TQM implementation in a private university using lean approaches

A Master's Thesis submitted for the degree of

"Master of Science"

supervised by

Ao.Univ.Prof.h.c.Dipl.-Ing Dr. Numan Durakbasa

Padmanabhan Dasarathy

1028553

9. 12. 2011, Vienna

Acknowledgement

I would like to thank my supervisor Ao.Univ.Prof.h.c.Dipl.-Ing Dr. Numan Durakbasa for the valuable inputs and constructive feedback.

I would like to thank Prof. Dr. Wöber and my colleagues at Modul University Vienna for their time, valuable inputs and insights.

Finally I want to thank my wife for her support during the last year.

Affidavit

I, **Padmanabhan Dasarathy**, hereby declare

1. that I am the sole author of the present Master's Thesis, "TQM Implementation in a private university using lean approaches", 78 pages, bound, and that I have not used any source or tool other than those referenced or any other illicit aid or tool, and
2. that I have not prior to this date submitted this Master's Thesis as an examination paper in any form in Austria or abroad.

Vienna, 09.12.2011

Signature

Abstract

In today's increasingly competitive and globalized environment, universities strive to improve their internal quality systems to better meet the long term needs of their stakeholders. The purpose of this research is to address this aspect of improving quality management within private universities and suggest a model for higher education that leverages the principles and methodologies of total quality management and lean.

Total Quality Management and Lean principles originated in the manufacturing industry and have been in use for some time now. Their success in improving quality and production processes within the manufacturing industry, lead to service industries applying their principles. Applications of total quality and lean within higher education represents a challenging and emerging application area as their implementation has to be adapted to suit the requirements of the higher education environment.

The primary subject of this study is MODUL University, Vienna, which is an international private university in Austria and is owned by the Vienna Chamber of Commerce and Industry.
Quality Management at MODUL University has been an important consideration from when it commenced operations in 2007. During this period the university has developed a plan of growth and quality initiatives to address quality management within the university.

This research work will analyze the current quality management practices and their relation to the development goals of the university. A model to improve quality is then proposed using principles from total quality management and lean. In the case of this university the use of lean principles is new and one of the goals of this research is to probe its effectiveness in the improvement of processes within this university.

The research is in the form of a qualitative research using the case study method, observation and action research methods to collect primary data. Secondary data is obtained through the analysis of secondary sources such as quality management reports, annual reports and other documents pertaining to the university. Concepts about the topics will be developed from journals, technical articles, electronic sources, websites, books, and audio-visual means.

Keywords: Quality, Total Quality Management (TQM), Lean, Lean Production, MODUL University, Vienna (MU, Vienna)

Table of Contents

1. Introduction

This section covers an introduction to the research area, the objectives behind this research and concludes with the structure of the thesis.

1.1 Research Background

In today's competitive and globalized environment, it is becoming increasingly important for Universities to understand and satisfy the requirements of their stakeholders. More so in some ways students are like customers in a university and consume educational and administrative services rendered at the University.

Thus as in service industries quality management is an important consideration within higher education and administrators within Universities are seeking for ways to improve quality within these institutions, (Babbar, 1995, pp. 35-55).

Furthermore in some countries there are also established accreditation councils that require all private universities offering programs that lead to academic degrees to obtain state recognition of their programs. This recognition is given through accreditation based on quality assessment done by auditors. The Austrian Accreditation Council is such an authority that assesses the quality of private universities through accreditation. The Austrian Accreditation Council also supports quality development within these institutions.

The field of quality management is constantly evolving. Quality management within the service industry draws its principles and methodologies from the production and manufacturing industry. Quality management in manufacturing and production industries in the early twentieth century primarily involved inspecting products and ensuring that they met specifications.

In the 1940s quality became more statistical in nature and statistical methods were used to evaluate quality. Now in recent times quality has taken on a broader meaning and has begun to be viewed as something that encompasses the entire organization and not a particular function or process.

In today's business environment all functions are responsible for product or service quality and the costs of poor quality effects the entire organization. The term used for today's new concept of quality is total quality management and is a proactive way to build quality into the product and process design and improves upon the old concept which is reactive and designed to correct quality problems only after they occur (Reid & Sanders, 2005, p. 142).

The key concepts of total quality management are emphasis on management commitment, customer focus, involvement of all, continuous improvement, treating suppliers as partners and performance metrics. The TQM approach is holistic and has received wide acclaim as an effective approach for achieving quality and performance enhancements in industry (Dale et al., p. 12).

With the success of applying TQM methods and principles in the private sector, a number of academic institutions have started to explore its application within higher education (Babbar, 1995, pp. 35-55). Over the last two decades a number of Universities in the USA, UK and Australia had begun implementing TQM methods and its principles to improve educational instruction.

Some of the examples of Universities in the USA using TQM principles are from the 90s. These quality improvements were mainly in daily operations and customer service to students. Universities that had successful implemented TQM were Georgia Tech, Maryland, North Dakota, Oregon State, Penn State, Purdue, Rochester Institute of Technology, and Wisconsin (Hogg & Hogg, 1995, pp. 35-48). Some other examples where TQM methods had been quite successful were at the Kellogg School in Northwestern University, The Teaching Laboratory of the Chicago Business School, University of La Verne California, RMIT Melbourne (K.C. Mathur, 2008, pp. 101-113).

There have been cases where TQM has not been successful in higher education. Some of the reasons why it is believed to have failed are because most process improvements were in non-academic processes such as registration, physical plant, bill paying, and were not applied to some of the non-academic aspects within higher education (Koch, pp. 325-333). This is also could be a result of University administrators or educators failure to adapt the TQM model and apply some of its essentials within an academic environment.

Another management philosophy that is derived from production and manufacturing is Lean manufacturing, it is also known as lean enterprise, lean production or sometimes referred to simply as lean. Lean or the lean system as described by Summers is ‘A lean system provides what is needed, in the amount that is needed, when it is needed. The principle focus of lean thinking concentrates on value-added process flow’ (Summers, 2009, p. 354).

Lean production is now an emerging trend in the service industry and helps streamline operations, eliminate waste, thus lowering the cost and improving service efficiency. Application of Lean principles is still very new within universities and education. In terms of lean, a university would be defined as an organization in which employees use a number of processes to achieve their tasks and goals.

The lean processes used by the university may be at the administrative, instructional and student learning levels (Ziskovsky & Ziskovsky, 2007). The focus of lean in this context would be to identify and eliminate waste within these processes and identify processes that do not add value.

Continuous improvement is one of the main principles of both TQM and lean approaches. The term continuous improvement in lean means incremental improvement of products, processes, or services over time, with the goal of reducing waste to improve workplace functionality, customer service, or product performance (Suzaki, 1987).

1.2 Objectives of the Research

The goal of this research is to apply total quality management, and lean approaches to improve quality within private universities. The principles of lean and total quality management have been used in the industry for last couple of years; however their application within the higher education domain is still an emerging field.

This study is done using the case study method and using MU Vienna as the primary subject of study. MU Vienna is a private university in Austria and offers courses in tourism and hospitality, new media, sustainability and social responsibility both at graduate and undergraduate levels.

The educators and administrators at MU Vienna have recognized the importance of quality management. To understand and improve its quality management practices the university has appointed boards, councils, external certification agencies and developed a number of quality management initiatives. However since the university was only established in 2007, some of the organizational structures and quality initiatives are still very new and may not address its long term need to meet its stakeholders requirements.

This leads to the main objective of this research which is to suggest how the principles of lean and total quality management can improve the current quality management system. The other objectives are to provide a training document in the areas of lean and total quality management. Any organizational change cannot be drastic, so this study will present these concepts in a simple but precise manner that is simple to understand and useful for this university.

In order to achieve the goals and research objectives the researcher will first develop a concept and then the present quality management practices are studied. This study will then assess the present state of quality management and to see how issues related to quality are currently addressed.

The study will then benchmark the state of the current quality management practices with a total quality management system using lean approaches.

To accomplish the goals and objectives of the research qualitative research methods will be used. Qualitative methods used to collect primary data will consist of in-depth interviews with senior decision makers, staff members, and lecturers. The application of lean methods is done using research methods of observation and action research using flow charts. Analysis of secondary sources such as quality management reports, annual reports and other documents in the university will also be used. The conceptual framework is obtained through journals, technical articles, electronic sources, websites, books, and audio-visual means.

1.3 Structure of Thesis

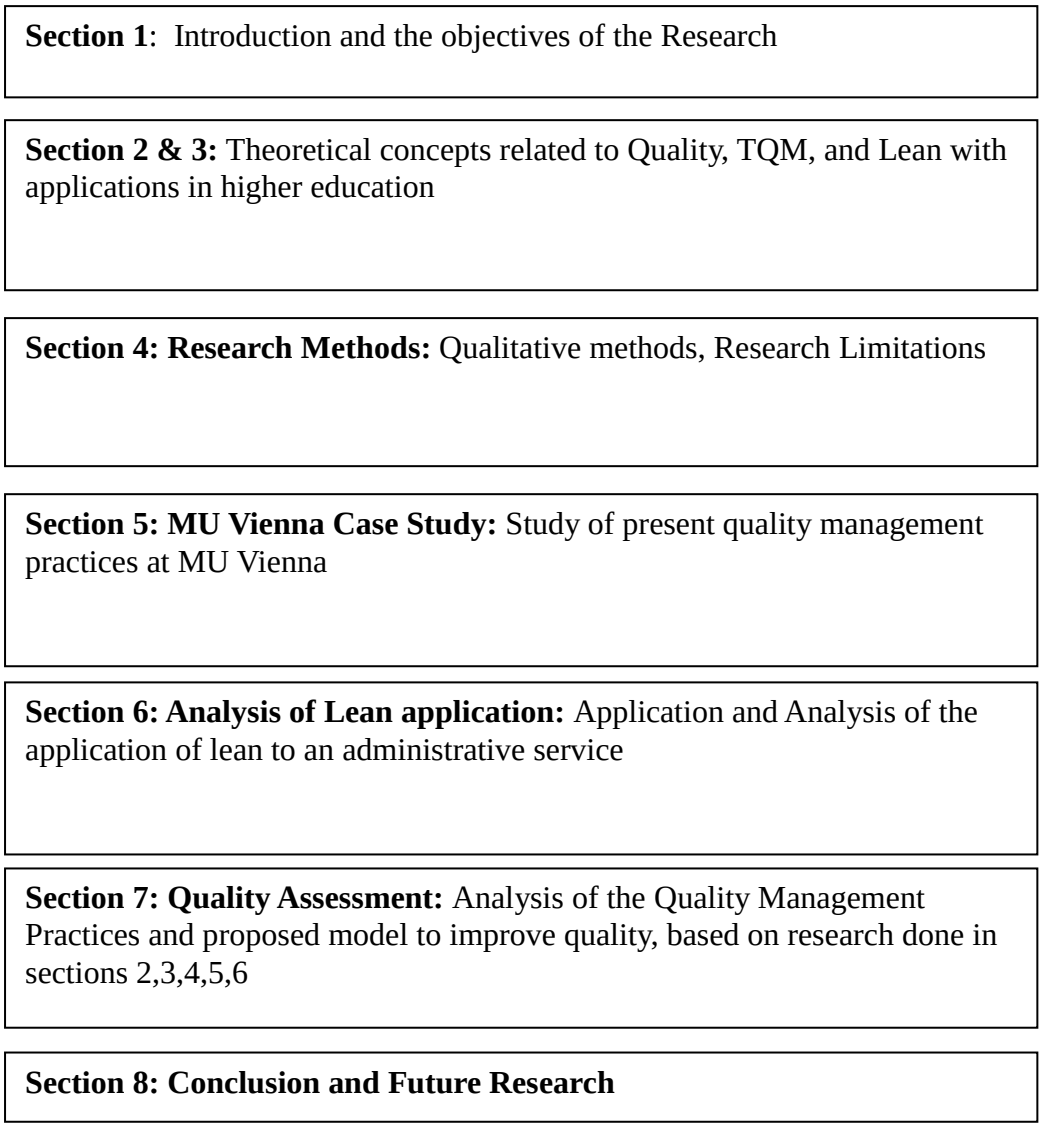


Figure 1: Structure of the thesis

2. Concept Development

2.1 Quality

Quality has no single universal definition and there can be multiple definitions about quality. Some of the more conventional definitions of quality are as follows (Reid & Sanders, 2005, p. 138).

Conformance to specifications
Quality can be defined as conforming to specifications. In this definition quality is how well the product or service meets the targets and tolerances determined by its designers. For example the quality of a television or a music system can be measured as how well it conforms to the manufacturers specifications. However it can be difficult from a customer's point of view to notice a slight variation in the product from its manufacturer's specifications.

Fitness for use
The focus here is on how well the product performs its intended function or use. For example, a personal computer and a laptop both fulfill a fitness for use definition if that definition is a computer. However, if we define mobility is its intended use than a laptop fulfills the fitness for use function better. This is however a subjective decision and it depends on if the product meets the needs of that specific user.

Value for price paid
Quality defined as value for price paid is often used by customers to measure the price to quality aspect of a product or service. This definition combines both economics and consumer behavior, for example in higher education the cost of tuition could be a factor for a prospective student to evaluate two universities with similar study programs and reputation.

Support services
Quality of a product or service can also be judged according to the support services that the organization offers. In this case quality applies is broader context which includes the product or service but also applies to the people, processes and organizational environment associated with the product or service. For example in higher education quality can be judged not primarily on curriculum and efficient academic staff but also on other factors such as student services.

Quality is defined by the experts or gurus in quality as see (Digest, 2001):

> "Variation is the enemy of Quality". Deming
>
> "Quality is fitness for use". (Juran, 1974)
>
> "Quality means conformance to requirements". (Crosby, 1979)
>
> "Quality is a system of means to economically produce goods or services which Satisfy customers' requirements". (Japanese Industrial Standards Committee, 1981)

"Quality refers to the amounts of the unpriced attributes contained in each unit of the priced attribute". (Leffler, 1982)

"Quality means best for certain conditions...(a) the actual use and (b) the selling price". (Feigenbaum, 1983)

"Quality means that the organization's culture is defined by and supports the constant attainment of customer satisfaction through an integrated system of tools, techniques, and training". (Sashkin & Kiser, 1993)

2.1.1 Dimensions of Quality

Quality dimensions can be different for services and manufacturing organizations. Products produced by manufacturing companies have physical properties, which are measurable. Services however are defined as an activity which can be primary or complimentary but does not directly produce any physical product.

Service organizations could be hotels, financial services, airline services, higher educational institutions. The following are the strategic eight dimensions of quality for manufacturing organizations (Garvin, 1987):

Performance: In this case is a products primary operating characteristics. For a car performance would include handling, speed, and fuel efficiency. So for example a car with good handling and fuel efficiency can be considered of a higher quality.

