a further emphasis on membership to some professional or technical organisation. The staff promotion criteria were designed to set high 'target values' that aligned with the CUTGBS conception of what is of 'absolute importance' in the M.Sc. Programme. There was nothing linking staff promotion to excellence in performance on things that increased customer satisfaction like for example research leadership. But the gains of recognition and praise were assured, for instance mention on the university website.

Criterion for student admission

Advertisements for enrolments into the M.Sc. programme required at least two years of management experience and at least a relevant first degree from a recognised university.

What was actually two years of management experience was discretionary. This requirement would also exclude young aspiring managers coming from their first degree. A senior manager [SM6] said '... I don't think that on the ground it is such a strict requirement, you see there are issues of numbers to deal with here ...' and an academic said ''... unless some got in through the airvents'' because (s)he was having some students (s)he did not think had met the '2 year management experience criterion'. However the CUTGBS was said to be designing software that would decipher prospective students into categories with an indication of the elective subject most suitable for them. This segmentation of applicants was going to help in issues of curriculum redesign and teaching [AC3].

Minimum number of students

ZimCHE ACCR 2A form says on page 2 that 'Where a programme is so popular that a large number of students have to be enrolled, the number of lecturers should be increased proportionately', but one academic says that the number of students was '... just too large, yaa you see when numbers go around 50, 100 that's too much for a subject and a single lecturer' [AC4] and another said '... sometimes the number factor becomes a burden on quality initiatives, particularly ...' [AC5]. AC3 admitted that it was better for those taking electives as they would have smaller classes. Despite the mediatory effect of technology that could allow class sizes to be larger than 10 students the economic concerns tended to override the quality concerns and overwhelm the regulations on minimum class size. The situation was not different for computer classes which were pegged at a computer-student ratio of 1:5. However some students were bringing into classes their own laptops and tablets. Students desired more to be taught how to run certain programmes on their laptops and tablets than to use university computers. An academic had observed that use of the computer laboratory time had changed with student requirements tending towards request for installation of some programmes and small issues with their gadgets. Previously it was about teaching the student how to open the computer and learn how it works.

Criterion for student assessments

Lecturers were as a matter of policy required to give at least three 'assessment activities' that would be recorded. Academics said it was common practice within the CUTGBS to give one 'class-like' assignment or test and a short research-based assignment and a summative 'more broad and longer-research assignment or activity'. Students felt the assignments were a good thing for their learning and that they gave them a hint as to what mattered for examination [ST4FG2]. Lecturers could upload their notes to a common portal and from the portal each lecturer could peruse the others' notes. The dean and administrator could assess the quality of the notes from the common portal. Lecturers appreciated the use of the common portal and that it had helped them see what content each of them was delivering which was helpful in avoiding content repetition and for cross referencing. Lecturers could also replace the other if for some emergent reason he could not attend his or her class. However an academic said

he had never used the common portal [AC5] despite his / her subscription to the idea of a common portal. The Academy of Teaching was running induction-cum-training sessions in which lecturers were among other things trained on assessment, evaluation and examination techniques. A senior Training manager said that the 'teach-the-professor' project was borne out of a realisation that there could be some misaligning of the curriculum from the synopsis of the M.Sc. Programme to the examination question and the marking schedule. An academic in the CUTGBS said they wanted to see the idealised M.Sc. Programme graduate in the question paper and on the moderated script [AC1].

Criterion on examination procedures.

The examinations department was on the lookout for any infringements and activities that could put the Chinhoyi University of Technology in disrepute. A transparent but high security system was in place. There were numerous boxes in which students could drop in a note on suspected examination leaks and an ethics hotline was also available to which anyone could call. An ethics e-mail address was also made public to all university stakeholders. Stakeholders were also using the facebook and other media to discuss university issues.

Many felt that fear of exposure was a key deterrent factor. A senior university manager [SM6] explained that they operated an examination paper bank and no one would ever know which paper would be raffled out for the particular examination. ''When a few minutes before an examination starts we conduct a raffle of more than ten papers who could have ever dreamt which paper was likely to come?'' Lecturers were required to do detailed lesson plans with objectives, methods and assessments. Internationally various types of unethical behaviours have haunted higher education including sex for marks.

5.7.3 CUTGBS response to external quality assurance mechanisms

The CUTGBS had responded to ZimCHE regulatory requirements by internalising these into its internal quality assurance infrastructure. This is actually one of the things that make QFD a more powerful tool for quality assurance. It takes critical quality issues to the centre of the organisation's Strategy Plan. It was active in the association of discipline and subject Heads. The CUTGBS was following ranking systems with an idea to benchmark best practices.

In summary, the CUTGBS had escalated general accreditation and registration criteria of the ZimCHE into its own criteria and standards of quality assurance. It had further to those mandatory requirements incorporated SSPD (Six Sigma Process Design), MFSS (Marketing for Six Sigma) and TFSS (Technology for Six Sigma) roadmaps to try and raise these standards to above the threshold points regulated by the CUTGBS.

5.8 Management's response to the results of the application of the QFD model

The QFD model was adopted within the strategic desires of the Chinhoyi University of Technology to proffer quality education to the nation. Being a new adoption it raised anxiety in management because whatever the results of its implementation, would have far-fetched implications across the university. This section discusses the research question: How did management respond to the results of the application of the QFD model? The idea one would get from narratives of participants was that for the CUTGBS, QFD was an approach to management that ensures that every process, structure, activity, tool or technique and their interfaces were working optimally to render highest levels of quality products and services.

In the structure of QFD shown earlier in this chapter is an assessment-evaluation loop for each stage of the QFD. In essence the CUTGBS was running intra-stage assessments and evaluations. These would also be run posterior to every stage and both reactive and proactive action was being taken. Running the Voice of the Customer had helped the CUTGBS realise unexploited niches and opportunities to which it was responding by launching in 2015 a master's degree programme in Business Intelligence. The response of management was to support the launch of the M.Sc. in Business Intelligence Programme. Academics in the core QFD team explained that they had come up with the idea of the Master's in Business Intelligence from their analysis of Voice of the Customer [AC1]. The industry and students were said to have suggested that the CUTGBS consider some content areas that were not in the M.Sc. Programme curriculum and others had requested that greater emphasis be placed on some areas than others [AC3]. The CUTGBS was also launching short courses in other discipline areas like Project Management.

Implementation of QFD had shown that some of the training offered at the Academy of Teaching was not meeting some of the needs and requirements for effective implementation of QFD. The CUTGBS had began to augment university-wide training sessions with their own upskilling projects designed to improve skills in areas of CUTGBS special needs. Technical competences were being emphasised, including the use of software in running different programmes. All these projects had been approved by the university management from the level of Academic Board, Faculty, through to University Council. We take the assumption that the approvals were a sign of positive response to what QFD was achieving for the CUTGBS. An academic within the CUTGBS was offering 'sit-by-Nelly' training to peers in statistical and mathematical areas including how to design some matrices.

The CUTGBS was eventuating into a high-tech institution with most decisions being data-based. University-wide training sessions had special focus on teaching, curriculum design, and other technical-administrative issues. Both the Chinhoyi University of Technology and the CUTGBS had learnt that there was need for more autonomy on the part of the CUTGBS. I have referred to this as enriched autonomy because both sides were realising the context-driven need for that amount of shift in decision-making loci. The CUTGBS was increasingly becoming the locus of many important decisions. The increasing support and commitment of management to CUTGBS projects launched under the auspices of a QFD approach could mean that the model was helping in generating positive response from management.

Organisational structural designs and managerial actions have an undeniable impact on team processes including those resulting in generation of individual and organisational identity and in decision-making processes in the team. The current granting of decisional power to the CUTGBS was giving it the strategic agility that goes with competitive markets. Most requirements from the ZimCHE had been escalated to policy and standards of work in the CUTGBS.

The CUTGBS started off with a small number of PhD holders and felt the need to upgrade the quality of its staff by sponsoring oversees PhD studies. University management took on

the idea and by 2013 eight staff were being sponsored for international PhD studies at university full cost.

The university was also supporting any CUTGBS staff including with paid leave for any study endorsed by the CUTGBS management. The implementation of QFD in the CUTGBS had influenced management to give a status almost like a pilot project with little regulation and extended support. These responses to the CUTGBS were being found encouraging by CUTGBS even though they felt these were but rolling out slowly in some cases.

One academic had wondered:-

> "If training everybody in anything is what quality is, that is there. But if it is what I understand it, collating activities across the institution and subordinate them to a quality objective that one is not there." [AC1]

AC1 was observing some confusion about what a 'learning organisation' is and 'organisational learning' should be.

The Academy of Teaching was actually running induction-cum-training that took 'serious note of the requirement to see that lecturers have appropriate teaching skills'. Lecturers felt the training offered was important and a worthwhile effort. The CUTGBS was taking part in such training and in one interview academics AC-1, AC-5 and SM-1 explained that management was thinking of the CUTGBS be a source and designer of some training particularly on strategy focusing and quality management. The feeling was that the CUTGBS was scoring well on the Balanced ScoreCard and should be a good instructor on how it is done.

The use of Voice of the Customer had shown a number of necessitated changes, like in the naming of subjects and restructuring of the M.Sc. Programme. A request was forwarded to the University Senate and was quickly sanctioned. AC-3 in reference to this says that the CUTGBS has become known for following Voice of the Customer and that the management appreciated the importance of their proposal because they knew it reflected what matters to

us, to the university and to the idea of Customer Satisfaction Performance. The Research Methodology subject had been moved from semester 3 to semester 1 to enable students to begin framing their research projects immediately. Academics variably explained this in terms of Target Value analysis and Product Planning Matricing, both which are manifestations of QFD's Voice of the Customer.

The CUTGBS had muted a plan of a 'state of the art' campus which had already been endorsed by the management. Staff in the CUTGBS felt QFD had thought them a 'kind of way of thinking' and 'getting things done' through creating own opportunities [AC-4].

In other ways management was responding to the results of the application of QFD in the CUTGBS by supporting, providing resources and taking a detached engagement approach. Trust with the ZimCHE was said to be strengthening and a Director with the ZimCHE said that the Chinhoyi University of Technology and the CUTGBS were very responsive institutions.

5.9 Conclusions

In this chapter the nature of QFD was discussed, plugging perspectives of scholars, practitioners and the CUTGBS staff into each other. QFD offers a philosophy, methodology and the toolkit for assessing and evaluating quality in the M.Sc. Programme and the CUTGBS. A new epistemology of quality, with new courage to initiate unfamiliar ways of quality assurance is long overdue. In the new perspective shown by this research the traditional definitions of quality are challenged. The possibility of a concept of quality defined in terms of a conscious purpose rather than a constituent-based one is advocated. The depth a model penetrates and cements in an adopting organisation can best be measured by the intensity with which the key facets of the model are used. The CUTGBS was responding to QFD by adopting of its stages and some of its tools. Creative and context based adoption are a better strategy of model use because that gives the adopter room to self assess, to built the necessary resources and strategic capabilities at each stage without choking self. The Chinhoyi University of Technology was learning from CUTGBS and were providing

solutions to every shortcoming exposed at each key QFD stage. QFD flags shortfalls and show how these can be remedied.