Features: Are the characteristics and can also be called the "bells and whistles" of products and services. For example some of the features of a mobile phone are display size, processor, memory, storage, applications.

Reliability: The probability of a product surviving or failing after certain duration. These are more applicable to goods that are used for some time as opposed to services which can be consumed easily.

Conformance: The degree to which product design and operations meet the standards. It is important that the product conforms to standards. Not doing so may result in extensive maintenance and support services, bad customer’s perception about the product.

Durability: Is a measure of the life of the product. It has both economic and technical dimensions. It is defined as the amount of use one gets from a product before it physically deteriorates or has to be replaced.

Serviceability: This dimension can be applicable to both products and services. It can be defined in terms of after sales service, or the efficiency of the product support services. If problems are experienced with a product how quick is the response from the service staff to fix the problems. For example service facilities that can be offered to customers of an automobile if they experience problems with the car.

Although many of the key dimensions of quality that apply to manufacturing organizations can also apply to services, the following dimensions have been identified for services (Evans, 2007, p. 17).

Time & Timeliness: The average processing time of new requests or the average wait time for a service. For example while booking a ticket is the ticketing officer able to issue a ticket to you in a short time.

Completeness: Are all items requested complete, for example if you are making an inquiry to a sales clerk is complete information given about the product.

Courtesy: This is an important consideration since the customer should be treated in a cordial and friendly manner. Customer feedback forms can be used to measure this dimension.

Consistency: Are services delivered in the same way to all customers? For example food chains like McDonalds have to ensure consistency in the way services are delivered across all outlets which may be in different geographical regions.

Accessibility and Convenience: Services have to be located in places which are accessible and the hours of operation are suitable for the customers to avail of these services.

Accuracy: This is important as the service has to be performed right the first time.

Responsiveness: How efficiently and effectively can the service staff respond to problems?

The following Table 1. see (Reid & Sanders, 2005, p. 139) illustrates a few key differences between the quality dimensions between manufacturing and service organizations.

Manufacturing Organizations	**Service Organizations**
Conformance to specifications	Accessibility
Performance	Consistency
Reliability	Responsiveness to customer needs
Features	Courtesy/friendliness
Durability	Serviceability Atmosphere
Timeliness/promptness	Accessibility

Table 1: Quality dimensions in service and manufacturing organizations

Costs of Quality

The costs of quality are important and it is the total price that the organization has to incur if the product or services do not adhere to the dimensions as described above. For an organization every time work is redone the costs of quality increases, some examples of rework are see (Campanella, 1999, p. 5):

- Reworking an item in manufacturing that does not meet specifications.
- Reentering customer data if it was incorrectly entered the first time
- Replacing food that has not been cooked appropriately in a restaurant
- Errors caused by processing in accounting or financial statements

Quality costs are the total of the cost incurred by:

- Investment in all quality assurance and control activities.
- Costs incurred from a failure in the product or service expectations from the end customer.

Quality Costs can be classified as follows:

Prevention Costs: The costs of all activities specifically designed to prevent defective quality in products or services.

Appraisal Costs: The costs associated with measuring, evaluating or auditing products or services to assure conformance to quality standards and performance requirements.

Failure Costs: Costs associated with products or services not meeting the customer or end-user requirements and needs.

Internal Failure Costs: Failure costs prior to delivering the product or service; this could be rework in case of products that do not conform to standards or customer requirements due to customer needs not addressed by the service.

External Failure Costs: Costs that are incurred after the good or service reaches the customer. These costs are usually very expensive to the organization and can impact the market share of the firm in the long run. These costs are could include the costs associated with warranties, replacing defective products, customer complaint handling, costs associated with loss of reputation.

Total Quality Costs: These costs in summation represent the total quality cost. The total quality costs are important because they represent costs that are factored into the total costs of production or in the cost of services and if they can be reduced the organization can be more profitable and in meeting or exceeding its stakeholders expectations.

2.1.2 Quality in Higher Education

There are a number of definitions of quality within higher education and it is hard to have one definition that fulfills the interests of different constituencies or stakeholders in higher education.

Conceptions of quality that were categorized by Harvey and Green and elaborated in the PHARE Manual of Quality Assurance: Procedures and Practices (1998) include the following see (Campbell & Rozsnyai, 2002, p. 19).

Quality as excellence: This definition is considered to be the traditional academic view that holds as its goal the university to be the best and renowned for its academic standards in education and research.

Quality as "zero errors": The idea of "zero errors" is defined from the manufacturing industry , and is the conformity of the product to its specifications. As the "products" of higher education can be graduates and who are not exactly products this view is not widely accepted within higher education.

Quality as "fitness for purpose": A product or service meets a customer's needs. In this case stakeholders of the university which could be students, prospective students, parents, and funding agencies such as private donors, government, external agencies are to an extent customers or clients of higher education. However it may be hard to define purpose or fitness in this case since they may have different views as to what constitutes purpose or fitness.

Quality as transformation: This concept focuses firmly on the learner, a better education institution achieves the goals of empowering students with specific skills, knowledge, and attitudes which enable them to contribute, work, and live in a knowledge based society.

Quality as threshold: Defining a threshold for quality means setting certain standards where any program, department, or institution, which reaches these norms and criteria, is deemed to be of quality. This is both objective and certifiable and sets norms for universities across the higher education system. However such a definition can be quite rigid and may stifle change and innovation. There is a need though for minimum quality standards that needs to be complied with and audited through accreditation agencies.

Quality as value for money: The notion of accountability is central to this definition of quality and to a certain extent also true in the case of private universities where it is also an entitlement for the students to receive quality academic instruction and administrative support.

Quality as enhancement or improvement: This emphasizes the pursuit of continuous improvement and is derived on the notion that achieving quality is a key part of the academic ethos and academics are the primary knowledge sources on what quality is and how to improve quality. Continuous improvement in this sense is hard to measure.

It is therefore seen that although some of these concepts are valid for example most universities including MU Vienna hold the Quality as excellence view, where it is a goal to be one an internationally renowned for its education and research.

Also in the case of a definition of quality as threshold there are accreditation agencies that mandate universities to follow minimum standards.

However the definition of quality within higher education is a dynamic area. There is also a huge growth in the higher education area as a result of growing expertise and the globalization of education, institutions are using quality as a strategic function and devising their own concepts of quality, models of evaluation and quality management.

2.2 Total Quality Management

There are many definitions of Total Quality Management the following is one definition of TQM:

"Total Quality is an approach to doing business that attempts to maximize the competiveness of an organization through the continual improvement of the quality of its products, services, people, processes, and environment" see (Goetsch & Davis, 2009, p. 7).

Some other definitions include one by Murgatroyd who defines TQM as,

"a total organizational approach for meeting customer needs and expectations that involves all managers and employees in using quantitative methods to improve continuously the organization's processes, products, and services". (cited from Psychogios & Priporas, 2007, p.7)

So TQM is defined as both a technical and an organizational approach so it could also be defined as both a social and quantitative approach. Therefore TQM combines management tools and techniques with management concepts and principles. The quantitative techniques and tools refer to the "hard" aspects of TQM, while the principles and concepts refer to the "soft" side (p. 42).

Some of the common characteristics of TQM include customer focus, continual improvement, process focus, employee empowerment and the use of statistical methods. To understand Total Quality Management it is also important to examine it from a historical perspective.

The time and motion studies started by Fredrick Taylor in the 1920s in USA played an important role towards the start of what is now TQM. However as the volume and complexity of manufacturing grew in America, quality became a difficult issue and quality engineering increasingly focused on the use of statistical methods to control quality. This continued till the 60s, and the principles that were part of the initial TQM movement were more widely used in Japan than in the USA. Japanese companies had adopted these methods from the 50s as a way to improve the quality in their products (Goetsch & Davis, 2009, p. 9).

During the 70s the Japanese companies had significantly improved the quality of their products and price competitiveness. This could be seen in the increasing market share of their products in the USA. Hence in order to remain competitive companies and academics in the USA began studying the works of done by "quality gurus" such as Crosby, Deming, Feigenbaum and Juran and others, such as Ishikawa, and integrating their approaches within quality management, this gave rise to the present day concept of TQM (Martínez-Lorente, Dewhurst, & Dale, 1998).

The timeline in the development of quality concepts is illustrated by Figure 1. see (Reid & Sanders, 2005, p. 143).

Figure 2: Timeline in development of quality concepts, source (Reid & Sanders, 2005, p. 143)

The contribution of notable individuals also referred to as the ‘Quality Gurus’ who have been influential in shaping the evolution of TQM is illustrated in Table 2.

Quality Guru	Main Contribution
Walter A.Shewhart	Contributed to understanding of process variability. Developed concept of statistical control charts.
W. Edwards Deming	Stressed management's responsibility for quality. Developed "14 Points" to guide companies in quality improvement.
Joseph M. Juran	Defined quality as "fitness for use". Developed concept of cost quality.
Armand V. Feigenbaum	Introduced concept of total quality control.
Philip B. Crosby	Coined phrase "quality is free". Introduced concept of zero defects.
Kaoru Ishikawa	Developed cause-and-effect diagrams. Identified concept of "internal customer".
Genichi Taguchi	Focused on product design quality. Developed Taguchi loss function.

Table 2: Contribution of Notable Individuals, see (p. 143)

The “soft” of the total quality approach is represented by the following organizational values which differentiates it from the traditional view of quality see (Goetsch & Davis, 2009):

Strategic: Total quality organizations have strategic growth plans which include a well-defined mission and vision, development, broad objectives and activities.

Customer Focus: The customer is the driver and this concept applies to both internal and external customers. While the external customers define the quality of the product or service that is rendered, internal customers help with defining the quality of the people, processes and environments that are associated with the products or services.

Employees and Teams: Organization is committed to developing and supporting a flexible, technically skilled work force, with individuals and teams that work toward shared mission and goals. People work in cross-functional teams, quality circles can be developed through forming a team of voluntary employees from across the organization and their supervisors and focus on quality issues.

Continuous Improvement: Continuous improvement or kaizen refers to continuously improving core business functions through learning, team work and problem solving.

Decision Making based on Facts: Decisions are based on objective measurement, analysis of system conditions, customer needs, and organizational performance.

Education and Training: Training and Education are fundamental with respect to total quality because people improve their knowledge of the different tools and techniques through education and training. This will help the employees improve both efficiency and effectiveness.

Empowerment of Employees: Employee involvement and empowerment is fundamental to total quality to enable employee participation in the decision making process and increase individual ownership over the decision making process (pp. 10-12).

2.2.1 Quality Management Tools & Techniques

Techniques referred to what is usually referred to as the "hard" aspects of TQM, are the quality planning and statistical process control tools that are used in TQM. According to Sashkin, TQM works when statistical tools and behavioral techniques are used to count or to collect data in order to analyze and solve problems, this is done because it is the only way to meet and exceed customer expectations (Sashkin & Kiser, 1993, p. 3).

Two important methods used in TQM are kaizen and benchmarking. Kaizen is the Japanese word for step by step improvement and translates to the TQM principle of continuous improvement. Although the philosophy of TQM is a strategic one that looks at the broader aspects of an organization its practical implementation is small scale, highly practical and in incremental steps. Huge changes are not the means of change in TQM. The essence of Kaizen is gradual improvement towards large changes since any large change may take a huge amount of resources but continuously improving through incremental steps is a better method(Sallis, 2002, p. 24).

Benchmarking is a search for the best practices, innovative ideas and most effective business practices. Benchmarking considers the experience of high performance firms and studies their best practices and compares their performance using quantitative metrics, a requirement for benchmarking is that the managers or decision makers understand why their performance differs (Dale et al., p. 166).

Plan-Do-Check-Act-Cycle (PDCA)

This was also known as the Deming cycle in Japan as it was Deming who introduced this model to the Japanese. However it is also referred to as the Shewart Cycle, as it was initially developed by Walter .A. Shewhart.

The PDCA cycle consists of four steps and these are iterative in nature so there continuous improvement after each feedback cycle. There are also monitoring and data collection tools that support the activities for each stage of the cycle.

A PDCA cycle is illustrated in figure 3:

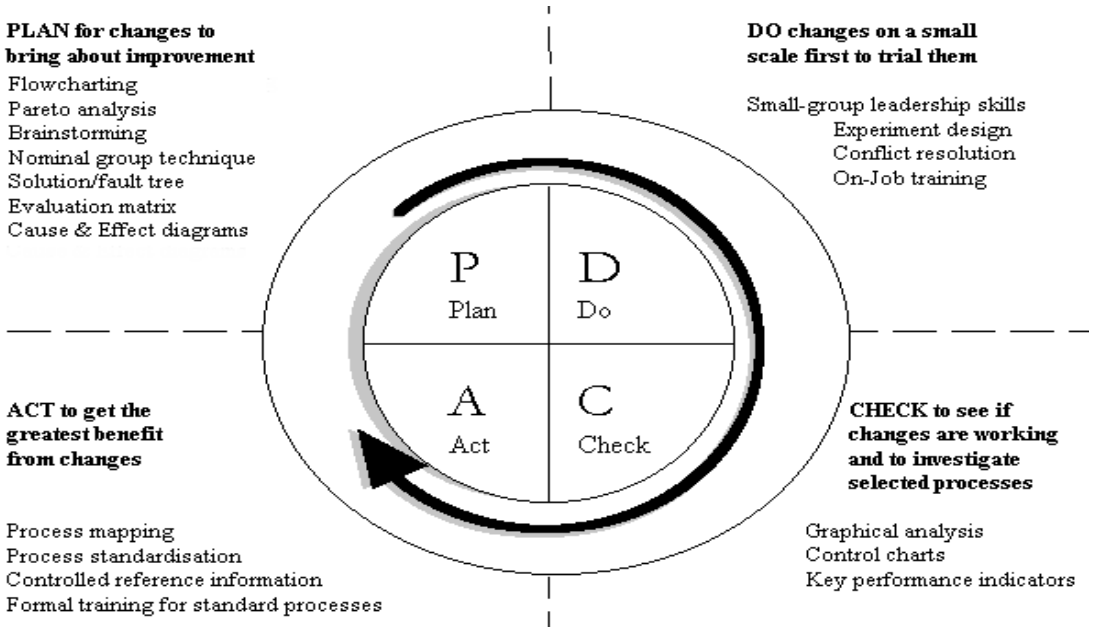


Figure 3: PDCA cycle with statistical quality tools, source (http://www.lsec.dnd.ca/qsd_current_version/eng_support/bp/process_improvment.htm)

Plan: Planning consists of defining the problem and gathering more information about it which is done by a root cause analysis where alternatives are developed and the best solution is selected. The planning can be helped by the following tools:

- **Flowcharting:** A visual tool that is easy to understand and can visually represent a schematic diagram of the steps involved in a process. A flow chart is created very easily usually using readily available software tools and is very easy to understand. So it can also be useful in communication ideas about process flows.