CHAPTER 6 – DISCUSSION, RECOMMENDATIONS AND IMPLICATIONS OF THE STUDY

6.1 Introduction

This chapter discusses the research findings and proposes recommendations and implications for various stakeholders. It should be borne in mind that this discussion on QFD, unlike most discussions of QFD in most research like those cited in chapter 2, is about all the stages of QFD because the model was adopted in its wholeness.

6.2.1 General discussions of the results

Figure 6.1 below represents the four elements that constituted the research problem.

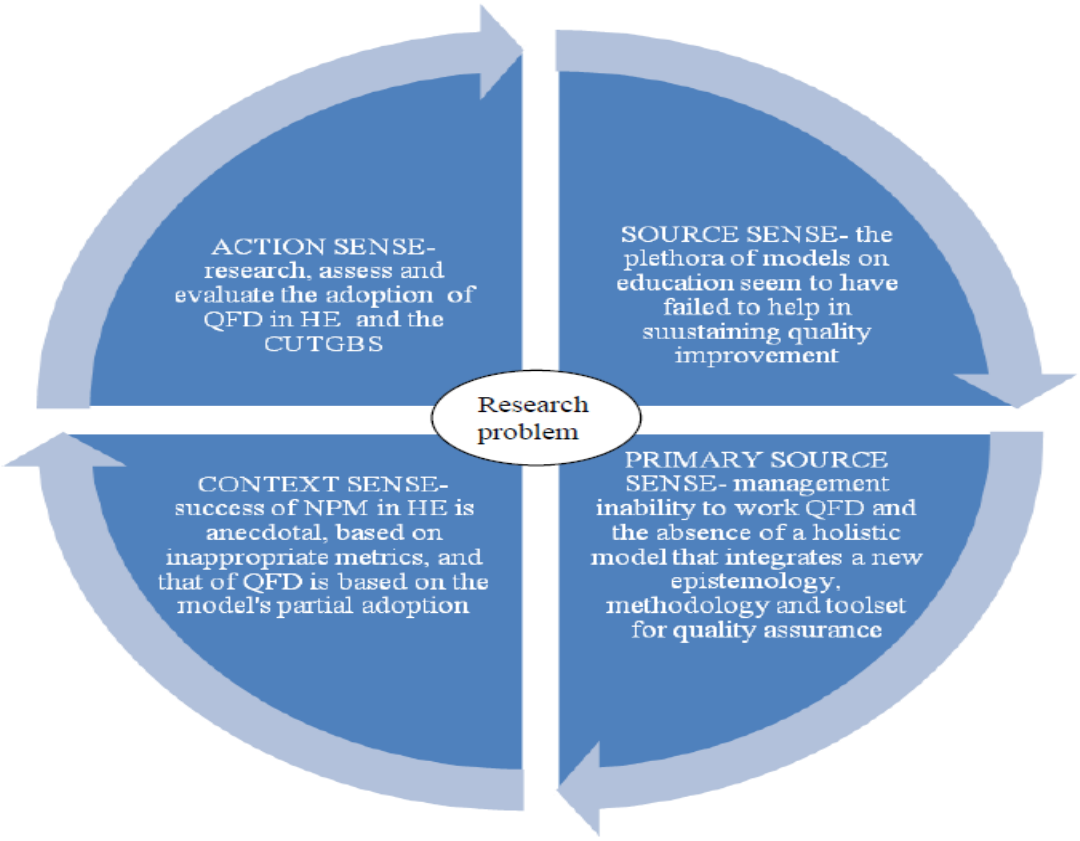

Figure 6.1: The four senses of my research problem (Kilbourn, 2006)

The interwovenness of these elements will influence the texture and flow of the discussions in the sections that follow. The research contributed to our appreciation of quality and quality assurance and to a growing but still limited understanding of the adoption and implementation of New Public Management (business) models by examining how the CUTGBS adopted and diffused the various stages and tools of QFD and its implications on the quality of the M.Sc. Programme. Research in education has developed rather slowly, is widely diverse and is limited in scope (Newton, 2000:153; Ehlers, 2009:344; Haggis, 2009). This has resulted in an archipelago of miniature advices and recommendations that practitioners find difficult to see how each plugs in with the rest (Ramirez, 2013). In the CUTGBS most staff combined industry and academic backgrounds in areas where numerous aspects of QFD and managerialism are commonplace. This seems to have contributed to the CUTGBS's confidence and ease with QFD. I wonder whether that amount of ease could characterise people without prior expose to some elements of QFD and managerialism. QFD uses the Theory of Constraint to incessantly identify constraints, resolve them and handle the process in a more holistic and synergistic manner.

6.2.2 Discussing the nature of QFD

The CUTGBS were using QFD as a problem-identification tool and a problem-solving tool thus bringing about desired change in a number of areas, particularly governance, diffusion of experiences and strategic focusing. A huge amount of change occurred in the CUTGBS through linking the four strands of the Strategic Focus Wheel and the 14 Best Practice principles (see chapter 2 Table 2.1) and deploying the disciplines of systems thinking, team and organisational learning, mental models, self-governance and shared visions. Strategic planning in most organisations tends to be a loosely coupled process, often rushed and coerced. Done in this manner the process miscarries and forfeits itself of the opportunity for internal criticism and of rooting and anchoring itself in detail on the hard-to-see and not commonly discussed issues of the organisation. Faced with a crisis, human tendency is to urgently seek an urgent 'solution' whatever it is.

Apparently the CUTGBS took a slow-motion-approach putting more emphasis in self-assessment and laying out a roadmap for deploying quality in everything the CUTGBS has

and does [SM1]. Taking time to build the infrastructure for a goal-based change and taking small steps at a time gave the CUTGBS space and time to learn, mobilise late adopters, integrate, align, resource for the medium term and build necessary strategic capabilities. All these behaviours are the genotypic characteristics of strategic risk management and the application of the Theory of Constraint. Values voluntarily chosen and cautiously assimilated find strong and enduring support. Patience, organisational learning, managing strategic, systems and operational risks on a continual basis seem to be key success factors in strategy focusing.

Contributors to final validation appraised the feasibility of the QFD model where CR-2 and CR-6 specifically stressing the need for providing QFD-based training on an aggregate basis as well as on a role-based approach. These comments tie in with the CUTGBS's efforts to augment university-wide training sessions with own learning-needs through focused in-house training. It also ties in with recommendations abounding on QFD / Six Sigma blogs. In literature Franceschini (2002), Ficalora and Cohen (2009), among others, stress the need to continually raising capacity of staff right from White / Yellow Belt level to Master Black Belt levels. Such in-house training can be locally certificated which the mother university was already doing in response to Voice of the Employee. From this background I discuss what QFD meant for the CUTGBS, why it was adopted and how it was being implemented.

6.2.3 Discussing the motivation for adopting QFD

The CUTGBS adopted QFD for a number of short-term, medium-term and long-term strategic reasons. It had become a tool for improving strategy focus on quality, financial, organisational cultural, reputational and self-verification purposes. QFD had become a mode of thinking, assessing and evaluating the market and marketing relationship between the CUTGBS, its students and the rest of its stakeholder community. To the CUTGBS, QFD offered an alternative to what would otherwise be a cumbersome implementation of a plethora of disjointed quality assurance models (see Chapter 3). Despite the numerous models, literature has numerous accounts on the failure of institutions pursuing these models to develop market-oriented curricular. Two weaknesses explain this apparent disconnect. Firstly, the models touted in literature are monolithic and tend to miniaturise the process of

educational leadership and management or the instructional processes. I have not met a model that systematically appreciates the inseparability of management strategies from products / services strategies. Most models dedicate to either educational leadership or management philosophies or to instructional methodologies and processes. For the CUTGBS, QFD was increasingly becoming a philosophy, the methodology and the tools for managing quality and improving customer-orientation of products and services in ways that enhance customer satisfaction. It was offering a framework for understanding quality in a holistic manner that combines organisational culture, the structural dimensions of the organisation, relations and processes in between the CUTGBS and the mother university. Understanding the duality of QFD provides for a new epistemology of quality, a way of appreciating that profound change cannot come about in quality assurance by just changing the models, structures and strategies. For profound change to embrace quality in higher education the above changes are not enough: changes in models, structures and strategies must be leveraged in a change in the paradigm, the philosophy or the thinking that produced them. This point of view optimally distinguishes QFD from all other quality models: it proffers the philosophy and its tools plus an accompanying methodology together with its tools and teaches us that each needs the other. A philosophy without a methodology is as barren as is impotent a methodology without an underpinning philosophy.

Contributions from the validation study stressed the most ignored part of model adoptions: the impact of the model on management and the amount of change that the model will require on the part of management philosophy and practices. CR-5 said that QFD was working in the CUTGBS because the CUTGBS management had surrendered to the model, accepting it to give them a new way of understanding quality, management and processes. CR-2 stressed that no NPM model will sustain in traditional bureaucratic management.

6.2.4 Discussing staff response to QFD's stages

Organisations do not adopt models. The people in the organisations adopt models and translate them into organisational strategies for accomplishing goals set by the organisation. We assess the response of people to a model by investigating how the stages and tools of the model were adopted and deployed in the various organisational processes and whether staff

consciously worked them into the fabric of the institution. A QFD mentality had become well assimilated in the ways of doing business in the CUTGBS. QFD emerged in the CUTGBS through a process akin to Pugh Concept Selection as a model that responded to the datum of strategic issues raised by individuals and sectors within the CUTGBS and its interpretation and translation of its environmental analysis. This complex relation between the CUTGBS formal design and its emergent design features can be simplified in Figure 6.2 below.

This was a case of a context (problem) looking for a model. The inverse is where management chooses a model and dictates its adoption, like medicine looking for a patient or a solution looking for a problem. A clear understanding of the context should be a better point from which to share visions of the future and what models can best connect the organisation with its context and the shared vision. Good models must cater for the human aspects, resources aspects and relational aspects of an organisation. QFD was adopted in a rather creative way. In chapter 2 I discussed most adoptions of QFD but these involved mainly the Voice of the Customer component of QFD and the adoption of Product Planning Matrix. There was also positive response to the way QFD was being institutionalised.

Contributions from the validation study were that Voice of the Customer was undoubtedly a critical component of newer strategies aimed at improving relevance of curricular to industry, society and students. CR-1, CR-3 and CR-6 particularly appreciated the efforts in linking the M.Sc. Programme to Voice of the Customer. They were joined by the other contributors in that at the national level the other pillars to quality: Interaction between the ZimCHE and Students; between Industry and Students themselves was developing rather slowly. In more general comments CR-4 felt that addiction to traditional ways of doing things was delaying the inclusion of technology and an abundance of software in processing of Voice of the Customer and in their use in curriculum development efforts.

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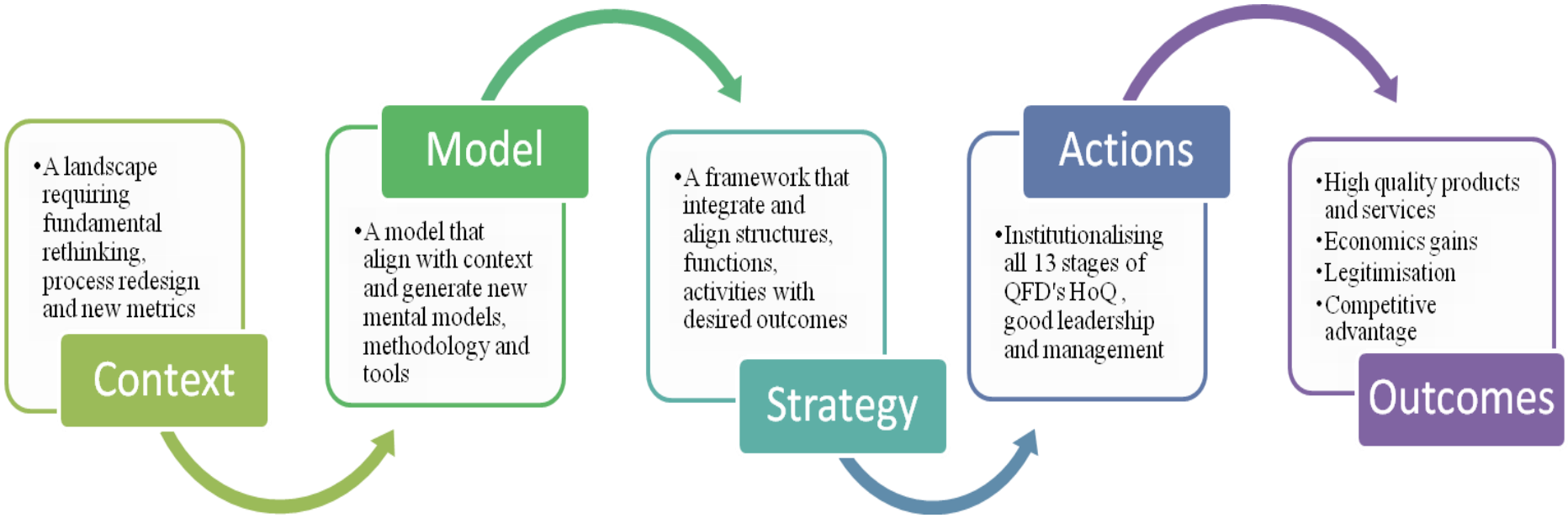

Figure 6.2: The relational nature of context, model, strategy, actions and outcomes.

Staff's positive response to the QFD model was further shown by the commitment shown by CUTGBS to implementing every stage and most tools of the QFD model. There was also positive response to the way QFD was being institutionalised. This could be drawn from how staff explained their teamworking through all aspects of the QFD methodology and how they expressed a feeling of strategic bundling. This positive atmosphere could have been generated by the active inclusion of staff members right from the selection of the model and the increasing strength of the core team and the local leadership approach. The increasing shift towards a local leadership approach was affording the CUTGBS team members more clout and influence as strategist (see chapter 2). For some, QFD was becoming the vehicle of what Senge et al (2005:76-77) call 'presencing' – the state of becoming totally present to what is happening inside oneself, around oneself and what is emerging through oneself.

Figure 6.3: QFD influencing the way strategy planning, change-project management, implementation and risk management were done

Models translate into strategies the moment their elements begin to be implemented. QFD was being worked to instil a culture of *kaizen* or continuous improvement by influencing key organisational processes as shown in the figure below. The three-prong approach to improvement covered human skills, teamness intelligence and improvement of impersonal infrastructure. QFD was becoming a game changer by improving clarity and focus in strategic planning and in aligning and integrating processes and goals in ways that made the strategies work better. The 13 stages of QFD were treated as mini-projects giving the CUTGBS a strong sense of what needed be done, why and how. A special form of systemic and systematic thinking was evident. Apparently the CUTGBS had recognised and were exploiting the self-assessing nature of the QFD model. QFD was facilitating the management of model-based risks and of extra-model constrains. The CUTGBS had placed QFD at the heart of its life. A model is as handsome as it does, just as the worth and value of a vision is measured by what it gets done on the ground. Assessing staff response to a model should have implications on the design of structure-structure, structure-function and function-function relationships as on conditions of work and remuneration so that conditions for catalysing and enabling are reinforced. The quality of a response has a knock-on effect on the intensity of use of model tools and their diffusion rate.

6.2.5 Discussing the intensity of use of QFD tools

Because models work through their tools, the best way to differentiate superficial from deep adoption and instutionalisation is to assess the intensity of use of its parts, its tools and techniques. A high intensity of use of data gathering, strategic techniques and other survey tools was evident as discussed in Chapter 5. However the quality of the tools normally used need great care and attention. I should think that the CUTGBS should have designed and refocused the SETE. Students, just like all customers prefer products and services concepts that meet their needs and wants and such tools as direct-rating, constant-sum and anchored scale help in completing the picture of what is needed and wanted (Griffin and Hauser, 1993:17). Using control systems that are not in perfect synchronisation with a strategy has the potential of challenging strategy-aligned changes thus weakening or worse, eroding the will to work the model and buy-ins to the strategy. Understanding QFD stages or key performance thrusts and the totality of tools and techniques that may work within QFD

should influence quality performance at each stage, the quality of each stage's contribution to the perfomativity of other stages and to the overall quality of the model as implemented by the organisation. Each model has its wow effect, either in the positive or negative.

Reflections during the validation sessions were that as a new model to a majority, there was need to proffer training and to take time and patience with those expected to enact the model and to understand it. CR-2 pointed out that every stage of the QFD was possible and necessary and there is need for showing members why every tool is important, how it is important and how to learn how to work with it.

6.2.6 Discussing staff perceptions on QFD as a quality assurance tool

Watty (2003) observed that academics normally have a distinct perception of quality as compared to other stakeholders. From comparative inquiry there appear a further divide among academics: those who subscribe to one or so of the quality theories and models in chapter 3 and those who have novel ideas about quality, maybe based on new public management (NPM) theories, total quality management (TQM) or QFD etc. Trowler (1998) observed four categories of responses: sinking (accepting that things were good as were and there was no need to change), swimming (buy-ins who saw opportunities in the new), using coping strategies (half-hearted ones, going with the current) and policy shapers (wanting a new policy regime that enable the new wave of change).

McMurty (1991), and Parker and Jary (1995) had earlier classified academics as 'sinking' under the supremacy of management, something equally suggested in Jnanesh and Hebbars'(2008:2) model of correlation matrix. Newton (2001) describe two perceptions: a feeling of intrusion, inspection and bureaucracy and the other of conformist behaviour. Nothing of the categorisation of McMurty nor of Newton or Towler's sinking, was evident in the CUTGBS. A common perception of quality echoed among students, academics and QFD-based literature is fitness for purpose. But whose purpose would it be if not the one defined by the four voices: student; academic, market (industry), business (quality regulator)? Building from transcripts and the development of categories Harvey's constructs of value for money, consistency and exceptionality adopted a new meaning in the context of QFD. Figure

6.4 below link them to the Six Sigma roadmaps. If the student-industry is the primary customer of education then improving student knowledge, attitudes, skillset, understanding, behaviour and belief system should be the primary purpose of education. The essence of such improvement consists of transforming the student from current to new and superior levels through a transformative instructional process. The vectors of change that lead to such transformation must embed four issues. One is Design for Six Sigma (DFSS) which is directed at reducing and eliminating constraints (structures, relationships and mentalities) that make the organisation dysfunctional. The second being Six Sigma process design (SSPD), which is directed at reducing or eliminating processes that waste resources and make the organisation less effective. Thirdly would be Marketing for Six Sigma (MFSS), which is directed at reducing or eliminating relations and external competences that don't improve customer satisfaction. The forth being Technology for Six Sigma (TFSS), which is directed at use and adoption of technology that enhance Customer Satisfaction Performance.

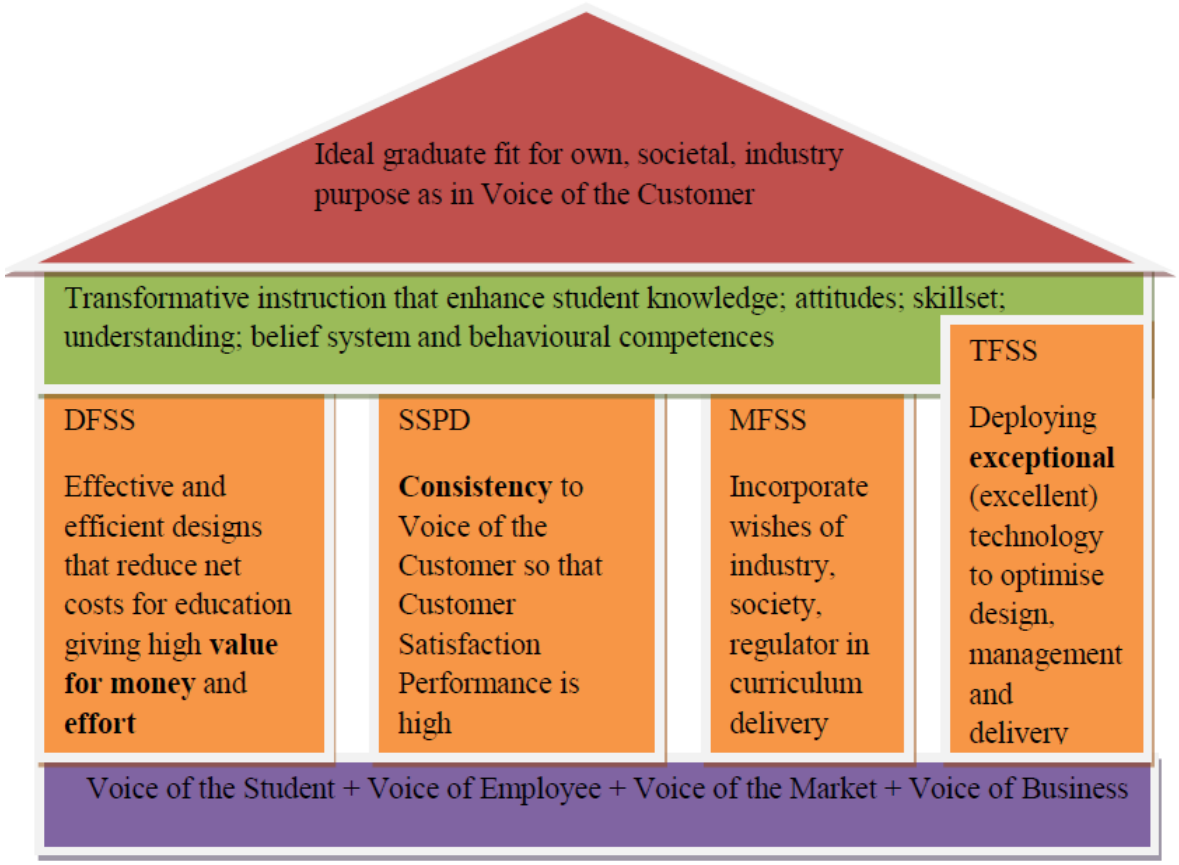

Figure 6.4: A holistic construct of quality as synthesised from literature and transcripts