- **Cause and Effect Diagrams:** They are also called Ishikawa or Fishbone diagrams as they were invented by Kaoru Ishikawa. Their function is to identify some of the factors that are causing quality problems or also identify factors that need to be present in order to bring the desired result.

- **Pareto Analysis:** Help identify the root cause of quality problems it is also known as the 80:20 principle, in quality terms this means that a small number of causes produce most of the quality problems. So the purpose of Pareto charts is to identify these small number o problems

Do: During the planning stage most of the analysis is done, the do stage involves implementation activities it is important for TQM that this activity is carried out by teams focused on continuous improvement. At this stage that data can also be collected that can be used in the next stage of the PDCA cycle.

Check: This stage involves monitoring the implementation stage; data is collected and analyzed to check if the implementation is in line with what was planned. The following tools can help during the check stage:

Control Charts: These charts can be used to monitor processes and can be used to check if a process operating within expectations relative to a measured value. This measured value corresponds to a variable that is measured for example the width of a car tire. To evaluate if the process is in control it is regularly measured and plotted on a control chart. The average value of this variable or the expected value is indicated by a line in the center, there are upper and lower control limits represented as lines above and below the average. For process that is in control the values that are observed should fall between these two limits.

Histograms: Histogram helps see patterns that cannot be shown by a collecting data as a simple table of numbers, what it shows is variation in a specific set of data. A histogram can also be defined as a chart that captures a snapshot of the variation of a product or process.

Act

The outcomes of the planning, implementing and checking stages produce results. These results should match the outcomes that were initially planned, if there is a difference between the results and the planned outcomes than the corrective steps that need to take place to improve in the next PDCA cycle. The following figure 4. Illustrates how the PDCA steps can be used in higher education, in this case designing classroom and curriculum through PDCA cycles.

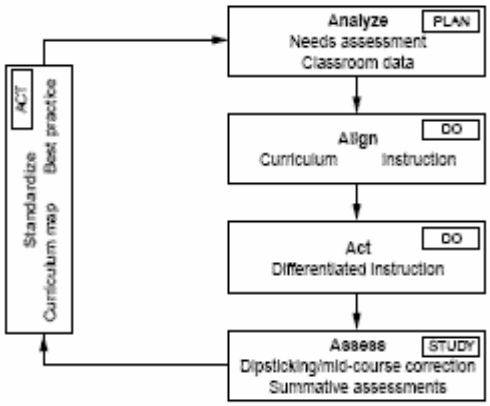


Figure 4: PDCA cycle in classroom and curriculum design, source (http://asq.org/learn-about-quality/project-planning-tools/overview/pdca-cycle.html)

Quality Function Deployment (QFD)

QFD was developed in Japan in the late 60s as a quality system that helped assure quality and customer satisfaction in products and services. Dr. Shigeru Mizuno, Dr. Yoki Akao, Dr. Yadashi Yoshizawa and other quality experts in japan developed the tools and techniques of QFD and created a comprehensive system to capture customer requirements thought the product or service development process. This is also termed as voice of customer a method of translating end customers' requirements into technical requirements during each stage of product or service development(Mazur, 1996).

QFD process starts with identifying the most important customer requirements, these requirements are rated based on their importance to the firm, and these ratings are then translated to specific product characteristics. Benchmarking is then done to identify how these product characteristics compare with similar product characteristics of the main competitors. Specific goals are then set to fix the identified problems; the resulting matrix is often called the house of quality.

The following Figure 5. Illustrates a computer server product planning matrix based on customer needs on a 1-5 ranking.

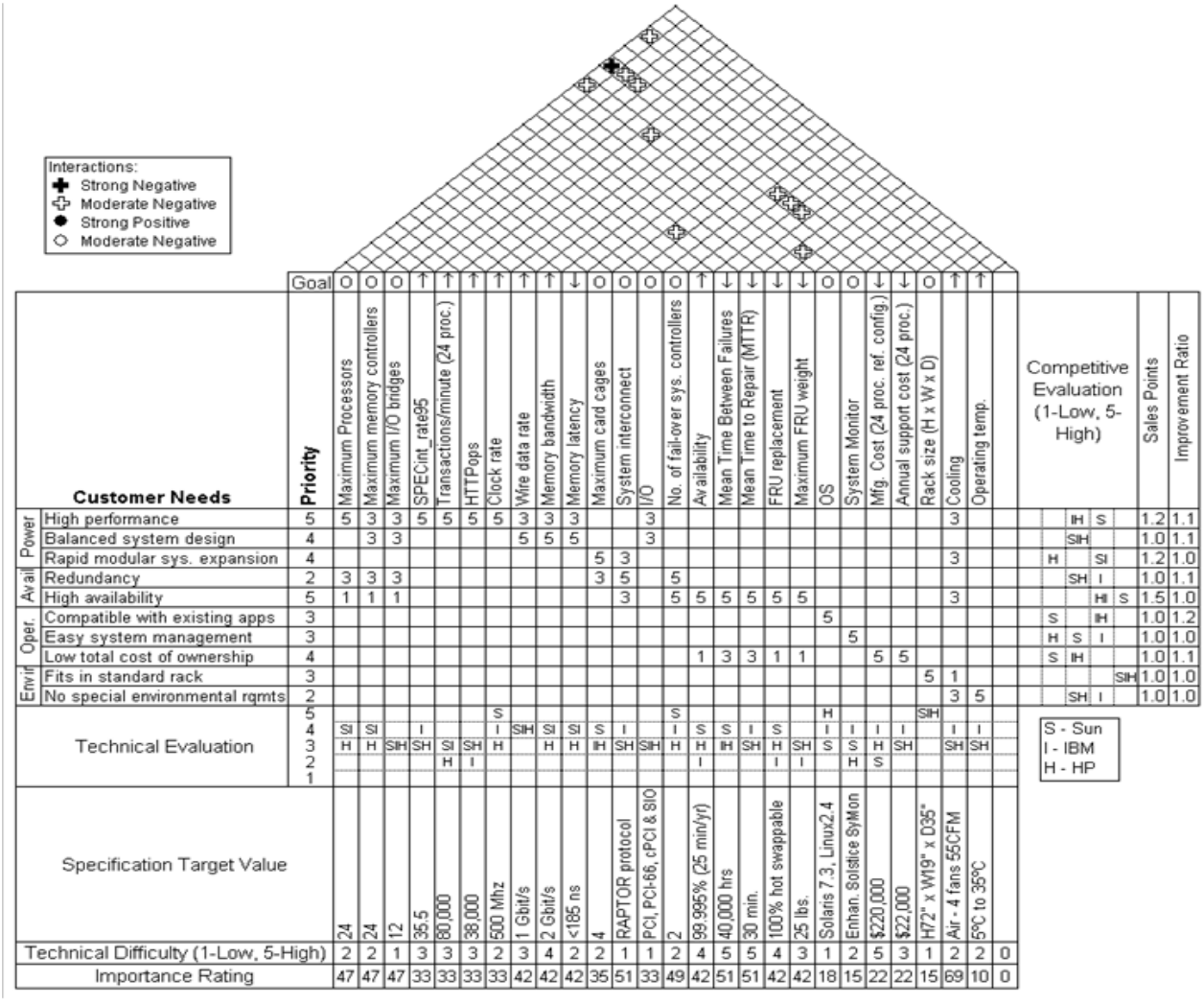


Figure 5: House of Quality, Computer Server Planning Matrix, Source: (http://asq.org/service/body-of-knowledge/tools-qfd)

2.2.2 Organization Systems and Processes

Organizational effectiveness and efficiency in achieving its objectives can depend on how Processes are identified, inter process interactions are understood and continuous improvement takes place. The systems view of the organization in order to meet the needs of external and internal stakeholders was recognized as being important to both Deming and Juran

A system according to Hoyle (2007) is an "ordered set of ideas, principles and theories or a chain of operations that produce specific results. To be a chain of operations, the operations need to work together in a regular relationship". (p. 65)

Processes can be thought of in the context of production which the inputs are in the form of people, energy, capital, machinery, and activities and operations need to take place to transform these inputs into outputs such as products or services. These processes are not limited to a department or a function but almost every process crosses functional boundaries, an example from a university could be payment of exam fees, which could be received at the academic office but may be processed by the accounting department(Evans, 2007, p. 39).

A systems approach to management is an understanding of the following:

- The organization is managed as a system of processes and all the inputs and outputs are connected, the processes are fed by resources in terms of employees, infrastructure and performance is actively monitored.

- A systems approach recognizes that processes are interconnected and the behavior in any part of the system has an impact on the system as a whole. So even if individual processes are working ok it is the system as a whole that has to perform well. For example in the case of private universities if the marketing processes are getting a number of new students, then the academic and administrative services would have to plan their processes to maintain a high level of quality.

An organization applying the systems approach can be characterized as:

- Organization structure that will achieve the objectives and goals
- Defining the system by identifying or developing the processes to meet the objectives
- Recognizing the inter dependencies between processes
- Making sure that the needs and requirements of all stakeholders are considered when making decisions
- Identifying resource constraints, prior to implementation(Hoyle, 2007).

Systems approach is a process based approach which is different from the traditional functional based approaches. In the functional approach, work is managed through departments and the focus is on departmental processes and departmental goals as opposed to organizational goals. There is also contention that can take place between the departments for scarce resources

According to Evans the vertical dimension or the functional organization is the traditional way of assigning functional responsibilities or viewing the organizational chart, however work is usually done horizontally across departments or cross-functional teams of people from across departments in a project, so work is done in an interdepartmental, process oriented manner(Evans, 2007, p. 39).

Figure 6 shows a comparison of the process and systems approach and a process decomposition of work. Process decomposition of work focuses on the business process in the figure the business process is demand fulfillment and procedures contain process descriptions on how this business process can be achieved. This introduces a change in approach from a functional approach where the organization is focused on function and department to break down work into department or functional processes.

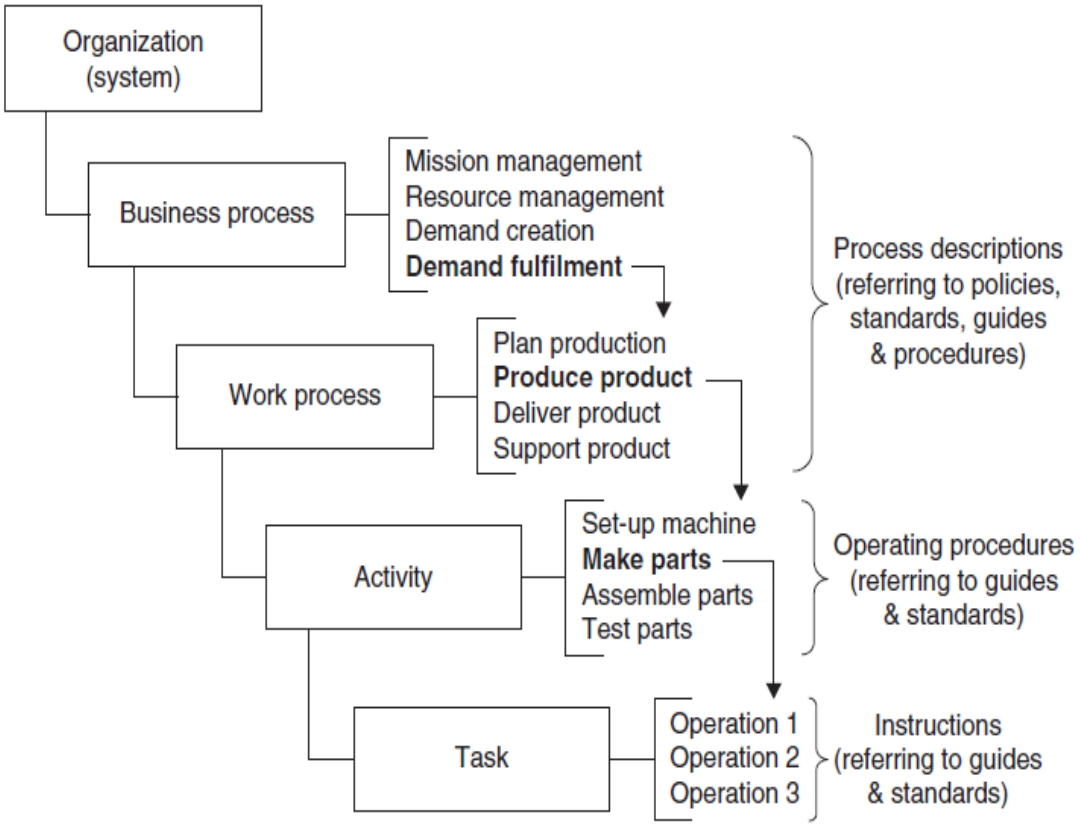


Figure 6: Process Decomposition of work source (Hoyle, 2007):

2.2.3 Quality Management Systems and Awards

To meet or exceed stakeholder requirements, needs and expectations effective organizations create and utilize quality systems. According to Summers, "Within a quality management system the necessary ingredients exist to enable the organizations employees to identify, design, develop, produce, deliver and support products that the customer wants"(p. 54).

The following are a few of the quality management systems that are relevant to the higher education institutions in Europe.

- ISO Standards
- ENQA (the European Association for Quality Assurance in Higher Education)
- TEDQUAL

ISO Standards

A growing number of organizations are using quality management systems to achieve a competitive advantage and the education sector can use these techniques for better management structure. Management structure that is based on effective process management is an integral part of the quality system(Rehman, 2010).

According to Hoyle (2007) the ISO Standards is a set of criteria that when applied, will help organizations develop the capability to create new customers and retain existing ones. It is not a product or a service standard, but a set of management guidelines that apply to determining customer needs and expectations, also a set of guidelines that involve the supplying products and services to satisfy the needs and expectations of the customer (p. 78).

As of now the ISO has developed over 18,500 International Standards and these cover a variety of subjects. However the ISO the ISO 9000 family of standards is more applicable to higher education institutions.

ISO 9000 family of standards provides the following:

- Set of standardized requirements for a quality management system regardless of the organization size, kind of business, private or public sector or higher education.

- Organizations can be certified against the standard although certification is not a compulsory requirement of the standard**.**

Since the ISO Model specifies the requirements for a quality system that has been standardized across any type of organization. So it is important to note that it only lays down the requirements of the quality system it does not specify how is has to be implemented.

This gives flexibility to the organization to implement it in a way that suits the need of the organization. The model is based on the Deming model of plan, do, act, check.

The standard requires the organization perform assessments of its ISO 9000 system to verify if processes are managed effectively.

The organization may engage the services of an independent quality system certification **to** obtain a certification. This is popular among companies who feel the need to have external auditors (Standardization, 2011).

The three standards in the ISO 9000 family are:

1. ISO 9000 Quality management systems – Fundamentals and vocabulary

2. ISO 9001 Quality management systems – Requirements

3. ISO 9004 Quality management systems – Guidelines for performance

Environmental management standards are covered by the ISO 14000 standard.