Achievement of DFSS saves resources thus allowing for their deployment into stages and processes that increase net value to student. This deliverable is what both Harvey and QFD call 'value for money', definitely not a definition of quality but a pre-condition for quality. With increased effectiveness and efficiency value for money increases because costs are reduced thus the felt value-for-money effect goes up. Achieving Six Sigma Process Design implies that organisational processes are subordinated to and consistent with Customer Satisfaction Performance, definitely not a definition of quality as advocated by Harvey. Achieving Technology for Six Sigma means the organisation is adopting exceptional (excellent) technologies that have a heighten impact on Customer Satisfaction Performance. Thus exceptional or excellence does not define quality but is a pre-condition for superior quality.

The CUTGBS's House of Quality shown above is holistic in that it proffers a roadmap for front-end incorporation of voices of professional organisations and quality assurance agencies rather than the separate treatment they receive in traditional models. Apparently there were issues with working each of the four roadmaps. These included minor resistance to structural reconfiguration, adoption of newer processes and revoking deeply seated processes, redefining metrics for market success and negotiating power over definition and verification of technology for acquisition. The positive response to QFD and its becoming the overarching statement of an epistemology or philosophy as well as methodology for quality assurance generated an innovative approach of (re)looking at quality. However it raised questions of governance, model diffusion, strategy and purpose from university management on the CUTGBS. What should be the optimum amount of autonomy to grant out? How would the deliverables of QFD influence other sectors of the university? And how will ideas about strategy and purpose impact thinking, behaviour and procedures across the university? Acceptance of QFD as a driver of change in terms of a quality paradigm means we should ready ourselves to rethink who ought to hold the prerogative of defining quality, to rethink about matching models of quality with appropriate measures, standards and metrics, and to validate the model of quality proposed in the figure above. A deeper analysis of literature actually show a huge convergence in 'fitness for purpose' as the fundamental construct of quality: students want to be fit for (self)employment; industry want graduates who are fit to

be employable; society want people who are fit to propagate goodness. Lomas (2002) say that HEIs voted 'fitness for purpose' followed by transformation as most closely matching their definitions of quality.

Validation results suggested what most participants in the main study felt – that staff response and perception of QFD was positive. CR-3 and CR-1 suggested that model sustenance is a complex function of how those protagonising or 'case-owning' the model make it enjoyable and worth-while to be involved with the model.

6.2.7 Discussing management response to application / results of QFD

The strengthening of a QFD approach in the CUTGBS had a compelling effect on its relationship with the mother university. Assimilation of QFD had a behavioural, managerial and conceptual impact on the CUTGBS and consequently on how it had began to relate with its environment. The director of the CUTGBS explained how it operated like a small company, and like a university department. Staff of the CUTGBS were clear about centring major decisions relating to the CUTGBS on the CUTGBS staff and thought it was going to be a long and 'very peaceful' process which management would support because it was the only way to enable the CUTGBS to be competitive. Interestingly, the CUTGBS was tending toward treating the other sectors as its internal markets.

Management was giving necessary support in terms of advice, resources and remodelling the accounting requirements. The CUTGBS staff were apparently trending toward corporate federalism in which they wanted greater autonomy and treated other sectors of the university as customers or markets. The university management was apparently satisfied with the performance of QFD and were approving (2013) the launch of new master's degree programmes and short-courses. QFD had facilitated in drawing up a clear and convincing Project Plan and business case for each of the programmes. I presented the following responses of management to application of QFD in the CUTGBS: the granting of greater decisional powers and more areas of responsibility; allowing the CUTGBS to run its own in-house training rather than giving over such responsibilities to the Academy of Teaching; treating the CUTGBS as a pilot in the implementation of QFD.

Contributors generally felt that giving lots of autonomy was a 'win more – win more' type of strategy to both the mother university and the CUTGBS. CR-4 specifically pointed out that policy issues in traditional universities are incompatible with new public management models like QFD. In this light giving the CUTGBS a 'pilot' status would free it of the constraints of such inhibitive policy regimes.

6.3 Specific recommendations and implications of the study

Recommendations are here made to various stakeholders. In crafting them, an analysis has been done of the research data and of observations from literature review.

6.3.1 Recommendations to the Ministry of Higher Education

The study has observed that the Ministry maintains a long-hand oversight of management in higher education institutions. I find this commendable in that it gives institutions the space to respond with greater relevance and agility to arising issues. It is recommended that the Ministry provides grants that are specific to institutions as well as extend the work of the National Manpower Council to profile skills supply and demand levels and basic competence levels for all levels of qualifications. Understanding the current and future skills demand-supply situations should help in crafting national areas of emphasis and resource allocation decisions. This should as well create a context from which higher education institutions would 'benchmark' and draw focus for curriculum design. The implications of offering institutions greater autonomy is that they are able to respond faster and better to their environments. The presence of qualifications descriptors should guide providers as to what is currently meeting or not meeting national standards levels.

6.3.2 Recommendations and implications to the ZimCHE

The fact that the ZimCHE prioritises its strategic and coordination roles is commendable as were its efforts to let the nation understand its role in assuring the quality of HEIs and their offerings. Standing firm on quality assurance decisions is a crucial intervention in that it indicates to the market of providers that quality issues are taken seriously. Taking a co-ordination position should help in making institutions understand that they have the capacity to do quality assurance work in their own institutions. A nation that understands the role and

context of work of a quality assurance agency is likely to give the correct feedback, recommend viable actions and engage in value-adding collaborations therewith. Collaboration brings new ideas, more resources and better quality performance.

6.3.3 Recommendations to the Chinhoyi University of Technology

The current situation of synergistic integration with the CUTGBS is a legal and vital relationship. Running an institution from own profits and looking for research contracts and consultancy work are typically facets of the open market. With the cut-throat competition of the open market it is crucial that today's postgraduate business school be granted space to be very flexible, agile and out front. With greater autonomy the CUTGBS should find it easier and more rewarding to align its policies and strategies. With this proposed autonomy the Chinhoyi University of Technology can keep oversights over quality assurance and programme development issues as part of Regulatory Requirements, Voice of Business and Voice of Market.

6.3.4 Recommendations to the Directorate of Quality Assurance

Setting up an internal quality assurance infrastructure may take a number of months or even years. For it to be fully effective requires that such an agent build strategic capabilities in all areas of operation. There is a need to improve the skills set and competences of the Directorate's staff and strengthen the improvement-orientation approach to quality assurance. High competence levels of staff improve the feeling of confidence within the Directorate and the legitimacy bestowed to it by externals. Section 3.4.7 highlighted the value of skills in gaining legitimacy and respect from the stakeholder groups and in Chapter 3 I highlighted how an improvement-oriented approach supersedes a compliance-oriented approach. Success of Directorates in Quality Assurance in heterogeneous HEIs should be in terms of their ability to encourage diverse sector-based improvements and innovations not only in the departments but catalyse these in none-pedagogic pockets of the university as well.

6.3.5 Recommendations for researchers and scholars

There are a number of issues that can be studied in HEIs. Some of the more attractive areas that would require more insightful understanding include:

- How different stakeholders perceive the impact of strategy planning on institutional performativity.
- The impact of Voice of Customer on the market behaviour of HEIs.
- The use of the theory of Product Planning Matrix on the design of higher education curricular.
- Conception of Absolute Quality and its influence on the strategic behaviour of the provider institution.

Research may also focus on the relationship between the length of master's degree studies and the amount of learning that graduates feel they gain. Some respondents felt the curriculum was 'microwaving' them, that they needed more time to digest the content. While such concerns were prominent with students and alumni, Senge et al. (2012:501) said that new curricular and delivery modes need to shift towards 'imparting higher-order thinking skills' and laments that '... a high-pressure curriculum might influence people to short-cut the cycle' asking 'who has time for observing or reflecting when you're trying to drill your way through the material?' (p. 158). The implication of such study is that we understand how best to deliver curricular that is relevant and recognised for what we call the certificates of qualification.

6.3.6 Recommendations to the Chinhoyi University of Technology Graduate Business School

QFD core team

Recommendations are made here for the CUTGBS to include more people in the CUTGBS board with the focus to increase the number of contributions, perspectives and background experiences in diverse fields of industry, professions and society. The implication of inclusivity is that decisions are more informed, are more convincing, and would therefore have more serious support.

Voice of Customer

Voice of Customer is the entry point into QFD's House of Quality and recommendation is made as to the value of collecting data about all stakeholders, processing it and transferring it into a database for factoring in future decisions. A better understanding of Customer

Satisfaction Performance and customer requirements should help in approximating offered quality to expected quality. However this is a function of the rigour with which the Voice of the Customer is processed and escalated into policy and governance.

Regulatory requirements

The study observed that the CUTGBS complies with the basic technical, normative and regulative demands from the ZimCHE. It is good business to abide by regulations within the area of business as this reduces the frustrations that follow penalties and disputes with the regulator.

Product Planning Matrix

The CUTGBS was producing a number of products and services, which is recommendable in HEIs. Trying to involve others in the design of the products and services is also recommended. Wide participation or incorporation of diverse expertise and insights should improve the quality of products and services offered and particularly the graduate attributes. Design of Product Planning Matrices should ensure that all necessary aspects of Voice of the Customer are catered and the use of some software should help in linking Technical Descriptors with each need-want and the variance between planned curriculum with the offered and with the expected. With Product Planning Matrices it should be easy to link instruction with ideal graduate attributes. Figure 6.5 below shows how the demands link with quality of graduates.