The following is a brief overview of the ISO standards, (Hoyle, 2007).

Attribute	ISO 9000 Family	ISO 9000	ISO 9001	ISO 9004
Purpose	To assist organizations operate effective quality management systems	Tooo facilitate common understanding of the concepts and language used in the family of standards	To provide an equitable basis for assessing the capability of orgnaizations to meet customer and applicable regulatory requierements	To assist organizations satisfy the needs and expectations of all stakeholders
Intent	To facilitate mutual understanding in national and international trade and help organizations achieve sustained success	To be used in conjunction with ISO 9001 and ISO 9004	To be used for contractual and certification purposes	To assist organizations purpose continual improvement. It is not intended as a guide to meeting the requirements of ISO 9001
Scope	The management of quality	Defines the principles and fundamental concepts and terms used in the ISO 9000 family	Defines the requirements of a quality management system, the purpose of which is to enable organization to continually satisfy their customers	Provides guidelines for improving the performance of organizations and them to satisfy enabling all stakeholders
Applicability	Applies to all organizations regardless of size or complexity	Applies to all terms used in the ISO 9000 family	Applies where an organization needs to demonstrate its ability to provide products and services that meet customer and regulatory requirements and aims to enhance customer satisfaction	Applies to organizations seeking guidance on developing quality management systems and improving their performance
Facts and figures	3 Standards	81 Definitions	8 Sections 51 Clauses 250+ Requirements	8 Sections 64 Clauses No requirements

Table 3: Overview of the ISO 9000 family of standards

ISO 14000 are a series of standards for environmental management and auditing requirements.

ENQA (The European Association for Quality Assurance in Higher Education)

Established in 2000 the European Network for Quality Assurance in Higher Education (ENQA) is an organizational body that promotes European cooperation in the field of quality assurance in higher education.

"The mission of ENQA is to contribute significantly to the maintenance and enhancement of the quality of European higher education at a high level and to act as a major driving force for the development of quality assurance across all the Bologna signatory countries"(ENQA, 2011).

ENQA stakeholders are namely the public authorities, higher education institutions, students and quality assurance agencies. ENQA goals should be clearly understood as it states that the primary responsibility for quality rests within the higher education institutions and external quality assurance, for which is the responsibility of external QA agencies.

So ENQA fulfills a different need it combines both accountability for the reassurance of the public and an objective and a developmental role for enhancing quality in institutions. This development role is provided through its experience, recommended best practices, and informing the stakeholders about new developments in the field of quality assessment and assurance in higher education..

ENQA's activities are to hold events such as conferences, workshops and seminars and also participate in transnational quality assurance projects, cooperation with stakeholders and development in quality assurance efforts.

ENQA produces publications dealing with developments in European quality assurance (ENQA,2011).

TEDQUAL

TedQual certification is awarded by the World Tourism Organization which is a leading specialized agency of the United Nations and is a global forum for tourism information and policy.
TedQual awards certificates to Universities that offer tourism and sustainability study programs after independent external auditing of the curriculum and the University.

The following aspects of important stakeholders are audited:

Industry: The curriculum is designed to meet the needs of the Tourism industry.

Student: Relevant curriculum and benefits that the study program gives to the student.

Pedagogic System: Contents, methodology and support with respect to infrastructure and equipment that are given to the program.

Faculty: Faculty, and facilities given by the Institution for its further training;

Management: How the program is managed and the existence and implementation of monitoring systems.

TedQual approaches quality management in a holistic manner, for example some of the questions that could be asked of Management in a tourism university are as mentioned in a paper by the program director (Ibañez):

Does your institution/program respect economic, social and cultural environment and transmit the same to the students, professors and local community? Please, give examples.

Does the structure which hosts the institution/program respect the natural environment (do not waste water, energy and other resources, recycle, others? Please, give examples. Mission, action plan, etc.?

2.2.4 Total Quality Management in Higher Education

According to Hogg, TQM in higher education can be quite useful since although the student is not a "product" is but the way a university offers and delivers courses, provides student services, and manages and conducts research are all processes focused on giving the student a better learning experience. TQM can help universities find solutions as it stresses continuous improvement of processes and products by listening to the voice of the stakeholders who could customers, employees, investors, suppliers, society which is also true of business organizations(Robert V. Hogg, 1995, p. 36)

So the fundamental drivers for TQM adoption in universities is that it is customer focused which in the case of higher education are the stakeholders of the University. Some of the tools of TQM such as Plan Do Study Act can be used to improve quality within a university through continuous improvement of processes and reducing variability this can be within academic or administrative services, for example library, Information Services, curriculum planning and assessment.

Some of the benchmarking tools can be used by universities especially private university that needs to adapt to global markets and competition to benchmark against competitors. TQM is also has a social aspect and there is respect for individual's point of view and supports empowerment which are the social aspects behind TQM.

However for institutions of higher education what is the and committed to pursuing total quality management change is essential, so there has to be huge institutional change that is needed in implementing TQM and constantly thereafter to maintain the effort. In the initial stage steps must be made to change the culture of the institution, and a culture based on customer satisfaction and continuous improvement and teamwork should be established. If this does not happen TQM will be little more than just a new initiative from the University(Sims & Sims, 1995, p. 12).

In developing a core value model for implementing TQM in small organizations Hansson & Klefsjö (2003) made observations that although management in a lot of small organizations have used TQM as a management strategy to develop organization's quality strategies and initiatives. TQM in most cases involves a huge change in organizations culture and way of doing things(Hansson & Klefsjö, 2003). This also includes Higher Education so implementing TQM is quite challenging from this point of view.

It was also observed by (Rehman, 2010) in the implementation of ISO the concept of TQM is relatively new in Academic Institutions and there is a lack of understanding of the main principles behind TQM, and a confusion of the concept with quality concepts such as ISO, also if there is another Quality Management in place it is difficult to merge ISO with the other system.(p. 8)

The ISO management system is also often confused with certification and standards such as the ISO 9004 standard and the costs associated with the audit activities. However standards such as ISO 9004 provide guidelines for institutions to perform self-assessments.

The benefits of the ISO quality management system is that it assesses management processes, provides the documentation of systems, compliance with systems, audits and incremental improvement. In higher education the ISO 9000 standards could be applied to the management processes which could include student admissions, staff recruitment and training, strategic planning, some elements of teaching and learning, research and project administration, international affairs(Wit et al., 1999).

3.1 Introduction to Lean Principles

The Toyota production system was where the initial work of Lean began in the 50s. James Womack defines lean as "lean is a way to specify value, line up value-creating actions in the best sequence, conduct these activities without interruption whenever someone requests them and perform them more and more effectively in short lean is lean because it provides a way to do more with more and more with less and less"(J.P. Womack & Jones, 2003).

Lean principles, also referred to as lean thinking consists of tools and techniques that attack the activities, behaviors and conditions that lead to waste. These tools can help identify incapable processes, variable processes, poor maintenance, variable work methods, and redundant activities and lack of communication. Effective organizations that use these methods can cut production costs, improve service levels and enhance the effectiveness of quality management. Lean thinking can enhance company performance by reducing wastes in non-value added processes.

Waste or "muda" its Japanese equivalent can be described as an activity that consumes resources but does not add value. Taiichi Ohno, a Honda process engineer identified seven kinds of waste. Which are wastes from overproduction, waiting, transport, rework, excess inventory, excess movement, goods and services that do not meet customer needs.

Lean provides tools to reduce these wastes, which could include inadequate processes, inadequate tools and equipment, insufficient training (Summers, 2009, p. 354).

The five-step thought process for guiding the implementation of lean techniques or the principles of lean are:

1. Specify value from the end customers point of view

2. Identify all the steps in the value stream and eliminate whenever possible those steps that do not create value.

3. Make the value-creating steps occur in an efficient sequence so the product or service will flow smoothly toward the customer.

4. As flow is introduced, let customers pull value from the next upstream activity this is also known as pull.

5. As value is specified, value streams are identified and wasted steps are removed, flow and pull are then introduced, begin the process again and continue it until a state of perfection is reached in which perfect value is created with no waste (Institute, 2009).

Lean thinking uses a diverse set of tools, the ones that are most commonly used are:

Value Stream Mapping: Value stream is all the actions which include value added and non -value added currently required to bring a product or service through the main flows essential to every service. Value stream mapping can be a communication tool, a business planning tool and a tool to manage the change process.

The steps of a value stream map are indicated by Figure 7.

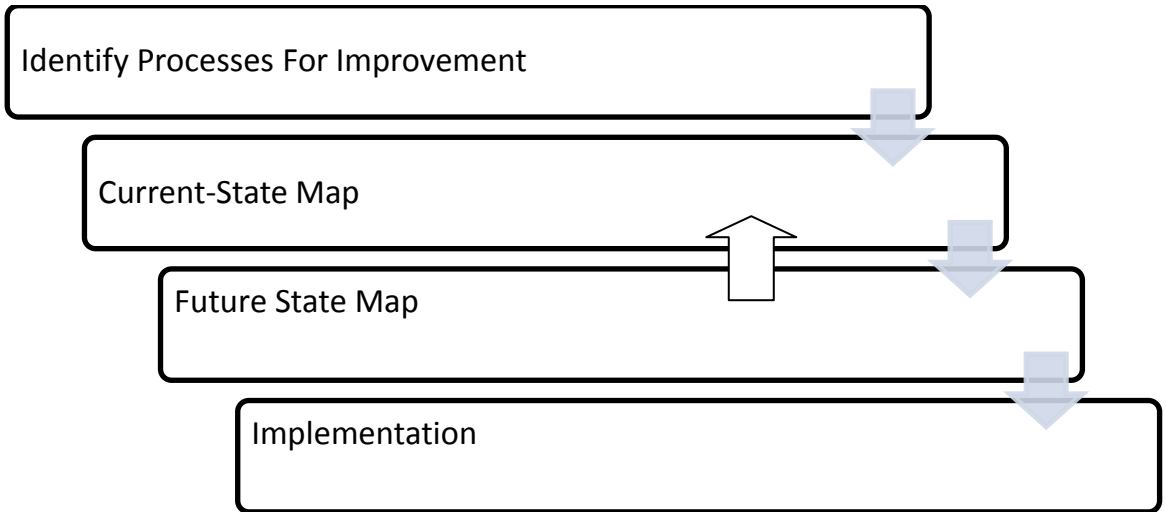


Figure 7: Steps of a value stream map

Value stream mapping begins with an analysis of process flow linkages and drawing a current state map of the process flow, this can be done using flow diagrams, or value stream mapping tools. Once the current state is mapped out wastes are identified in the processes and a future state map is drawn. The value stream is a continuously improving process so the current state should always have a corresponding future state (Rother & Shook, 2003, p. 19).

Kaizen refers to continuous process improvement, "Kaizen is a Japanese word meaning "small, on-going good" (kai) and "good, for the better". In recent years, kaizen has been defined as "small improvements generated by hands-on workers through the application of a variety of structured, low-technology methods." It is a philosophy, a leadership style and a set of tactical tools"(Kaufman Global, 2003).

Kanban is about the flow of value through the system through a pull system which eliminates wastes and limits the work in progress or wait time in services. Kanban is based on lean principles such as customer value, kaizen, value stream and flow.

3.2 Lean in Higher Education

According to James Womack education is composed of three processes, these three are classified as:

Design: Creation of knowledge in terms of training material, and educational instruction.

Make/Provide: Academics provide an environment to transfer their learning experience the knowledge transfer to undergraduates & post-graduates.

Use: This continues through the lifecycle of the learning experience of the graduates and undergraduates.

It is important to identify the value in terms of education, and there are a number of questions for example is value the transformation process of the student to maturity, Creation of certificates of knowledge that are portable in a highly mobile society, so it is important to identify value before using lean techniques(James P. Womack, 2006).

Although the application of lean has been quite effective in the Universities as a method to eliminate waste and improve process flows in both academic and administrative services. Lean has been used in a number of ways for example to design curriculum, prepare courseware, admissions, accounting.

However there is much potential to improve customer value and eliminate waste in universities. There is however a resistance to change since the application of lean requires changes to the more traditional ways of operation(Peter Hines, 2008).

4. Research Approaches & Philosophy

This section covers the research approach and the methods that were used collect data and perform the research activities of the thesis. To design and plan the research activities the researcher has used the following methods (Bickman & Rog, 1998, p. 19):

- Personal knowledge of the topic, through lectures, journals, books, whitepapers, audio visual means, and electronic articles
- Interviewing a set of people and being a participant within the environment using observational methods, and action research methods
- Use of documentary evidence such as quality management reports, annual reports, other internal documents

The type of research paradigm used is one where the researcher uses his knowledge of the topic and primary data collection methods have been done through interviewing people and being a participant within the environment. This approach is of an interpretative nature. Interpretative research paradigm is used most often in the social sciences but can be applied to information sciences and operations management.

The study uses the inductive approach as the theory is arrived at by analyzing the collected data. This can be contrasted with deductive approaches. A deductive approach is where a theory and hypothesis is developed and a research strategy is designed to test the hypothesis (Saunders et al., 2009).

The following Table 4. Adapted from Saunders et.al, illustrates the differences between the approaches (p. 127).

Inductive Approach	Deductive Approach
Gaining an understanding of the meanings humans attach to events	Based on scientific principles
The collection of qualitative data, analysis and formulation of theories, more flexibility in terms of research	Moving from theory to data collection using quantitative methods
A close understanding of the research Context as in most cases the researcher is part of the research process.	A highly structured approach and the researchers are in most cases independent from the subject of the research.
Less concerned with the need to generalize conclusions	To use quantitative methods it is essential to select samples of sufficient size in order to generalize conclusions

Table 4: Different Research Approaches

The following Figure 8 illustrates the research process as composed of Philosophies, Approaches, Strategies, Choices, Time Horizons, and Techniques and procedures.