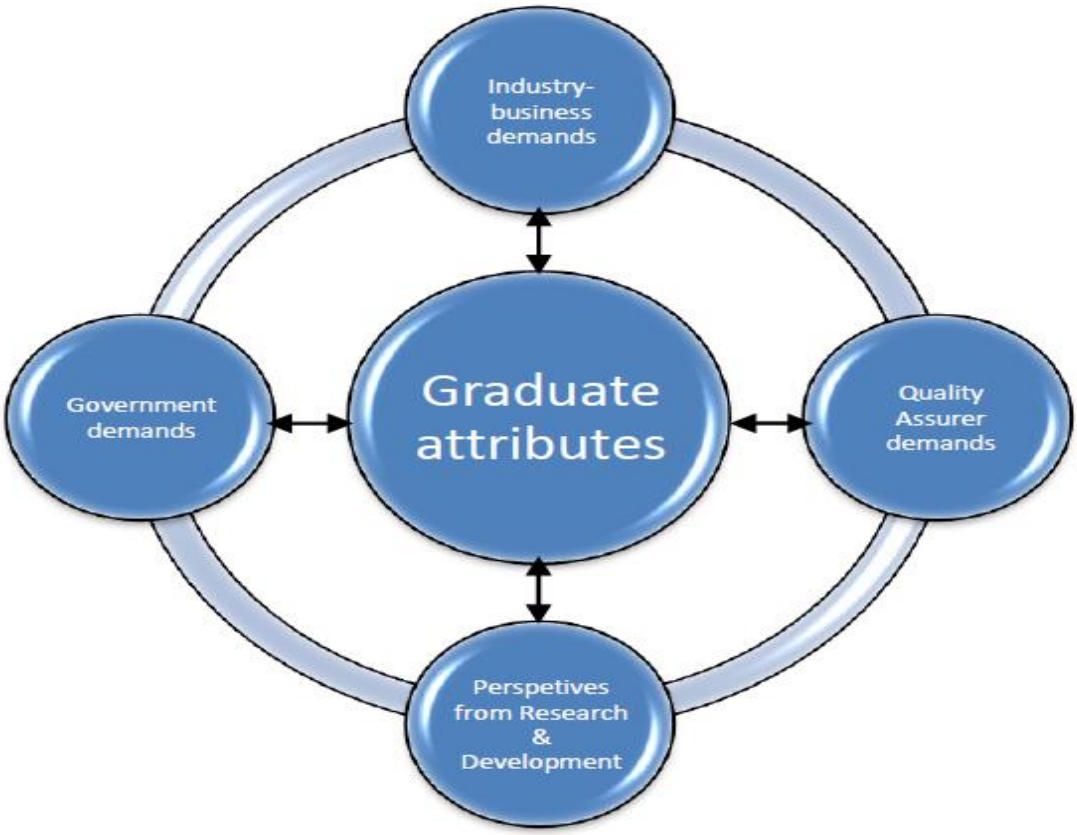

Figure 6.5: The different demands and their influence on graduate attributes as synthesised from literature: the context that should inform course design

The important determiners of net academic, technical and social competences of the master's degree graduate are the results from Research and Development, quality assurance agencies, the market and business. Extending this idea beyond a programme challenges this perception as inadequate because it reflects a new or improved methodology but without a commensurate philosophy. During the validation sessions, participants felt that a philosophy / epistemology or mental model of management could fit in this scheme as shown below. The idea here is that HEIs should define quality in terms of fitness for purpose from whence they define the characteristics of the ideal programme graduate. An understanding of the ideal programme graduate should inform decisions on the tools of instruction and the methodology of deploying quality at the programme and lesson level. But this alignment and integration can only arise from an enduring philosophy or epistemology of quality that should be present in academics, management and students alike. Figure 6.6 show this relationship.

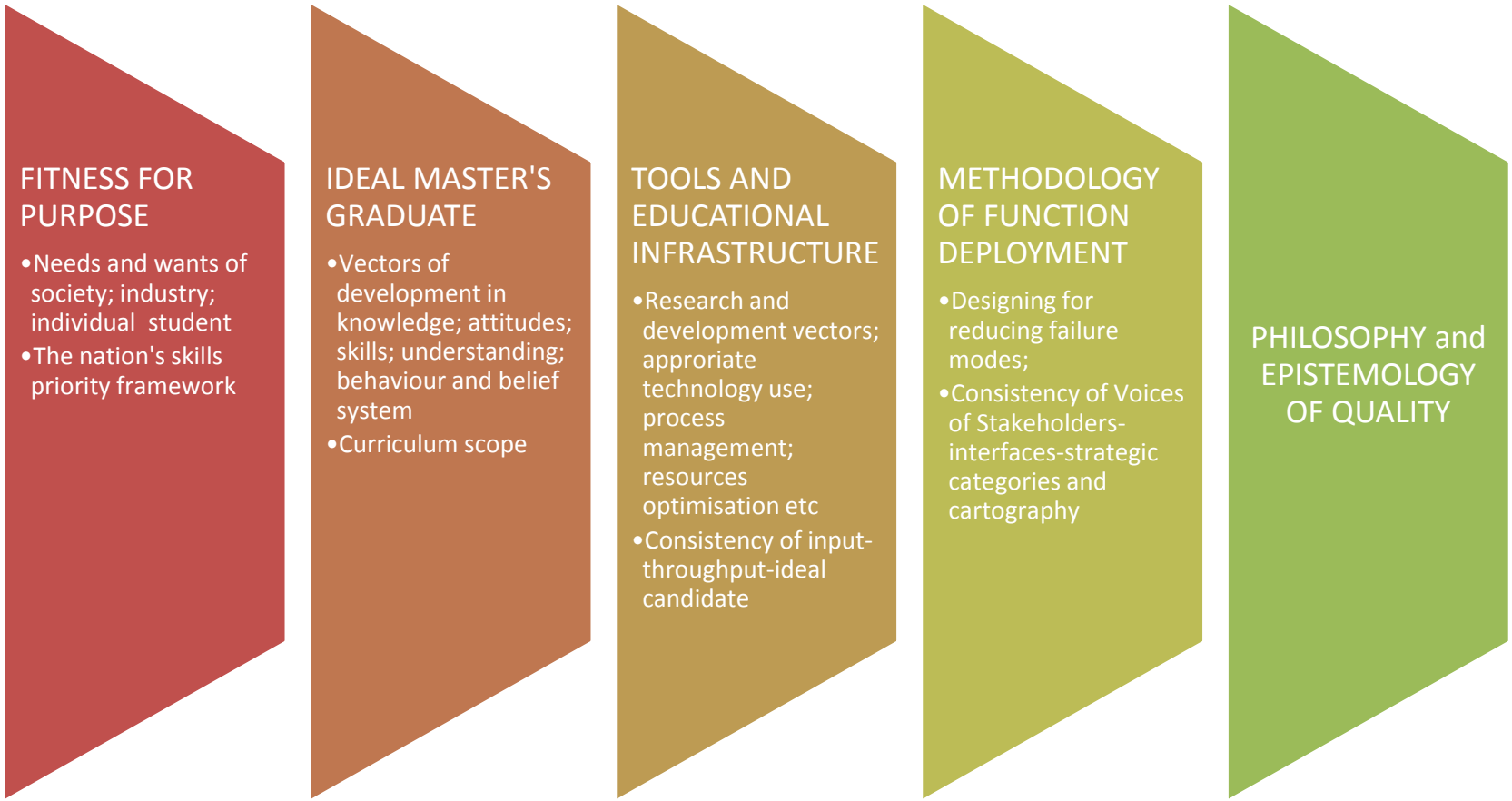

Figure 6.6: The relationship between purpose of education and philosophy of achieving that purpose

Customer Satisfaction Performance

The running of satisfaction surveys is a welcome activity that should be sustained, however the tools need some attention so that they allow more space for the stakeholder to vocalise more of its own views. A 360-degree understanding of customer satisfaction is of strategic value because it helps in scoping and directing future strategies.

Generally the CUTGBS is apparently doing well with the implementation of QFD and the effort is worth commending. Strategies take time to settle and their institutionalisation is not without its hardships. It is therefore important for the CUTGBS to learn 'tricks' of strategy implementation and continuously collaborate with those willing to make QFD work.

6.4 Contribution of the study

This study has made a number of contributions to our corpus of knowledge and understanding of QFD and the processes of its adoption and institutionalisation. It will have specific contributions to model management, curriculum design and management of relationships between mother universities and departments during periods of transition.

By deeply analysing the nature of QFD, showing its duality the research has proposed a philosophical and methodological frameworks and related tools and techniques for implementing profound change in our thinking and doing of quality and quality assurance in higher education. A new epistemology for instituting quality must advocate for profound change in our mental model, in the building of strategic capabilities for relating processes differently and behaving differently.

By drawing into the analysis the four Six Sigma roadmaps, the study has shown the huge feasibility and desirability of the different constituents to adopt new mental models on who has the prerogative of defining quality and how networks can work for the good of quality. With a new epistemology of quality, people will draw into the fold of higher education the disciplines of shared vision, team learning, presencing in the new, and collaborate for superior quality performance.

Another contribution of the study is its verification of the feasibility of the whole QFD model in education. Most research on the application of QFD in education has been with its part-components not about the implementation of QFD in its totality. From the main discussion in Chapter 5 and the validation study the implementation of QFD's stages (House of Quality), whilst feasible, it requires patience, and continual focus on capacity building and risk assessments. Therefore to attain and sustain the momentum for quality performance it needs patience, going slow and ensuring continual building of strategic capacity for more change and stronger focus on quality.

The research has shown that traditional models for quality assessment and quality assurance are monolithic and zero on small aspects of the education infrastructure. QFD, apart from encompassing the many different models, it ensures that they are contextualised and redefined in relation to the needs and wants of the customer. Each of the models orients people relative to a predetermined aspect of quality and quality assurance not relative to the broader higher education landscape. But QFD proffers a way of effectively organising them in my proposed representation of the House of Quality for the CUTGBS's M.Sc. Programme (Figure 6.4).

The study has shown that a focus on improving quality without subordinating strategic planning, change-project management, strategies implementation and management of strategic, systems, operational and unforeseeable risks to a model of Customer Satisfaction Performance fails. I argue that QFD sharpens and brings in the discipline of systems thinking to quality and quality assurance work. In relation to this alignment and integrative work, QFD is a game changer. Traditionally organisations adopt strategies then do an environmental analysis. The study argues that a context analysis should come first so that strategic issues are highlighted before a best-fit model is adopted. Strategies that emerge from the *datum* of concerns should survive their brush with the roughness of operational reality better than do those that are chosen and retrofitted into the contexts.

By running the loop 'analysis of results thus far' the QFD model, more than any other strategy, ensures the process of a deep-going self analysis and an external assessment and evaluation of

its impact on quality assurance. Education has not had such a powerful model that run its own internal assessment. This aspect is further reinforced by running:

- DFSS (Voice of the Customer + Voice of Business (QAAs; professional bodies, etc)
- SSPD (Voice of the Customer + Voice of Employee)
- TFSS (Voice of Employee + Voice of Market (Research; trend setters, etc))
- MFSS (Voice of Market + Voice of Business)

Gathering the different voices and combining them then escalating them into the quality-seeking strategies of the organisation removes the hegemony of any single stakeholder in defining what quality should be produced.

The other contributory value of the research is the lateral thinking; finding equivalent language terms for the very technical jargon of traditional QFD. Some stages of the QFD process are very technical and cannot be directly transferred into education for instance reverse engineering of competitor products. But organisations can study how they became produced and how they link with market requirements. Whilst the value of QFD cannot be denied, the need for its contextualisation is as important and may involve skipping, modifying, or surrogating some of its components.

The other insight is that the research has defined profit not necessarily in terms of financial gains. The study has looked at 'profit' in education as the ultimate gain expressed in Improvement Ratio and in Absolute Importance as expressions of the growth in quality of products and services rendered by HEIs. Some people erroneously assign QFD to for-profit institutions where the profit is monetary. Efficiency, effectiveness and better service delivery are equally prime targets for QFD.

The research's other contribution has been the argument that for higher education institutions (HEIs) wishing to adopt QFD, a forensic self-assessment should be able to show them the resources and infrastructures already at hand. It's much about inwardly looking at how to define and structure the way one wants the issues of quality performance done. Most model or strategy adoptions start with the model and then do a context analysis. This study argues that models

should emerge from a context analysis: start with context analysis, chose and adopt a best-fit model, use the model to design and diffuse strategies, carry out strategic actions and monitor for the desired results. The flow diagram below summarises this reasoning.

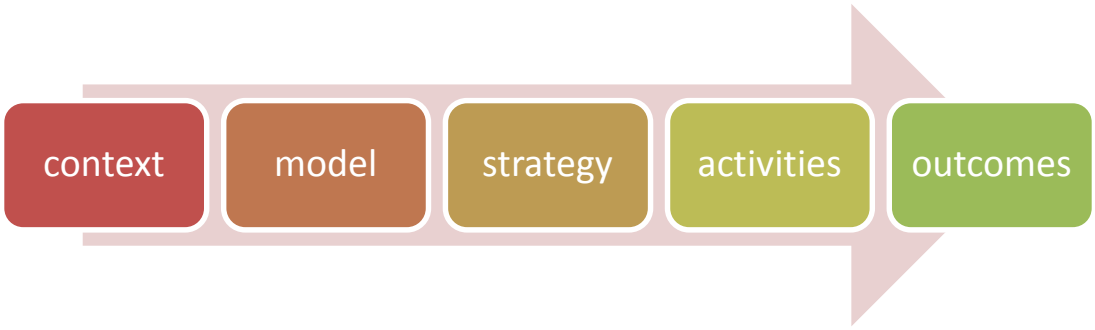

Figure 6.7: An approach for linking model to context, strategy and desired outcomes

The Validation Study showed that it is feasible to apply QFD as a strategy management framework that can serve for assessing and evaluating quality assurance in a master's degree programme. Another achievement of the study is the advocacy of the Validation Study as a strategy or way that examines the business meaning and implications of the results of a research project. This helps shake and expand the validity of results. I feel this is needful for case studies. A validation by experienced insightful people augmented with quick-study people drawn from the peripheries of the decision-making and leadership cycles should improve the strength of case studies and their generic value of research mobilisation.

The study has shown that the wish for a common quality cannot be sustained in the face of an ever-increasing number of job-types, of careers, and diverse students. Quality should therefore be defined by those who want it. Such a perception of quality is what higher education institutions should study (context analysis), then decide the corresponding Quality model that would suit the requirements of the customer (model's emergence). When a model has emerged from the analyses of the datums, the strategies for aligning the goal infrastructure and objectives network can be drawn (strategy formulation) to guide activities (strategy implementation) so that the outcome (offered quality) approximates as much as possible to expected and hypothesised quality. This is the epistemology of doing quality in organisations that this study

highlights. We should begin by specifying what Voice of the Customer says then we design-down the curriculum, the course outline and the management systems and processes. I propose the path should follow this route:

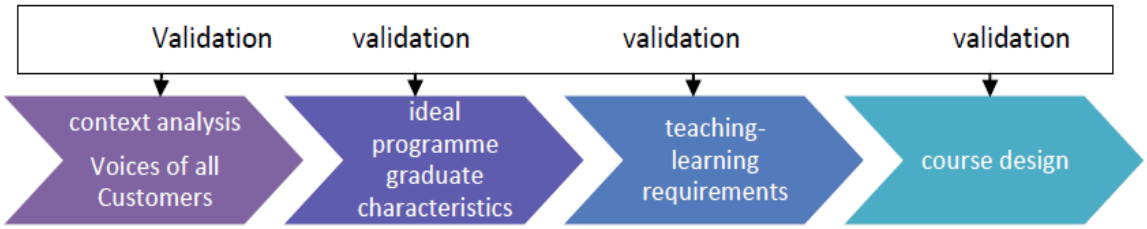

Figure 6.8: 'Designing down' from ideal graduate characteristics to the course

This approach of designing down from the wants and needs of those attending, sponsoring, claiming a responsibility to assure quality was validated as a way of ensuring quality that meets the needs of all stakeholders. Some participants sustained the argument that higher education institutions (academics and administrators) should not claim the prerogative to defining quality outside of the Voice of the Customer. Their role is to work out Voice of the Customer and through DFSS, SSPD, TFSS, and MFSS design management and products and services design infrastructure that delivers to the needs and wants of the customers.

The challenge posed by the research findings and validation is the need and feasibility of cross institutional quality roadmaps. Investing in these roadmaps would benefit even non-QFD quality initiatives because literature and the Validation Study underscored the need for:

- DFSS (Voice of the Customer + Voice of Business)- using DFSS to identify and reduce what students, employers and venture capitalists feel are deficiencies in the ideal masters graduate
- SSPD (Voice of Employee + Voice of Market) – using SSPD to identify and reduce what academics, staff and professionals and trendsetters feel are hindrances in quality performance
- TFSS (Voice of Employee + Voice of the Customer) – using TFSS to identify and reduce what students, academics and staff feel are causes of underperformance in terms of quality

- MFSS (Voice of Market + Voice of Business) – using MFSS to identify and reduce what employers, professional bodies, research and the quality assurer feel are roadblocks to superior quality performance.

Contrary to widely held beliefs about QFD, the model does not, in the service sector, call for one 'Quality'. Instead it calls for different 'quality' as expressed by Voice of the Customer and subsequently the forces for Customer Satisfaction Performance. The model fits well a highly niche-focused university system like the one currently wished-for in Zimbabwe.

6.5 Limitations of the study

Being a case study with a narrow focus on a single institution, the research has high local value and its translation into the wide world needs to be done with special care. In this understanding I have tested the research finding through a Validation Study. Further the research has been built on an in-depth and protracted literature review and lots of negative analyses of many observations. Most of the data refer to management, which is always a very contextual enterprise, but one that can also learn from this case study just as the case study has found foundation in management theories which lessons are drawn.

6.6 Conclusion

The study has shown that it is feasible to use QFD as a tool for quality assurance of educational products and services as shown in its management and institutionalisation in the M.Sc. Programme. The study has indicated a number of implications for knowledge management and for practice as of policy interest. Recommendations extended to each constituent are carefully constructed from observations and analysis of fieldwork and literature review. This fits the discussions within the research problem represented at Figure 6.1from whence I can summarise the study by saying:

Literature has many fragmented definitions of Quality and small-scale ideas of how the Quality can be gotten (chapter 2). An inappropriate definition of quality misleads the strategies of seeking it (chapter 3). These main constrains to quality assurance are exemplified in literature and discussions (chapter 5) and in chapter 6 it is suggested that only a two-prong approach to

QFD as a model for quality assurance can surmount these shortcomings (dual nature of QFD and the House of Quality).

With respect to Research question 2. There were many motivators to the adoption of QFD. Multiplicity of stakeholders begets multiplicity of felt-purposes and organisational conflicts. A deep-going discussion of QFD (chapter 2) shows that these roadblocks to quality performance are not inherent in Education but are created by those in the practice of educating and managing the Education systems. The CUTGBS (chapter 5) exemplify this point and show that using QFD, constraints can be managed away.

With respect to Research question 3. If perceptions and behaviours matter to Quality and quality assurance in organisations with a multiplicity of constraints (chapter 2) deployment of the 14 management excellence principles (chapter 2) should improve organisational responses to external publics (chapter 2 / 3) and others' points of view on Quality.

With respect to Research question 4. QFD tools are the basic units of structure and functioning of the model (chapter 2 / 3). Laying them out clearly strengthens the model, gives a coherent shape of what is being built by the model thus begetting approval from the customer.

With respect to Research question 5. Believing that one continues to be part of the problem by not taking action (chapter 2 + internal quality assurance) and that doing something (strategy focus wheel) with a model and others (external quality assurance) is a robust approach to quality assurance.

With respect to Research question 6. Management would respond to any one issue based on their generic management dispositions. Giving more autonomy to an institution is more about the impression management gets from those seeking the autonomy as to own management desires.