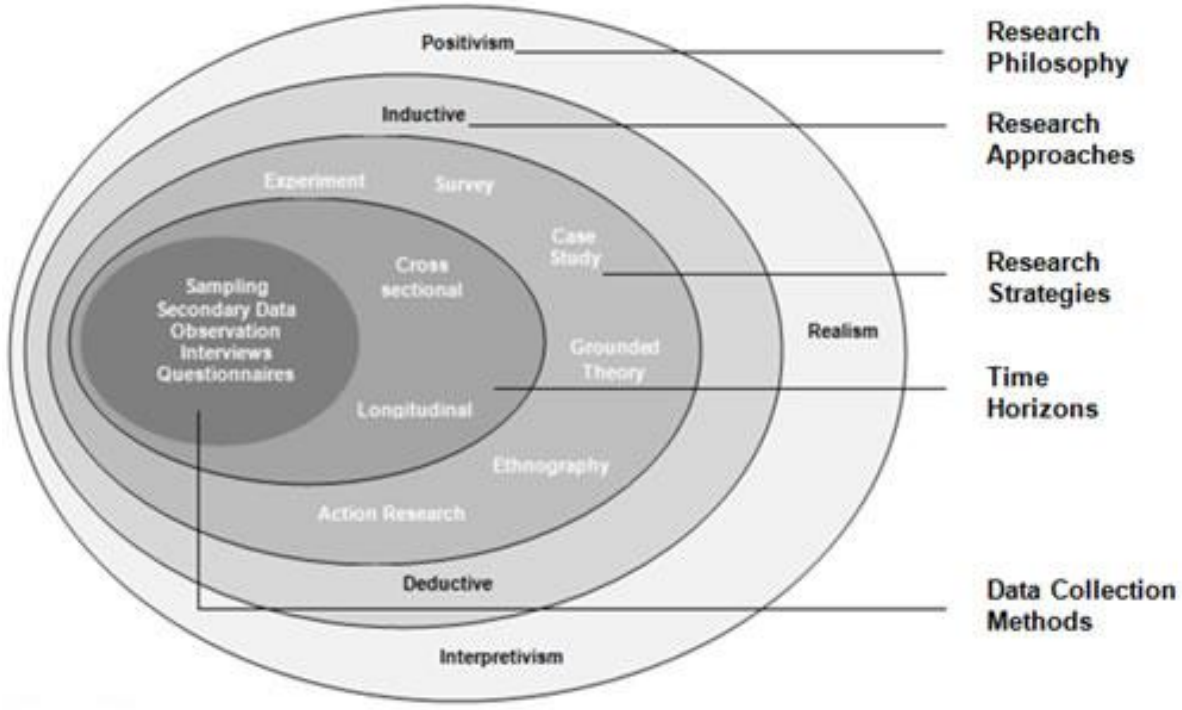


Figure 8: Research Onion, Source (Saunders et al., 2003)

4. 1 Research Methods

Research methods used in this thesis are qualitative research methods, reasons why they were used was because, was to understand the meaning and views quality management from the responses of the respondents who are interviewed. Also the sample interview size was not big enough to arrive at any general conclusions. The approach adopted by the research is also of an inductive nature The techniques used were case study, observation and action research these research techniques are however not limited to qualitative research.

Case Study:

A case study can be understood as an intensive study of a single case which can be a sample, where the purpose of the study is to shed light on a larger population (Gerring, 2007, p. 20). The subject of the case study in this case is MU Vienna, and the purpose of this thesis is to analyze and draw some conclusions from examining this case, which can then be applied to the larger population such as private universities or private universities in Austria.

Action Research & Observation:

Observation in this case is used to get some holistic insights since in this case the research results are more applicable to the domain under study (Chen, et al., 1991). This method is very helpful when measuring behavior or time studies such as the amount of time it takes for an admissions officer to enter data into an online system.

Action research, Coughlan has defined the six steps of action research as:

1. Data Gathering: Through interviews, documentation, observation
2. Data Feedback: Validating the data collected, participation in feedback meetings
3. Data Analysis: To analyze the data in a way that it supports the research purpose
4. Action Planning: Planning process to identify what needs to change in which part of the organization, what types of change is required.
5. Implementation: Implementing the planned action
6. Evaluation: Examining the outcomes of the action (Coughlan & Coughlan, 2002).

Action research for the purposes of this thesis is quite useful and can leverage lean and qualitative tools such as flow charts, value streams, and decision trees, process diagrams to visualize the planned action and study its impact in the evaluation.

4.2 Data Collection Methods

In addition to observation, in-depth interviews can be used to collect primary data. In-depth interviews are useful when people or participants in an organization have been identified and whose participation can help give helpful insights and information about the research problem. The in-depth interview gives the ability to understand what the individuals opinions are about the topic. As a method it has the following main advantages and disadvantages see (Stacks, p. 174).

- Understanding of the problem being researched
- Understanding of the person being interviewed, which provides for introspection on the part of the interviewee and helps the interviewer have control over the type and order of questions
- High rate of accuracy in data collected over a small sample

Some of the disadvantages of interviews are the following:

- Background Research – Planning for the interviews as to whom to interview and what to ask
- Limited Access to the Interviewee – Getting appointments or access to the interviewee due to schedule clashes
- Conducting the In-Depth Interview – The interviewer has to be well prepared with background information about the research area.
- Location – Comfort zone in terms of location
- Interview Schedule – Since in-depth interviews generally consist of open ended questions which could take the form of funnel questions that can drill down to details or can switch to another set of questions, setting the schedule can be quite problematic at times.

4.3 Research Limitations

The following are some of the limitations of this research; some of the problems are common problems with the chosen research methodology:

- This research may lack objectivity or there might be individual bias. This could be due to the chosen research methods and the result of the researcher being a participant in the environment of the subject of the case study.
- Problems arising due to a lack of extensive theoretical conceptual knowledge.
- Problems with the research strategy and quality.

- Some problems were felt with the scheduling of interviews, members of the university board and some important stakeholders could not be interviewed.

- Due to a lack of time and getting the right employees to coordinate some other organizational processes could not be analyzed. This also applies to the departmental sub-processes that are components of the organizational processes.

- Some departments whose activities were not part of the research were marketing and accounting. Also some processes such as vendor analysis could not be analyzed.

5.1 Private Universities in Austria

In Austria, the emergence of private universities is relatively new in comparison with other countries such as the USA, UK, and Australia. In 2001 a federal law was passed (Universitäts-Akkreditierungsgesetz) making accreditation mandatory for all private universities that grant academic degrees.

This accreditation is done by the Austrian Accreditation Council which is a state authority and assesses the quality of private universities. The council then issues recommendations to the responsible accreditation authority, the Federal Ministry of Education, Science, and Cultural Affairs. The Austrian Accreditation Council supports quality development at these institutions.

As of 2011 there are 13 private accredited universities in Austria and 35% of the students at these private universities are not Austrian citizens.

5.2 MODUL University Vienna

MODUL University Vienna (MU Vienna) is an international private university in Austria. The University was established in 2007 with an aim to provide quality education in the areas of sustainability, tourism, information technology and public governance. MU Vienna is located on top of Kahlenberg and overlooking the city of Vienna.

The University maintains an international orientation by having study programs conducted entirely in English. The study programs currently offered by MU Vienna fulfill the requirements set by the Austrian Accreditation Council. From the data compiled in the Annual Report 2009-2010, in 2010 there were 210 students from which 51% of them were international students. The plan for the final development phase of the University is to have more than 540 students (Annual Report 2009-2010, p.11).

MU Vienna is owned by the Vienna Chamber of Commerce and Industry. The Chamber of Commerce and Industry has a long history spanning 150 years of supporting education in Austria. It is currently the largest supporter of private schools in Austria and is counted amongst the largest organization supporting adult education in the country.

The university consists of four main departments which reflect the core competences, educational and research focus of the university. These departments are the following:

- Department of New Media Technology
- Department of Public Governance and Management
- Department of Tourism and Hospitality Management
- Department of Applied Statistics and Economics

5.2.1 University Development Plan

As defined in the Annual Report 2009-2010, the development plan states that MODUL University Vienna is a private university in Austria that is recognized by the Federal Ministry of Science and Research. It commenced its operations on 1 October 2007.

The Development Plan of MODUL University Vienna (2011-2016) is set to extend and specify the strategic focus and developmental goals that were defined during the establishment of the university. The Plan is based upon various assumptions with regards to important developments of the external and internal environment of MODUL University Vienna. In addition, it contains a suggestion for a strategic focus and the development of a profile as well as an organizational and personnel plan (Annual Report 2009-2010, p.80).

Some of the important elements from the development plan that are considered in terms of Quality Management at the University are presented in the following sections.

5.2.2 Stakeholders of MODUL University Vienna

It is important to identify the key stakeholders in order to understand the Quality Management at the University. The University deals with a number of stakeholders whose expectations need to be anticipated and met.

Stakeholders of MODUL University Vienna are the following:

- Applicants/Students
- Industry
- Scientific Community
- Society and Media
- Sponsors/Partners
- Owners
- Accredition Councils

A key stakeholder is the Austrian Accreditation Council and some additional academic certifying institutions. They are considered key because the conditions for accreditation require continuous evidence of research as well as fulfilling at least 50% of the teaching obligation with the permanent staff. In order to continue its operations, MODUL University Vienna must be granted reaccreditation in 2012 (p 80.).

5.2.3 Mission/Vision and Goals

The organizational mission and vision is an important management instrument which express the soul of the firm and indicate what the organization stands for, what its primary goal is where it wants to go to, and how it plans to reach there (Rampersad, 2001, pp 211 - 223).

The mission and vision as defined in the Annual Report 2009-2010 is:

> "MODUL combines a strong academic foundation with a commitment to sustainability and innovation as the key drivers of long-term success. It aims to foster independent and original research and bring the benefits of innovation to the research community and the general public. MODUL builds upon an international network of partner universities, commercial enterprises and public institutions. Its faculty comprises renowned Austrian and international scholars who have a strong commitment to develop this young organization into a leading research platform in its fields.
>
> In pursuit of its mission, the University will respond creatively to local, national and global change. It will initiate and support internationalization, lifelong learning, equity and social justice. MU Vienna applies rigorous standards of scholarship and promotes the principles of freedom of scientific thought and teaching as well as equal opportunity.
>
> Following the tradition of the MODUL training center for vocational education, the university commits itself to continuous quality improvement and the extension of its educational programs. First-class education in Tourism and Hospitality Management, Sustainable Development, Public Governance and New Media Technology empowers graduates to occupy executive positions world-wide.
>
> Sustainability and environmental protection are key principles of MU Vienna and it acknowledges and embraces the urgent need for development strategies that meet the needs of the present without compromising the welfare of future generations. Sustainability represents an integral part of the curriculum and research agenda and is also reflected in the daily work flow. The university operates in a manner that minimizes environmental risks and adverse effects on the environment. This includes meeting or exceeding environmental legislation and standards, using energy efficiently, conserving water, preventing pollution, minimizing waste and using recycled materials whenever possible. MU Vienna will carefully select its suppliers and contractors, ensuring that they show a similar commitment to social and environmental principles. Ongoing communication and training will build awareness of these principles among students, faculty, contractors and partners", (p82.).

The University has identified its main goal as being acknowledged as Austria's leading private university. The other goals of the university are:

- Academic excellence in the areas of New Media Technology, Public Governance and Tourism Development and Management.
- International recognition and awards for its study programs, high levels of student satisfaction, methodological competence, internationally competitive research output and rigorous commitment to innovation and sustainability (ibid. p83).

5.2.4 Educational Values and Activities

The University has also identified five educational values as formulated by the Tourism Education Future Initiative (TEFI) and is as follows:

Progress and Innovation: MU graduates value people's ideas and creativity and are prepared to deal with complex problems.

Stewardship: MU graduates are ambassadors of sustainable and responsible living

Ethics: MU graduates support the principles of equity and justice as basic principles

Knowledge: MU graduates are ready to accept change and new challenges

Mutual Respect: MU graduates value humanity and diversity among people

MODUL University Vienna is active in four areas:

Research: The autonomous generation of knowledge and the active participation in the scientific community is an essential component of the core identity and an indispensable requirement for research supported teaching.

Education: Activities that relate to stimulating and expanding students' knowledge.

Transfer achievements: All activities that aim to solve the problem facing society, in particular those which are economic in nature, but result from areas not attributed to research and education.

Sustainable development: All activities undertaken by members of the university which also help to achieve the university's sustainability goals.

These leading goals together with the five educational values lay down the fundamental basis and direction and development of MODUL University Vienna. In particular, the goals of MODUL University Vienna will be met through the development of its profile, improvements in the quality of its courses and teaching through department specific research emphasis and activities (ibid.p84).

5.2.5 Departments and Organizational Structure

The different departments and study programs within those departments are illustrated by the following Table 5.

Department	Study Program
Tourism and Hospitality	1. BBA in Tourism and Hospitality Management 2. MSc in International Tourism Management 3. MBA in Tourism Management 4. Seminars in Hotel, Tourism and Leisure
Public Governance	2. MSc in Sustainable Development, Management and Policy 3. MBA in Public Governance and Management
Applied Statistics and Economics	
New Media Technology	1. MBA in New Media and Information Management 2. Seminars in New Media

Table 5: Departments and Study Programs

In addition there are eight service facilities within the University. These and the administrative office form the non academic departments of the University (ibid.p110).

1) Academic Office (ACO)
2) Admissions Office (ADO)
3) University Communication Office (UCO)
4) Student Service Center (SCC)
5) MODUL Career (MC)
6) Library
7) Information System Services (ISS)
8) Cafeteria
9) Administration Office – Accounts and Administration

As of September 2010, the University employed 30 non-academic staff (includes staff working in shifts) at the University. The number of permanent academic staff was 19, the academic staff also has a number of external teachers, and the ratio of teaching hours for external and internal during the period 2009-2010 for the BBA programs was 65.28% (ibid.p113).

The president of the University is a renowned academic and practitioner in the areas of tourism and hospitality and information systems. He is also the program director of the MBA and MSc programs in Tourism Management.
The following figure 9: Illustrates an overview of the organizational structure within the University

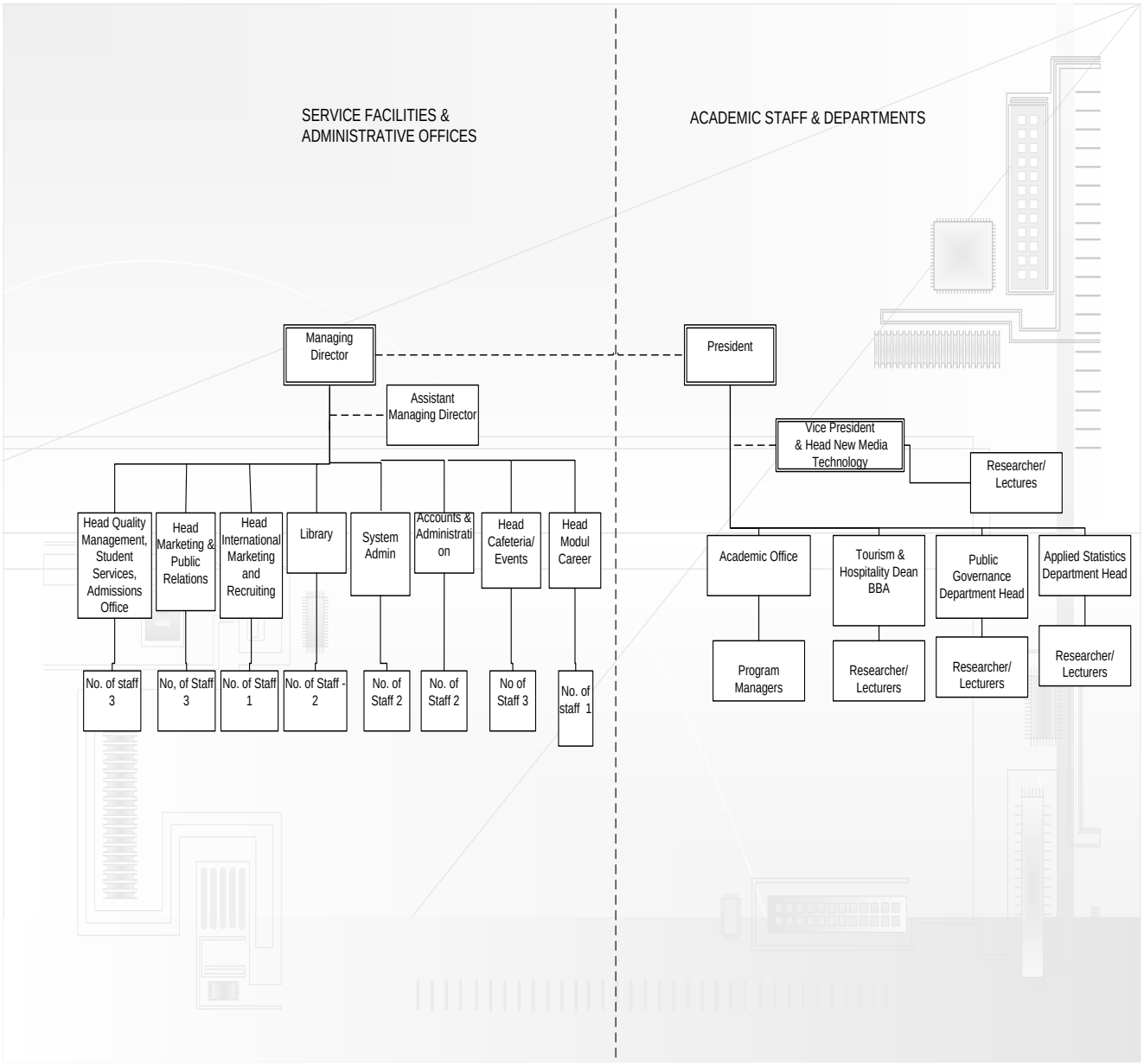


Figure 9: MU, Vienna Organization Chart

The vertical dotted line indicates the separation of responsibilities between the President and the Managing Director. The Managing Director primarily manages the operations of the University; the functions include commercial development of the University, supervision of administrative staff, budget planning and controlling, appointing administrative staff, supervising and development of administrative processes.

All important decisions such as making decisions on interdepartmental matters, annual budgets, and initiation of quality assurance measures .etc. have to be passed by the University Board. The members of the University Board are the President, Vice-President and the Managing Director.

5.3 Quality Management

The following sections provide information about the state of the current quality management system at MU Vienna. The analysis is done using secondary sources of data and based on the annual report for the academic year 2009-2010 and the 2010 Quality Management Report.

5.3.1 Dimensions of Quality

Quality Management at MU Vienna covers all areas of activity and includes teaching, research administrative services. The quality dimensions as defined in the 2010 Quality Management Report by the University are concept, structure, process, outcome, and impact. This is illustrated by Figure 9.

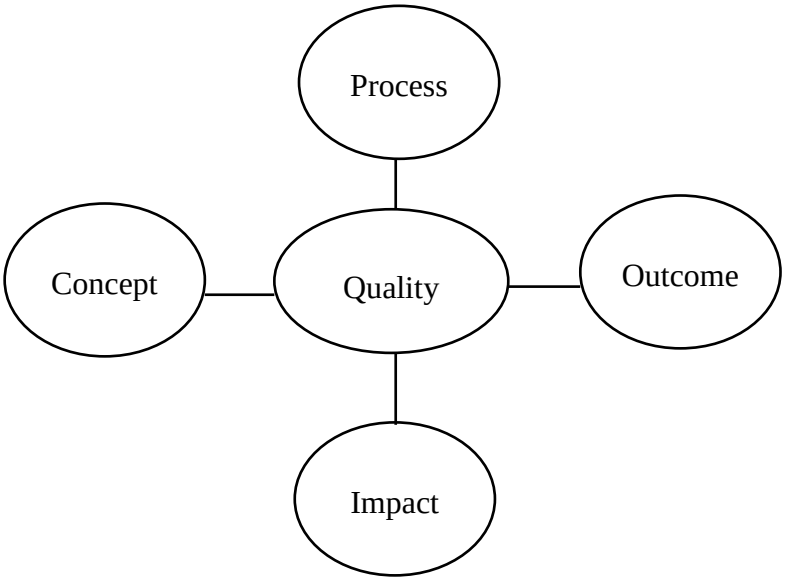


Figure 10: Dimensions of Quality at MU Vienna

These dimensions of quality can be described briefly as follows:

Concept: Quality in Teaching, Studies and Research

Structure: University administrative services used by students, infrastructural and research facilities

Process: Quality in Academic and administrative processes that facilitate in meeting the University's goals and objectives.

Outcome: The final output, results

Impact: The impact on stakeholders, impact of research activities on other institutions and society, the impact of the Universities activities on the environment (Quality Management Report, 2010, p 1).

5.3.2 Quality Assurance Processes

Quality Assurance in teaching, studies and research is an important part of MU Vienna's concept and an important criterion in determining the success of the University. A number of quality assurance processes are required for the accreditation of MU Vienna's study programs. Quality Assurance processes also extend to the administrative services of the service facilities.

The following Table 6. based on information from the 2010 quality management report illustrates quality assurance processes in teaching, faculty, research and administrative services that are partially implemented and process in planning (p. 2).

Table 6: Quality Assurance Processes

Faculty & Research Development	Administrative Services	Student Development
✓ Internal/external teaching ratio ✓ Teaching load and experience (faculty interviews) ✓ Faculty structure ✓ Promotions ✓ Awards and prizes ✓ Conference participations ✓ Research community services ✓ Journal articles ✓ Monographs ✓ Conference publications ○ Professional training ○ Basic research projects ○ Industry research (Thawesaengskulthai)	Student Service Center ○ Volume of services ○ Evaluation by students Library ○ Resources and volume of services ○ Evaluation by students ▪ Evaluation by faculty Cafeteria ○ Volume of services ○ Evaluation by students ○ Evaluation by faculty and staff Information Systems Services ○ Volume of services ○ Evaluation by students ○ Evaluation by faculty and staff	○ Admissions stats ✓ Volume ▪ average grades, professional experience, ▪ recommendation rate ○ Graduates and study time ✓ Scholarship and admission statistics ▪ Student evaluations by lecturers ✓ Student mobility (exchange programs) ✓ Professional development (internships) ✓ Mentoring program ▪ Non-curricular activities ✓ Graduates evaluation ▪ Alumni evaluation
✓ Process implemented ○ Process partially implemented ▪ Process in planning		

5.3.3 Quality Management Instruments

According to the Annual Report 2009-2010, the development of the course evaluation system has been the main objective of quality management activities in 2010. The results of the course evaluations are made accessible to the lecturers and their respective deans. This enables the dean's to discuss the outcomes with the lecturers. The course evaluations are of the following type:

- Course Evaluation of lecturers completed by students
- Course Evaluations completed by lecturers

In addition to course evaluations a feedback questionnaire was handed out to students that graduated from the BBA in Tourism and Hospitality program at MU Vienna in 2010. The survey provided feedback regarding satisfaction with the program, the university, administrative facilities, external internships, partner university exchange programs, and other services offered by MU Vienna (Annual Report, 2009-2010, p 69).

Some of the other instruments that have been developed are:

- MU Vienna Development Plan submitted to Austrian Accreditation Agencies(AAC/ ÖAR)
- Development plans submitted to other external accreditations and audits (AMBA, TedQual)
- External evaluation in the hiring process
- Complaints box in the student service center
- Data acquisition sheet – Faculty
- Employee Satisfaction Report
- Faculty Professional Development Plan Objectives

5.3.4 Organizations of Quality Management

The following boards, committees and councils promote Quality Management at the University.

Industry Advisory Boards: The University has implemented a number of advisory boards, one for each department. Members of these boards are senior executives in the industry in areas such as telecom, sustainability, tourism and hospitality. The board represents the industry focus of the various study programs and curriculum offered at the University.

University Council: The University Council supports the University Management in the development activities of the University.

University Board: The University Board consists of members who are responsible for directing the operations of the University. The members are the director, president and vice president. The University board is primarily responsible for the initiation of all quality measures at MU Vienna.

University Assembly: The University Assembly consists of all faculty members, a maximum of four representatives of the external teaching staff and four representatives of the students.

Important functions of the University Assembly include:

- Providing information on all important developments affecting MU Vienna.
- Bringing specific issues to the attention of the University Board.

Sustainability Committee: MU Vienna established the Sustainability Committee in September 2007. Sustainability is a key principle in the development goals of the University. The committee has a number of participants from the faculty, staff and student body (Committees).

In addition to these organizational bodies that promote Quality Management the following auditing bodies and discussion forums are present:

- Directors meeting, faculty meeting, retreats
- Regular meetings of the student representatives with the Deans
- External expert participations in master thesis defense meetings and search committees
- Annual faculty interviews
- Voluntary audit

The following Figure 9. Illustrates an overview of strategic quality management planning steps within the University.

Figure 11: Strategic Quality Planning

5.3.5 Survey of Student Satisfaction with the BBA Program

In this section results from the feedback survey that was given to BBA graduating students in 2010 are presented. The goal of the survey was to gauge the level of overall satisfaction with the program, the university, administrative facilities, external internships, partner university exchange programs, and other services offered by MU Vienna.

The following Table 7. Illustrates key results from the survey (Annual Report, 2009-2010, p 69).

Quality Measure	Description	Results
Overall opinion of the BBA program	The BBA program met expectations and will recommend the study program to potential students	More than 60 % of the students
Student-lecturer relationship	Positive relationship with lecturers	62% had a positive relationship
Study Requirements	Met the requirements of the study program	64% of the students met the requirements of the study program
Schedule	Schedule of courses was well planned	Only 45% of the students were satisfied
Exchange Semester in Partner University	Recommend the partner University to other students	80% positive
Internship	Recommend partner institution for internship to other students	80% positive
Orientation Week	Orientation week for new students was beneficial	80% of the students were positive
Student Service Center	Counseling Quality	68% positive
Facilities at MU	Satisfied with room availibility	55% positive
Information Technology	Satisfaction with technical equipment	90% positive
Library	Satisfied with the availability and variety of books	58% positive
Cafeteria	Food quality and diversity of food	60% positive
Admissions	Satisfied with information about the University and study programs	88% positive
Accounting	Tuition fee transfer process was convenient	61% positive

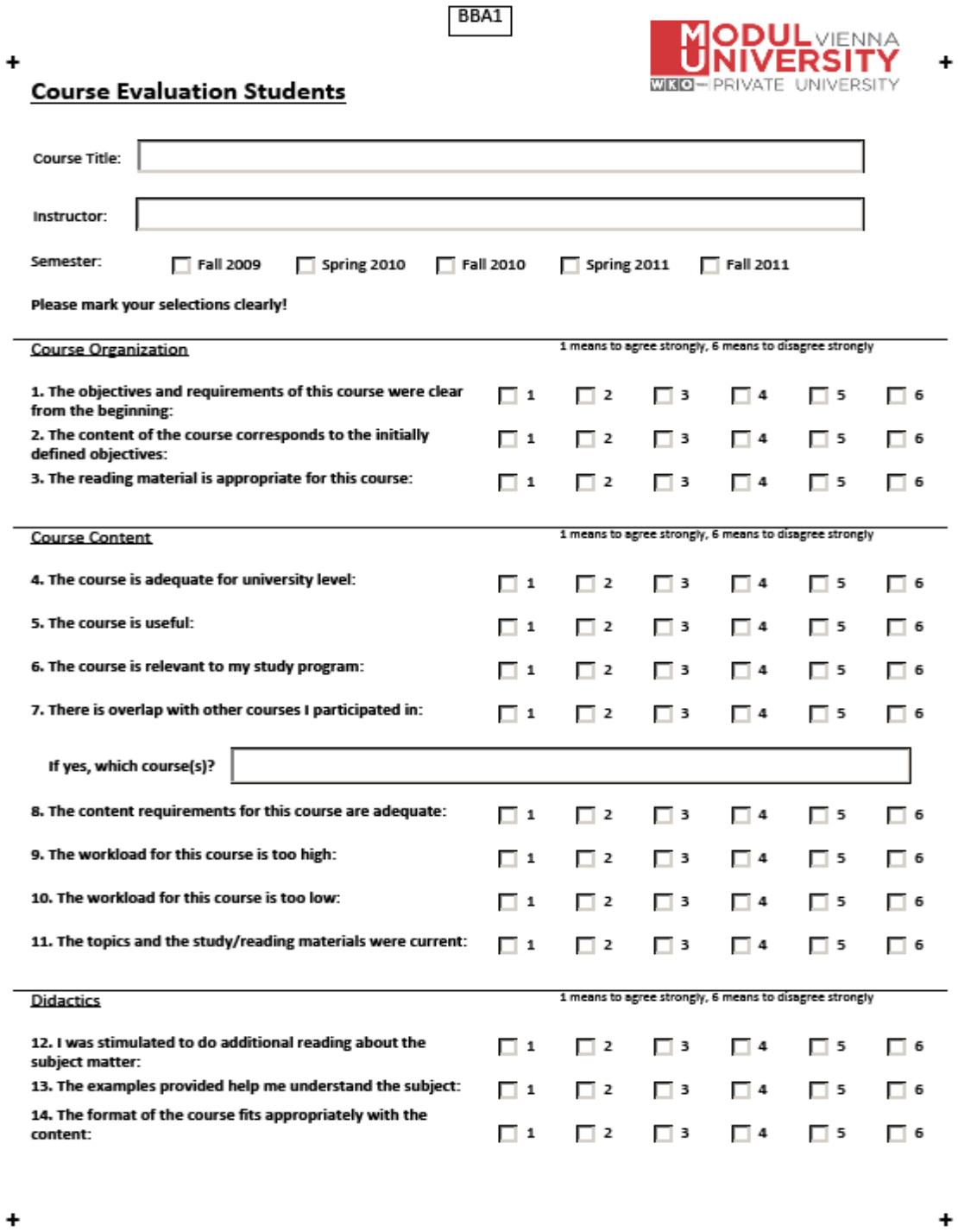
Table 7: Results from the feedback survey

5.3.6 Course Evaluation of Lecturers

Development of a course evaluation system was one of the main Quality Management objectives in the academic year 2009-2010. The aim of the course evaluation was to measure the performance of the lectures based on student's evaluation of the course.

The following Figure 12. Illustrates a sample page from the survey questionnaire. Results from this course evaluation are not presented due to data confidentiality reasons (Quality Management Report, 2010, p 6).