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APPENDICES

Appendix 1: Definitions of constructs used in portraying a meaning of QFD

QFD as	Definitions from more practical sources
An approach	1. a perspective or view that involves certain assumptions or beliefs about human behaviour www.simplypsychology.org/perspective.html 2.a particular way you deal with something www.english-test.net/forum/ftopic68198.html 3.the process of going towards something www.yourdictionary.com/approach 4.to come near or nearer, as in space or time www.thefreedictionary.com/approach
A system	1.a set of detailed methods, procedures and routines created to carry out a specific activity ... www.businessdictionary.com/definition/system 2.a collection of elements or components that are organised for a common purpose www.searchwindowsserver.techtarget.com 3.a group of interacting, interrelated, or interdependent elements forming a complex whole ... www.thefreedictionary.com/system 4.a set of rules, an arrangement of things, or a group of related things that work toward a common goal www.yourdictionary.com/system
A philosophy	1.a study of the general and fundamental problems ... www.wikipedia.org/wiki/philosophy 2.a way of thinking about the world, the universe, and about society www.simple.wikipedia.org/wiki/philosophy 3.a comprehensive system of ideas about human nature and the nature of the reality we live in www.atlassociety.org/what_is_philosophy 4.a group of ideas worked out by a philosopher www.simple.wikipedia.org/wiki/philosophy
A methodology	1.the systematic, theoretical analysis of the methods applied to a field of study www.wikipedia.org/wiki/methodology 2.system of broad principles and or rules from which specific methods or procedures may be derived to interpret or solve different problems www.businessdictionary.co/.../methodology.html 3.process used to collect information and data for the purpose of making business decisions www.businessdictionary.com/.../research-methodology 4.is a series of choices www.irn.tufts.edu/research.../methodology_tips.pdf

A method	1.an established, habitual, logical, or prescribed practice or systematic process of achieving certain ends with accuracy and efficiency www.businessdictionary.com/.../technique.html procedure, technique, or way of doing something, especially in accordance with a definite plan www.dictionary.reference.com/browse/method 3.a means or manner of procedure, especially a regular and systematic way of accomplishing something www.thefreedictionary.com/method 4.a particular procedure for accomplishing or approaching something, especially a systematic or established one www.oxforddictionaries.com/definition/.../method
A process	1.a collection of interrelated work tasks initiated in response to an event that achieves a specific result for the customer of the process www.irma-international.org/viewtitle/6087/ 2.a systematic series of actions directed to some end http://dictionary.reference.com/browse/process 3.a srquence of interdependent and linked procedures which, at every stage, consume one or more resources to convert inputs into outputs http://.businessdictionary.com/definition/process.html 4.a series of actions, changes, or functions bringing about a result http://www.thefreedictionary.com/process
A tool	1.any physical item that can be used to achieve a goal .. www.wikipedia.org/wiki/tool 2.an item or implement used for a specific purpose www.businessdictionary.com/definition/tool.html 3.a method that relate ideas to ideas, ideas to data and data to data (Ficalora & Cohen, 2009:xvii) 4.assist in creative thinking and problem solving (Ficalora & Cohen, 2009:xvii.)
A technique	1. a systematic procedure, formula, or routine by which a task is accomplished www.businessdictionary.com/.../technique.html 2. a method of doing some task or performing something www.vocabulary.com/dictionary/technique 3. a way of doing something by using special knowledge or skill Merriam-Webster dictionary programme 4. the method, procedure or way something is done www.yourdictionary.com/technique

Appendix 2: Interview schedule for staff on strategy for quality in the CUTGBS

Date of interview ..... Interview with .....

1. How would you describe the CUTGBS quality model?
    a. TQM /
    b. QFD /
    c. etc
2. How do you feel staff relate with this model?
    a. Enthused
    b. Disinterested
    c. Indifferent
    d. Resisting
    e. Learning
3. How has the model faired so far?
    a. Disaster
    b. Success
    c. Struggling
    d. Mediocre
4. What was the background to the adoption of the model?
    a. Solution looking for a problem
    b. Problem looking for a solution
    c. Me too strategy
    d. Isomorphism
5. What were the assumptions at the adoption of the model and what is the status of these assumptions now?
6. How successful has been the implementation of the model?

    .....
7. What do you feel stands in the way for successful implementation of the model?

    Culture / organisational structure / skills / motivation / leadership / resources.

    .....

    .....

Appendix 3: Structure of the M.Sc. Programme

The M.Sc in Strategic Management Programme comprises a taught component followed by a dissertation. Each candidate is required to take six (6) full courses in Semester 1 as outlined below:

SEMESTER 1

MSCSM1-01 Quantitative Management.

MSCSM1-02 Strategic Information Management and E- Business.

MSCSM1- 03: Strategic Marketing Management.

MSCSM1-04 Financial Accounting.

MSCSM 1-05 Management of Organizational Behaviour.

MSCSM1-09 Business Research Methods.

MSCSM1-06 Entrepreneurship

SEMESTER 2

Each candidate is required to take four (4) compulsory courses plus two (2) electives in an area of preferred specialization.

Compulsory courses

MSCSM1-35 Strategic Planning and Management

MSCSM1-11 Strategic Human Resources Management.

MSCSM1-10 Strategic Financial Management.

MSCSM1-33 Economics.

Options/Areas of specialization

A student is expected to elect any two courses in any one area of specialization. Courses on offer will depend on viability of the numbers and availability of lecturers.

OPTION 1: MANAGEMENT STRATEGY	OPTION 2: MARKETING
Production & Operations Management. MSCSM1-13	International Marketing Strategy MSCSM1-18
Quality Management MSCSM1-14	Buyer & Consumer Behaviour. MSCSM1-19

International Business Management MSCSM1-15	International Purchasing and Supply Chain Management. MSCSM1-20
Corporate Governance and Business Ethics. MSCSM1-12	Services Marketing MSCSM1-21
Public Policy Analysis MSCSM1-	International Promotion MSCSM1-22
Strategic Change Management. MSCSM1-32	

OPTION 3: FINANCE	OPTION 4: HUMAN RESOURCES
Advanced Accounting MSCSM1-23	Industrial Psychological MSCSM1-28
Business Restructuring MSCSM1-24	Training & Development MSCSM1-29
Money & Capital Markets MSCSM1-25	Performance Management MSCSM1-30
Investment & Portfolio Management. MSCSM1-26	Industrial & Labour Relations MSCSM1-31
International Finance Management. MSCSM1-27	

Credit allocation for MSC courses

Each course has 12 credits

Length of semester = 5 weeks

Lectures	18 hours
Tutorials	9 hours
Direct Learning	9 hours

Self Directed Learning	27 hours
Assignments	9 hours
In class tests	1 hours
Examination Preparation	44 hours
Examination	3 hours
Total Notional hours	120 hours

SEMESTER 3

Dissertation – MSCSM201

Credits for the Dissertation = 60 from 420 Notional Hours

Breakdown of hours:

Orientation	20 hours
Topic Formulation -Analysis Discussion	80 hours
Proposal writing and supervision	100 hours
Directed supervision. 5 chapters @ 10 hours per chapter	50 hours
Directed library reading	70 hours
Literature review	70 hours
Research Design and Methodology	100 hours
Analysis and Discussion of results	40 hours
Publication of dissertation in part or in full with supervisor	35 hours
Supervisor and student work on dissertation defence	35 hours
Total Notional Hours	600 hours

Appendix 4: Interview questions for staff on implementation of QFD stages

Interview questions on the general context of strategy focusing

1. What aspects of your quality assurance infrastructure or model have been successful?
2. What aspects of the model have struggled?
3. Do you think the model has helped in stakeholder engagement?

   3.1 How did you participate in this regard?
4. Do you feel the team has successfully protagonised its evolution within the CUTGBS?

   4.1 How have you been involved?
5. How has the CUTGBS reacted to the ZimCHE requirements over the years?

   5.1 How did you help?

Interview questions on the characteristics of the QFD team

1. How are key management decisions taken in the CUTGBS?
2. Who are the people in the team that takes these key management decisions?
3. What other responsibilities are taken by these team members and the 'team' as an institution?
4. What is the composition of the 'team'?
5. What is the dominant mental model of QFD shared by the 'team'?

Questions on Voice of the Customer

1. Who is the CUTGBS's primary customer?
2. Who are the CUTGBS's other key customers?
3. How was the Voice of the Customer gathered?

4. How would Voice of the Customer be processed?
5. How well did elements of formal design and emergent design of the CUTGBS relate to Voice of the Customer?

Questions on Product Planning Matrix

1. What has changed over the years in the way the M.Sc. Programme is structured?

   1.1 How did you partake in the changes?

2. What has changed over the years in the way courses are designed in the M.Sc. Programme?

   2.1 How have you designed your courses?

3. How have student responded to the M.Sc. Programme over the years?

   3.1 How have you managed their responses?

4. In what ways have Voice of academics and staff impacted the M.Sc. Programme?
5. How has Voice of students influenced curriculum of the M.Sc. Programme?
6. In what ways has Voice of Market impacted the M.Sc. Programme?
7. In what ways has the industry and society influenced the M.Sc. Programme?

Questions on Customer Satisfaction Performance

1. How has your competitive performance changed over the years?

   1.1 How have you intervened in shaping the CUTGBS competitive positioning?

2. How has staff related to a concept of quality over the years?

   2.1 What has been your dominant position?

3. What aspirations have survived the life of the M.Sc. Programme?

4. What aspirations have been difficult to realise within the M.Sc. Programme?
5. What tools or instruments do you use to measure the satisfaction of your customers with your products and services?

Questions on Target Values

1. What are the areas you feel a need to improve?
2. What is being done now in response to your felt needs?
3. You have aspirations for your graduates? What are these?
4. How supportive is the university's way of thinking to your reaching these aspirations?
5. How supportive is the university's processes and procedures to your reaching these aspirations?
6. How is the international master's degree landscape impacting you?

Questions on Goal Setting

1. How would you explain the fit between university goal infrastructure and the CUTGBS network of objectives and aims?
2. How dependent is the CUTGBS on the mother university?
3. Who decides what should be done in the CUTGBS?
4. How would you explain the fit between the culture in he CUTGBS and in the mother university?

Questions on organisational assessment

1. When was the last institutional assessment?

2. How were the results of such assessments diffused?
3. What were the sector reactions to the assessments?
4. What strengths have characterised the CUTGBS over the years?
5. What weaknesses do you experience in the university and in the CUTGBS?

Question on absolute importance

1. What things do you think are absolutely important for the mother university?
2. What do others think are absolutely important in the mother university?
3. What things do you think are absolutely important for the CUTGBS? What ought to be?
4. What do others think are absolutely important in the CUTGBS?
5. What ought to be absolutely important for the mother university?

Appendix 5: Strategic tools used within QFD (philosophical orientation)

Tools	Never used	Seldom used	Frequently used
Benchmarking			
Critical Success Factors			
Delphi Method			
Dialectical Inquiry			
Environmental Scanning			
Experience Curves			
Focus Groups			
Forecasting			
Future Studies			
Interviews			
Market Opportunity Analysis			
Metagame Analysis			
Multiple Scenarios			
Nominal Group Techniques			
Product Impact Market Studies Analysis			
Product Life Cycle Analysis			
Situational Analysis			
Strategic Gap Analysis			
Strategic Issue Analysis			
Sustainable Growth Model			
Trend Analysis			

Appendix 6: QFD tools used within QFD's methodological orientation

	Scantly used	Fairly well used	Often used
Affinity Diagram			
Analytic Hierarchy Diagram			
Arrow Diagram / Fishbone / Ishikawa Diagrams			
Benchmarking			
Brainstorming			
Capability Analysis			
Career-Path Mapping			
Check List			
Critical Path Management			
Control Chart			
Customer Context Table			
Customer Segment Table			
Design Of Experiment			
Failure Mode Evaluation Analysis			
Flow Chart			
Force-Field Analysis			
Histogram			
Initial Capability Analysis			
Interrelationship Diagram			
Matrix Data Analysis			
Measurement System Analysis			
Pareto Analysis			
Prioritisation Matrix			
Process Control Charts / Project Success Criteria			

Process Decision Diagram Chart			
Process Map			
Quality Planning Table			
Robust Design Method			
Scatter Plot			
State Transmission Diagram			
Stratification			
Tree Diagram			
Validation Translation Table			

Appendix 7: Questions on the link between QFD and external quality mechanisms

1. Do you think that the model you are using (QFD) covers all aspects of quality assurance?
2. How would external quality assurance mechanisms leverage QFD in the CUTGBS?
3. How has rankings influenced strategies and behaviours in the CUTGBS?
4. How has licensing influenced strategies and behaviours in the CUTGBS?
5. How have accreditation requirements influenced content and processes of management and leadership within the CUTGBS?
6. What aspects of external quality management systems do not fit well with the QFD model you are implementing?