.



BBA1

MODUL VIENNA UNIVERSITY
WKO – PRIVATE UNIVERSITY

Course Evaluation Students

Course Title: _____

Instructor: _____

Semester: ☐ Fall 2009 ☐ Spring 2010 ☐ Fall 2010 ☐ Spring 2011 ☐ Fall 2011

Please mark your selections clearly!

Course Organization	1 means to agree strongly, 6 means to disagree strongly					
1. The objectives and requirements of this course were clear from the beginning:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
2. The content of the course corresponds to the initially defined objectives:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
3. The reading material is appropriate for this course:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

Course Content	1 means to agree strongly, 6 means to disagree strongly					
4. The course is adequate for university level:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
5. The course is useful:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
6. The course is relevant to my study program:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
7. There is overlap with other courses I participated in:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
If yes, which course(s)? _____						
8. The content requirements for this course are adequate:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
9. The workload for this course is too high:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
10. The workload for this course is too low:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
11. The topics and the study/reading materials were current:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

Didactics	1 means to agree strongly, 6 means to disagree strongly					
12. I was stimulated to do additional reading about the subject matter:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
13. The examples provided help me understand the subject:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
14. The format of the course fits appropriately with the content:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

The following sections cover the questions and responses to the in-depth personal interviews conducted at the University. The responses to these interviews provide primary sources of data for the analysis section. Interviews were held with the following sources:

Boards and Committees: Head of Sustainability Committee, University Assembly representative

Accreditation Processes: Assistant to the Deans

Research & Faculty: Researcher & Lecturer

Administrative Departments: Student Service Officer, Head of MODUL Career

The sources were selected based on their extensive experience with organizational processes at the University.

5.4.1 Boards and Committees - Sustainability Committee

Environmental and Social Sustainability represent key principles in the mission statement of the University. This committee was established in 2007; it is an open committee and has a membership that includes staff, students and faculty. Some of the areas that the committees activities focus on are:

- Environmental Legislation and Standards
- Renewable energy sources
- Water Conservation
- Pollution Control
- Waste Control
- Recycling

The following questions and recorded responses are the results of an in depth interview with the head of this committee.

1. What is the role of the sustainability committee?

   I am the head of the sustainability committee but the sustainability committee functions as a democratic platform where all our members has the same balance of power and voice and everyone can bring in their ideas related to sustainable development.

   So this is the main idea so it is an open forum where we are inviting all the members of the university including students faculty staff members to actively participate, this means that if someone is interested if anyone does not want to be an active member, he or she can come and listen and contribute with ideas either by email and bring it towards the committee.

2. Does the committee include students?

   This includes students we currently do not have any BBA students being part of this but some of the MBA students are members, but we are looking to get some new students who are interested so we have so far now we have four MBA students.

3. How can students promote sustainability?

   We have incentives in the form of scholarships which is the scholarship of hope. The scholarship of hope falls into the responsibility of the sustainability committee. The president thought it good to dedicate the scholarship of hope to sustainability ideas so we launched the scholarship of hope program.

   This is completely new and was launched this year for the first time now and with the specific focus on sustainability ideas. So students are invited each year to submit ideas for sustainability, projects that are in principle, could be ideally implemented here in the university. This should a project that is practically implementable.

4. Are there any project plans and timeframes for implementing these projects?

   Our problem is actually is this year two winning projects were related to building, so we had to approach the owner of the building. We talked about the project and the owner came to the sustainability committee and told us that he would be interested in implementing but did not give us a more concrete idea, but if students could come up with ideas that could be implemented independently in the sense without asking the owner of the building then we would be interested to implement it immediately say within one year.

   Financing is part of the scholarship of hope we ask the students to come up with a realization plan, business plan for the project, they have all this information beforehand but this is also subjective and based on their knowledge.

5. How does teamwork, collaboration and goal setting work in the committee?

   What we normally do is we have an agenda, so far I came up with an agenda of a few things and at the beginning the participants are asked if they agreed or not and normally we discuss them within one hour or one and a half hours.

   If there is something to decide we decide it immediately after the meeting for example we are running in for an employee satisfaction survey and we all decided we wanted to do that and then we decided how to do that and then we formed a subgroup responsible for it and worked on independently and they bought in the results into the sustainability committee meetings.

6. How do you contribute to Quality within the University?

   This is linked to the social dimension of sustainability and we believe that it is absolutely important that an employer is aware that satisfied employees are big portion of success of any company. So this is something we are looking to improve the working environment of employees and have them bring in ideas on how to do that. We also provide a way that they can also complain about aspects that they are unhappy with. This all about the work life balance aspect. So we are interested to know if the University provides this environment. We are currently working on a questionnaire to find out about employee satisfaction within the University. This is in the last stage since we need to have an English version for this. The president is interested in having this as a quality management tool and we hope the university is interested in using this tool.

7. How important is quality certification for the University?

   Sustainability is part of our mission and vision which is to be a sustainable university which would mean to apply for a 3rd party certification scheme, there are several existing I would like to quote one which is global reporting initiative. Some other universities are certified along the GRI criteria for instance University of Graz is a sustainable university and this label because for the first time they applied for this GRI certification in 2005 so they did it for 3 times, 2005, 2008, and now 2011.

   This means that they have a continuous sustainability report so to have a kind of documentation on what they are doing and their different fields and areas we have a sustainability report which is part of our business plan so there is one section dedicated to sustainability which is the basis of our work in the sustainability committee and its published and open source.

8. Are you considering any ISO 9001 or IS0 14000 certification?

   The ISO certifications cost a lot of money in application fees, 3rd party certification agencies you need an external auditor coming in. I mean ISO 14000 would be just for environmental purposes. Just too use our resources more efficiently, but there is a new one existing IS0 18000 which is corporate governance and social responsibility and that would work for us but I believe it's too expensive at the moment.

9. What are the current challenges that you are facing?

   Lots of challenges main obstacle is you need the commitment of the leadership part of the university that means that CEO and President should be committed to sustainability. In principle they are but they do not really have the means to support us and second is that all our employees should be more aware of the fact that we are interested to become a more sustainable university and also our students once you have a couple of people sitting in the committee it's a good starting point the question is how can we communicate it better to our stakeholders. So that's one of our obstacles and I believe that in some areas we are fighting against windmills in the sense that we have good ideas but it's not easy to implement.

5.4.2 Boards and Committees - University Assembly

The University Assembly is an organizational body that consists of all fulltime faculty members of MODUL University Vienna, and is limited to four representatives of the external teaching staff and four student representatives. This committee is chaired by a president, in most cases resolutions are passed by a simple majority.

The important functions of the University Assembly include:

- Providing information about important developments at MODUL University, Vienna
- Identifying specific issues that should be bought to the attention of the University Board
- Election of members on several committees
    - Proposal of the candidates for election as President and as Vice President. (University Assembly).

The following questions and recorded responses are the results of an in depth interview with a representative of this committee.

1. What are the goals of the University assembly?

   The goal of the university assembly is to be a more open forum for exchange of information between the CEO and the University president at which point the members can give feedback and vote to adopt certain regulations. Not all decisions are sealed in the university assembly many are executive decisions that are made at the University board or University Council but the academic decisions are decided here.

   Changes to the exam and study regulations are approved or not approved at the University assembly. Students have representation on the University assembly and two student representatives can sit on the committee and they are also permitted to vote.
   There are lots of updates from the president's report.

2. What is the outcome of these meetings?

   We voted on several changes to the study and exam regulation another thing that came up for a vote but has not been approved is how many ECTS points a student has to complete at MODUL University in order to be given a degree by MU. For example if a student has a lot of years of study abroad then only a certain amount of ECTS will be credited.

   One big issue is that often the student representatives are not there, I am not sure why that is, I am not sure if they do not see the relevance or if the timing of the university assembly clashes with the course schedules. I do not know but I plan on asking the student representatives that this fall when we have the elections next week. The people who are voting are mainly faculty there is staff representation but the large majority of the university assembly is faculty.

3. What are the issues discussed in these meetings?

   Many of the issues come up from the president's report. However the agenda is managed by the assistant to the deans; votes are usually called for the president.

4. Can students raise issues in these meetings?

They could raise the issue in the university assembly, they can either submit an agenda item before or they can raise it during the assembly. Usually if the student has an issue or the student representative is bringing up an issue on behalf of the student. They do not go through the university assembly they come to the offices that provide student services.

One example is with food this was bought to the student services and was also raised in the administration meeting by the student services. Students were not happy with the offerings in the vending machine and cafeteria and this was raised in the administrative meeting where the cafeteria representatives are and this got resolved. So issues get resolved through smaller venues, the university assembly does not meet very often before an issue gets resolved. The University assembly meets once every three months.

5.4.3 Accreditation Processes: Assistant to the Deans

The Austrian Accreditation Council is an important stakeholder for MU Vienna. Accreditation is mandatory for all private universities that grant academic degrees. Some of the conditions for accreditation are:

- Continuous evidence of Research
- 50% of teaching has to be done by permanent faculty
- All new study programs have to be accredited by the council

Furthermore the Federal Ministry of Science and Research will revise the law for external quality assurance and plans to introduce tighter quality assurance procedures for private universities. MU Vienna must reaccredit its programs in 2012. The following questions and recorded responses are the results of an in depth interview with the assistant to the deans, who is directly responsible for the accreditation processes within the University.

1. What are the requirements for accreditation?

   The accreditation consists of many steps first you have to hand in the application which guidelines, the content of this application. Then this application is processed and the accreditation council nominates a few experts and the experts are responsible for all audit activities at the university. They make a site visit to the University and see where the problems are and then discuss them so as to make sure that all the quality standards the accreditation council wants are met.

2. What quality standards are being audited?

   Basically everything, starting from there is an infrastructure at the University necessarily for carrying out the course, that they are enough seminar rooms, then that the academic quality is high enough that there is enough qualified personnel, qualified staff, that the institution is active in research, then there are didactic questions such as the time structure of the curriculum will the students be able to complete the course requirements in the given time. One important thing is that the program is really being taught at the institution, so they have 50-50 ratio of internal to external academic staff. This is so that you cannot with a few internal academic staff run the program. So you have to really carry out the program and support it.

3. What is reaccreditation?

   First step is if you want to have a University you need to do an institutional accreditation, so that is the first step and then you have to do an accreditation for every new study program.

   So first is the institutional accreditation with the institutional accreditation and there has to be at least one program accreditation. After five years you have to repeat this process of institutional and study program accreditation, after the second accreditation you have to repeat the process after ten years.

4. What is the importance of quality management?

   It is important and a requirement for accreditation for example of you need to present to the accreditation for example if you are planning to accredit a new study program then you have to give at least a sketch and draft of the Quality Management measures that you are implementing.

5. What is importance of ISO 9001 or ISO 14001?

   Well of course the accreditation council encourages the University to get other certifications, but the certifications for MBA; I think its AMBA and are more common than the ISO standards. TedQual for example by the UNWTO for tourism education.

6. What is the process to start a new study program?

   First a feasibility study to see if this idea can be successful. Then a curriculum is drafted on what should be the concrete courses, the modules, and then all this information is put together in the accreditation manual submitted and then the process from the side of the accreditation starts. Because there are extensive guidelines of the accreditation council on what they want to see in this application, an application has to meet all those guidelines.

7. What are some of the challenges you face?

   Main challenge is getting all the bits and pieces together since there are many sources of information, for example you have to get the syllabi ready for the courses you are going to offer, you have to chase after a lot of persons to get these, get all things within a certain deadline, many factors to consider that make this possible.

5.4.4 Administrative Departments – Head MODUL Career

MODUL Career is an important administrative service within MU Vienna. Some of the functions of this department are:

- Supporting students through the internship period.
- Administration, mentoring and networking for the MODUL University Vienna and the MODUL Tourism School alumni.
- Offering support to potential employers (e.g. Support for companies who are looking for qualified employees; Employer branding)

The following questions and recorded responses are the results of an in depth interview with the head of MODUL Career.

1. What are the goals and objectives of MODUL Career?

   We have a number of goals, one of our main goals or duties or responsibilities is for students to find internships which is part of their BBA program. So we aim at finding as many partners as possible on an international level who offer our students internships, on the other hand we also take care of our alumni the graduates of this university, as well as alumni of the tourism school are taken care by us. We have events for them newsletters such as MODUL career soiree are starting a number of panel discussions next year with interesting themes in terms of tourism and hospitality management.

   But at the end of the day we are really a networking platform and we try to bring together students with industry partners and alumni with industry partners. So these are basically our stakeholders the alumni and the students and industry partners.

   I believe placements are part of any big business school well on the one hand we obviously assist the students in finding a good internship which at the end of the day gives them a good experience they have a good reference for their CV and helps them directly with their studies.
   Also the facts of having a career center that is well connected has great opportunities on offer and that almost guarantees a career to a student once their done is also a sales argument when a student wants to apply here at the university basically the fact that they are almost guaranteed a job once they are finished is one of the most important arguments when deciding where to do your studies so there is also a number of basically indirect or intangible goals that we fulfill.

   The fact of taking care of the alumni and trying to bind them to the university and remain in touch with them basically also has the goal of having them as ambassadors of the university to keep the university in mind maybe to come back to do an executive course here at the university and once they are in these positions offer the students internships, jobs and so on so that's the goal behind it.

2. What is the feedback from employers are they satisfied with our students?

   What the positive thing about our internship is that is they have to do a minimum of 4 months and a lot of students do 6 months they do it in their 4th semester so they do it in March, April, May, June and some of them continue to July, August, which gives them September off and they come back to university in November.

   So having to do an internship for 6 months they all get a job with higher responsibility than tourism college students. So that allows them to go into sales and marketing, human resources, finance and not just do food and beverage or rooms division in a hotel for example. Or they go and work for airlines, one of our students went to emirates airlines or consulting companies and so on.

   In general the students have to come back with a reference letter as well as an appraisal

form which s filled out by their direct supervisor. So we get back in touch with the companies if there is anything questionable.

In general we get very positive feedback because the students are more mature than a 16 year old going to school obviously they are exceptions both ways some students are not happy with their employers or find that their expectations were not fulfilled some employers will expect students to have more practical skills which a university student does not have which is why they are doing the internship sometimes it does not work out 100% but the general feedback is positive that's why we are up to 240 industry partners worldwide who are all quite eager to take our students so we are hoping for more students we have a great number of internships on offer for example in China, Hongkong, Australia, Jamaica and New York. Another argument could be Le Chateau in New York had an intern of ours and they automatically wanted another one and this is the biggest compliment when they are happy with one and they would like to take another one. So we have a lot of places where we have a second student going there.

3. What are the challenges or barriers that you face?

Obviously some of the challenges have been addressed since I have been working here and some of the challenges, having a professional tool for our industry partners to post jobs, internships and alumni for community building. People expect to have get more interactive tool our website is currently is static so there is a need for users to go there since there is very little content generated by the users. So we are trying to change that.