Appendix 8: Interview schedule for staff on management's response to results of QFD

1. How has management responded to the way you roll-out the quality model in the CUTGBS?
2. How does the new mode of governance in the CUTGBS impact university management?
3. Do you feel your dependence on the university resembles the traditional dependence of university departments on their mother?
4. How do you think your model is taken for an examplar by university management?

Appendix 9: Interview schedule for the ZimCHE Directors

1. How have you found the role of quality assurer in Zimbabwe?
2. What are the big issues that the ZimCHE faces during the duty of quality assurance?
3. What are your experiences with quality assurance at the Chinhoyi University of Technology?
4. What have been the trends in the provision of Masters level degrees in our country?
5. How has the CUTGBS performed in terms of quality?
6. What do you think should be the key vectors in their strategic plans?
7. Various institutions have been trying new business based models how is this working?

Appendix 10: Interview schedule for students

1. How does the CUTGBS involve students in its daily life?
    a. Strategic planning
    b. Curriculum design
    c. Course design
    d. Audits and self-assessments
    e. governance
2. How responsive is the CUTGBS to its students?
3. Does the CUTGBS provide what it promises?
4. Does the CUTGBS deliver on what you expected?
5. How useful is it to complete the student evaluation of teaching effectiveness?
    a. How are students using the SETE forms?
    b. Do you think they are used with some bias by students?
    c. Do you feel that the CUTGBS is making use of the SETE?
6. What would you consider to be your standards or measures of good quality at Masters level?
7. How are other master's programmes fairing on your criteria?
8. How has the M.Sc. Strategic Management Programme faired against your criteria?
9. How would you re-engineer the M.Sc. Strategic Management Programme if given the powers to do so?

Appendix 11: Observation schedule: lecture halls

1. What is the state of the lecture halls / rooms?

.....

.....

.....

2. How are intended activities supported by technology?

.....

3. What evidence is there for the use of technology in assisting teaching?

.....

.....

4. What evidence is there for the use of technology in assisting learning?

.....

.....

5. How is technology linked to the 'Voice of Customer'?

.....

.....

6. How are seats organised and arranged in the hall / lecturerooms?

.....

.....

7. What evidence is there of (in)adequacy of seats / space?

.....

.....

8. What evidence is there of atmosphere control?

.....

.....

9. Are lecturerooms near / far from toilets / water points / smoking areas / other services?

.....

.....

10. How do structural setups of the lecture halls (en)discourage participation / interaction?

.....

Appendix 12: Observation schedule: Library

1. **Date of observation**:.....
2. How are books and literature organised?

2.1 By discipline / subject / level

.....

3. What other sources are available?

3.1 Vignettes

.....

3.2 Audios

.....

3.3 Magazines

.....

4. What provisions are evident for master's degree students?

.....

5. What search facilities are present in the library?

.....

6. What is the state of computers / laptops?

.....

7. For what are students using library computers / laptops?

.....

8. What evidence is there for (in)adequacy of books / magazines / computers / laptops / space?

.....

9. What times does the library open on different days / dates

.....

10. What other services are availed through the library?

.....

Appendix 13: Schedule for document analysis

1. Document name:.....
2. Date of this analysis:.....
3. Any previous analysis:

a) .....

b) .....

c) .....

4. Reasons for this analysis:

a) 1^0 reasons.....

b) 2^0 reasons.....

c) Other reasons.....

5. This document links with:

5.1 Interviews

a) .....

b) .....

5.2 Observations

a) .....

b) .....

5.3 Literature

a) .....

b) .....

6. Summary of points

.....

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Appendix 14: Questions for the Validation Study

1. I have found that the ZimCHE has been facing some issues with quality assurance and the quality performance of institutions and programmes. Where do these issues start?
2. In my study I found that CUTGBS was instituting a QFD-based model. Do you feel this model would work in our higher education institutions?
3. The QFD model or strategy consists of these 13 stages. Which do you find most important and which less so important in the context of higher education?
4. My findings are that the CUTGBS was implementing all the QFD stages but with variable depths and deployment of tools. The greater focus was on Voice of the Customer. How would you comment on this observation?
5. I found the purported QFD team being made up of academics in the CUTGBS only, could I have missed some facts?
6. I am wondering why some students felt a gap between their expectations and the offered M.Sc. Programme? How would this occur?
7. I have seen that the CUTGBS is heavy on Voice of the Customer with the Director championing this? I don't see how the CUTGBS is putting the Voice of the Customer into SSPD, DFSS, MFSS, and TFSS. What did I miss?
8. I have seen the CUTGBS hassling for greater autonomy. How wrong could I be in this assertion?
9. I have developed the following model for SWOT analysis. Does it make sense to you?
10. I have summed the emergence of the QFD model in a model like this one. Does this represent the sequence of events correctly?
11. I have built a House of Quality for the CUTGBS with the bricks of your conversations.

12. Do you think this model represent your ideas of quality you are chasing in the M.Sc. Programme?

Appendix 15: Letter of consent to participate in the research

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Education
Department of Science, Mathematics and Technology Education
Groenkloof Campus
Groenkloof
(012) 420 2207

CONSENT AND APPROVAL TO PARTICIPATE IN THE INVESTIGATION

I ..... have read and I understand the contents of the letter inviting me to participate in the said investigation by Mr D. Matorera. I agree / do not agree to take part in this study. I understand that my name and any personal details I divulge in the course of this investigation shall be kept STRICTLY confidential and ANONYMOUS. I hereby also give permission for the interviews to be recorded. I expect the researcher to afford me an opportunity to review notes he takes during the interviews. I also understand that I could withdraw from the investigation should I feel necessary to do so.

Signed ..... Date .....

At .....

Appendix 16 Chinhoyi University of Technology Research approval letter

CHINHOYI UNIVERSITY OF TECHNOLOGY
✉: P. Bag 7724, Chinhoyi ☎: 263-67-22203-5 🖷: 263-67- 27214 E-mail : vicechancellor@cut.ac.zw

Vice Chancellor's Office: Prof. D. J. Simbi - PhD, BSc, MIM, CEng, FZ'welE, FICorr, FZAS, Hons FZ'welE

ACADEMIC REGISTRY DEPARTMENT

14 January 2013

Mr Douglas Matorera
c/o Chinhoyi University of Technology
School of Business Sciences and Management
P. Bag 7724
CHINHOYI

Dear Mr Matorera

RE: REQUEST TO CONDUCT A RESEARCH PROJECT AT CHINHOYI UNIVERSITY OF TECHNOLOGY: PhD STUDENT

We acknowledge receipt of your e-mail seeking permission to undertake a research study under the title, **'The Quality of Infrastructure of the Master of Science in Strategic Management Degree being offered by the Chinhoyi University Graduate Business School.'**

You are kindly advised that permission to undertake your study is hereby granted. However, you are reminded to observe the University Official Secrecy Oath.

The University expects you to provide a copy of your research upon completion.

Thank you.

CHINHOYI UNIVERSITY OF TECHNOLOGY
DEPUTY REGISTRAR, ACADEMIC
12 JAN 2013
PRIVATE BAG 7724, CHINHOYI
TEL: 067 27213
SIGNATURE

M.P. Neusu
Deputy Registrar, Academic

Cc Registrar
Assistant Registrar, Student Registration and Records Management
Dean, School of Business Sciences and Management
Director, Graduate Business Unit

Appendix 17 University of Pretoria Ethics clearance certificate

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Education

RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE	**CLEARANCE NUMBER :** SM 12/06/04
DEGREE AND PROJECT	PhD The management of quality function deployment in a master's programme
INVESTIGATOR(S)	Douglas Matorera
DEPARTMENT	Science, Mathematics and Technology Education
DATE CONSIDERED	20 November 2014
DECISION OF THE COMMITTEE	APPROVED

Please note:
For Masters applications, ethical clearance is valid for 2 years
For PhD àpplications, ethical clearance is valid for 3 years.

CHAIRPERSON OF ETHICS COMMITTEE Prof Liesel Ebersöhn

DATE 20 November 2014

CC Jeannie Beukes
Liesel Ebersöhn
Prof WJ Fraser

This ethical clearance certificate is issued subject to the following condition:

1. It remains the students' responsibility to ensure that all the necessary forms for informed consent are kept for future queries.

Please quote the clearance number in all enquiries.

Appendix 18 University of Pretoria Integrated declaration form

Form D08

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Denkleiers • Leading Minds • Dikgopola tša Dihlalefi

Faculty of Education Ethics Committee
Integrated Declarations Form

Reference No. _____

Investigator's declaration

I, the investigator, _____

Degree completed (if applicable) _____

E-mail address _____

Supervisor's declaration (If applicable)

I, the supervisor, _____

of the following study, titled

_____

_____

hereby declare that

1) The research activities for which ethics approval was provided were conducted in accordance with the conditions of approval and the regulations of the University of Pretoria and Faculty of Education.
2) The investigator obtained formal permission and informed consent/assent from all parties involved in this project and will submit these for inspection if required.
3) There have been no significant changes to the project which render the approval of the Ethics Committee invalid.
4) There were no adverse experiences or undue risks experienced by participants in the course of the study that require the attention of the Ethics Committee.

Storage of research data and/or documents

We declare that research data and/or documents referring to the above mentioned study have been submitted to the supervisor and will be stored at the following address (es):

_____

_____

We understand that the storage of the abovementioned data and/or documents must be maintained for a minimum of 15 years from the commencement of this study.

Start date of study: _____Date of submission of thesis/dissertation: _____

Until which year will data be stored: _____

Name of Investigator	Signature	Date
Name of Co-supervisor (If applicable)	**Signature**	**Date**
Name of Supervisor (If applicable)	**Signature**	**Date**

For official use:

Certificate issued and emailed on _____ by _____
Date Signature