Budgets are always a challenge we can do more with more staff members but for now I think we are doing a good job with respect to internships, information sessions, we offer application training, how to write a CV, motivation letter, how to find a job, how to behave in a job interview, we are organizing a career fair for the second time this year so for the students, we are doing a lot for the students but with the alumni it is a bit challenging. MODUL career has been there since April last year I took over in October so I have been here for one year now so there is much to be done and ideas that can be implemented. Also compared to other places like North America where there is a much stronger connection to the University or alma mater, in Austria it's much more of an entitlement.

Austrians go to public universities and not pay but they pay for MODUL so this entitles them to these services so they don't necessary feel that connection when they leave the university that they have to give back or stay in touch so by offering them all these services. I am helping them start their career assisting them to find their first job and staying in touch with them we are trying to foster this emotional connection but it's really tough, in addition to having a very international university some of the students return back to their country so it is really tough to build this connection.

4. How do you measure the department's performance?

What I find really hard is to measure our ROI we look at number of clicks on our website we are able to find internships for all our students so that is one measure of success, it gets more difficult with alumni work because we are a cost center and not a revenue center so we are hoping that when we get in touch with alumni to actually measure and that's a tough one.

I can tell you how many jobs we have, how many students we have, how many internships we have, that's how many partners more we have in one year, that's how many jobs posted with us, but it's tough at the end of the day to measure what we do with the alumni, we are more of a service to the students, on the other hand having a database with students, alumni and our industry partners makes us interesting for certain other companies who start acting as sponsors . That's how we measure our success long term basis. I see it as our job to find students internships but that still does not make us great, however in terms of contributing to the bottom line one of the things that really entice students is the assistance they get with career planning and development and even after they are done. Because our job platform is available for both students and alumni but at the end of the day we are also spending money organize events for our alumni and that is where I find it difficult to measure whether that's really worth it or not.

5. Do you have any documented processes?

   For the students everything is documented so they know when there is a survey that they have to fill out till April to let us know what types of jobs and in which countries they are looking for internships for example then if I know most of them want to work in the airline industry and half of them want to work in the US. I can organize things accordingly and find partners in those places, fill a status report and if they have signed a contract or no, and they need to report back after signing the contract.

   There is no automated process behind so basically they have to hand in a report and I have an excel sheet and I have to remind them and stuff like that so it's not somewhere where you upload things and will constantly remind you of things .In terms of working, there is a training checklist for if a new person will start here to train here.

5.4.5 Administrative Departments – Student Service Center (SSC)

The student service center is a first point of contact for the student studying at MU Vienna. The student service center provides the following services:

- All Official documents needed by Austrian authorities for example transcripts, confirmation of studies/enrollment
- University forms such as credit transfers or special consideration
- Provides help with visas/residence permits, accommodation, student health insurance and help with settling in the country for foreign students
- All Information about BBA Academic Exchange Programs with external universities
- Information about university events, extracurricular and volunteer opportunities

The following questions and recorded responses are the results of an in-depth interview with a senior staff member of the student service center.

1. What are some of the issues or challenges facing the Students Service Center?

   There is a number of issues, the student population has increased dramatically since the last fall so we are talking from 60 students to a 100 students so that is a massive increase so that means we as a two person team is reaching the maximum amount of work we can do in a normal week.

The SSC also expanded what we do in the last fall or year like community building, so we are active in a lot more events.
We see the benefit to that because the atmosphere in the campus has improved and students are happy with our services and so they tell us. For example the new big orientation week so all that is new so you have increased amount of service and amount of activity, increased demand for more students, but the same number of people same number of hours so that's a big challenge.

2. What are some of the changes that can improve the process?

   We have one is that some of our work of a more administrative nature is quite time consuming such as producing documents or things like that so what we are hoping to try and do and this always sounds like the easiest thing to do but we want to explore the possibility of maybe automating some document production like student conformation.

   Or another option is changing the way we do things such as plan events we have already started to do so that will allow us to collaborate closely with admissions and then help us and the half time person there will help with some of Kirsten's responsibilities, housing with incoming students to take a little bit of the burden of the international officer and so the two biggest things are a lot more work and the other thing is some of the work we can make more efficient especially in repetitive administrative tasks.

3. Do you feel a lack of communication between different departments?

   Yes, that has happened it has happened between the academic section and the administrative section of the university but it also sometimes happens between the SSC and the academic office or the SSC and admissions on rare occasions.

   So we have had some inter departmental meetings and I feel that we are on the verge of making some major progress there. I don't know about the main administrative communicative issues but the smaller local communication issues I think we have just taken some steps to improve those especially where the incoming cohort is concerned. That's the cooperation which is the most difficult but has to be the most intense.

5.4.6 Research & Faculty - Researcher

Fulltime faculty members constitute the academic staff and are active in the areas of research, education, and sustainable development.

One of the primary expectations from the stakeholders is that education is imparted in a transformative way to support lifelong learning through expanding and stimulating the student's knowledge.

The following questions and recorded responses are the results of an in-depth interview with a senior member of the research and faculty staff.

1. How do faculty and students interact in achieving learning outcomes?

   Well first there is the obvious answer that we can interact during unit sessions during class and that's the main one, we can interact outside class, students can ask us question though

some will stick to the office hours that we have although some will just show up so it's up to us to decide if we want to meet with them but they will also contact us through email. There is another thing which is new now we have mentees so we could also discuss different issues and there is a possibility to learn something there of course it's not related to the subject I teach but is an extra opportunity if they want to ask questions.

2. How do you determine the quality in the learning process?

   It depends in my case they can ask a question during class, of course if they did not understand anything the quality was not there, off course they can also provide some feedback once their full course is over they have an evaluation sheet which they can fill in and then we get some feedback. It could be the case that based on the feedback there is some discussion with the program director. It has been more for me as a lecturer to know that what was wrong or if they enjoyed a course or was the course material ok.

3. Are course evaluations sufficient to measure feedback about the course?

   It is a formal evaluation sheet that they have to fill in at the end of the course, so on that particular day some students may not be there so you are missing some voices as well. Off course it could turn out that for some reason because there was a quiz before students might be upset about something which might make them make some negative comments which they would have not usually made.

   As a lecturer off course this is useful but it would also be good to have some more informal feedback from them so maybe the possibility to discuss in a small group what can be improved. Because when you ask them about what can be improved they say some either don't dare to say what they think or they are just caught up in their daily work, so it is better to have smaller groups so there is more open discussions. It does not have to be with the lecturer but with a third person but again I think this could improve if you are looking for teaching quality this could improve the situation as it goes outside the formal requirement of having an evaluation to fill because that is the rule. It's more constructive. And I think it's easier for people to express dissatisfaction because when they have a one to one or a closer group they can basically express dissatisfaction it allows for degrees of criticism and productive discussion rather than say the lecturer was bad. Get more information more insights.

   I think when you get those constructive discussions with students with more details on what was wrong or how they felt about it. At the same point at sometimes you get angry students so with evaluations almost everything is wrong sometimes you get over enthusiastic students who would say everything is ok.

4. Do you have flexibility in using teaching methods?

   I mean so far we have been flexible so we do not have to stick to any particular textbook so it's up to us to make the efforts to change, we discuss case studies try to connect to the real world but there is some theory to be covered so they can understand the concept.
5. Do you face any problems with room size, class sizes or any infrastructural issues?

   The bigger the class size the less easy it is for us to relate to students and interact and too

have interesting critical discussions since the class size is big and students are hesitant to answer because they feel they are one in sixty and they might think someone else might answer. This is less likely to happen in smaller groups where questions can lead to discussions. So of course seminars have this advantage generating more interactions and close discussions which is good in a way. And in some classes you need to have smaller groups for sure.

One thing I have realized and that's hard to solve is let's say you have a lecture and attendance is not mandatory, you could have a full cohort or 60 people or you could have 5 so if you are in a big room and have only few students you feel like you are in this huge room and its empty doesn't actually create a nice setting for discussion.

Personally as a lecturer you get to better atmosphere when you are in a closer smaller setting. But technical problems as such with projectors although has happened to me once is not a major issue.

6. What are the career development opportunities for faculty members?

   Well we do have once a year something that is called faculty development plan where we have to fill in the document and we have different areas research, teaching, publications .etc. and based on that document we have a meeting with our superiors to discuss about different things if we are satisfied or not, I can see this as a development initiative because based on the outcomes of those discussions you know if you are likely to blend in with the organization or not or if you are likely to be offered something in the future or not so you have an idea of what's going to happen to you.

   Outside this we had a couple of trainings related to mentoring, on how to mentor students but im not sure if that's related to teaching but we have a couple of opportunities to participate in trainings, to be honest with you I do not see too many initiatives here.

7. What are some of the positive development initiatives?

   The other thing I see is the possibility to attend conferences because you learn from other people and you can situate you're work off course it is an opportunity to develop this but this does not mean it will help you stay in the organization and have a future career in that organization it helps you develop yourself and research but this does not mean it helps the organization that you are working for. So yes you develop personally which is good.

8. What do understand by quality in higher education?

   Depends on what the university claims to offer so we have to stick to what we put forward. Whatever we say we have to commit to those so if we don't commit to a standard we claim this is a problem of quality.

   I think quality will include competent lectures not just competent lecturers but they need to express themselves in English, they need to not only speak well but also to teach and relate to students and have a good contact with them.

   Quality also translates into enabling the students to learn something. Something has to stay till the end because we know we learn things and then we forget things very quickly but I see quality there in terms of not just clearing exams but knowledge that they would take

away with them that will help them to grow this I feel refers to quality as well, think critically and progress is difficult.

Quality would also be to enhance personal development, so they will not only learn about academic knowledge, but learn about themselves and then about the world and about people, so allow them to develop so an institution that does not allow for these different growth aspects cannot be a university of quality. So social, cultural and the learning outcomes. Need to have the tools like the right content, right courses particular environment.

6. Process Analysis using Lean Approaches

A value stream is defined by Womack as the set of all the specific actions required to bring a specific product or a service (James P. Womack, p. 19). Value streams are useful in identifying the seven types of wastes which were classified by Taaichi Ohno as overproduction, defects, over processing, movement, waiting, inventory, transporting (Wood 2004).

In this section the admissions process of accepting new BBA students to the University is examined. For the purposes of analysis, value stream mapping is used to see and understand the flow of information and documents through the different steps in the process (Mike Rother, p. 3).

The value stream in this case is the set of all actions required in processing a new BBA application from the applicant state to the new student state. These steps can be broken down into sub processes within the departments involved, however we are considering the main process which is indicative of an organization process.

A process flow diagram representing the current state is shown in figure. This process flow diagram illustrates the flow of information between the departments. This process flow was then examined and wasteful processes were identified, this is illustrated in table. The analysis in this case is an iterative cycle and there may be a number of other processes within departments that can be improved, so only the first phase of improvement is proposed. This is illustrated by the future state map shown in figure.

6.1 Current Process – processing an application to the BBA program

The following are the different steps involved in processing a new application and completes with the creation of a new student.

a) Application Screening – Admissions Office

We first define the term applicant, which in the context of this process is a person who is not a current student at the University but is interested in studying at MU Vienna. Applicants can apply to the University through an online application form or through a paper based application form.

The paper based form is available at the University or can be downloaded from the University website. Applicants using the online application must attach all the supporting documents such as transcripts, employer letters, and university degrees as scanned documents.

For some reason if the applicant cannot submit the supporting documents they can send it later. Only complete applications with all supporting documents will be considered for further processing. All applications must be in the system, application forms that were submitted offline are entered into the system by the admissions office. There is a manual screening criteria to identify genuine and complete applications for further processing.

b) Application processing to fully accepted – Admissions Office

Applications that have passed the screening criteria are then in a processing stage. In the processing stage details of the candidate are processed this includes document verification, resident status of the applicant for visa purposes, financial considerations such as payment of fees.

Once this is completed suitable applicants are invited to interviews. Applicants are interviewed by the choice of their interview method. Interviews can be face to face, Skype or telephonic depending if the applicant is local or international. Applicants that are successful in the interview are moved to the fully accepted applicant stage of the process.

c) Application fully accepted, payment processing – Admissions Office, Accounting Department

The fully accepted stage involves initially sending out a contract to the accepted applicant. After the contract is sent back from the applicant a payment plan is created. A payment plan is an installment plan which includes scholarship and other reductions.

The applicant can either pay the entire tuition fees or pay in installments according to the payment plan. If the applicant chooses to pay by installments the first installment is due 30 days after being accepted. This is specified by the contract which the applicant receives and has to agree and send back to the University within a time-period.

The accounting department creates invoices for the applicants that have agreed to the contract. Payments are to be received before the due date; reminders are sent for payments not received before the due date. All data is kept and recorded in spreadsheets.

d) Application, payment – Admissions Office, Accounting Department, Student Services

Applicants that have paid are now are in the final process of becoming a student. Once an applicant has paid, other activities such as visa processing for Non-EU students can take place, due to the time it takes for the student visa in Austria some of these activities may be initiated before payments are actually received.

This responsibility for visa processing and all other production of official documents is done by the Student Services Center. When these tasks are completed a final list of new students is compiled. These new students and will now need to be in the student database and have access to computer facilities at the University. This is done by the Information Technology department, the final list is sent via email to the Information Technology department.

e) Creating the Student – Admissions Office, Accounting Department, Student Services, Information Technology, Academic Office

The information technology (IT) department then performs the user provisioning process. The new students are now users in the system and have the same user rights and privileges of existing students in the University. Students in the University have access to intranet applications, e-learning platform; can access restricted portions of the website. They also have access to the computers in the PC lab.

In order to check the consistency and accuracy of the data in the student information, there are periodical end user tests performed by the Academic Office. The final step involves creating a list of new students with their user credentials and sending it via email to the admissions office and student services. This list is used during the orientation week by the student service center.

Waste	Description
Overproduction	- A huge volume of non-genuine applicants - Volume of applications that do not pass the selection criteria.
Defects	- Data entry errors - Bugs in the online processing system. - Errors in entering information into spreadsheets. - Multiple sources of data, errors in consistency and accuracy of data.
Inappropriate processing	- Processing of applicants from countries that have visa restrictions. - reprocessing caused by data entry errors
Uneccesary Motion	- Getting data from different spreadsheets to prepare student lists.
Uneccesary Waiting	- Creation of payment plan till receipt of contract. - Processing in cases can only continue after Visa is given. - Student creation is a batch process and can only take place once the student list is created
Uneccesary Inventory	- Applications and supporting documents of students who either withdraw or do not have sufficient funds for their study. - Data that cannot be analyzed which is collected through the online application process. - Data that is collected about applicants that fail the pre-selection criteria.
Transporting	- Documents and application materials that are sent between the different departments.

Table 8:Seven types of wastes identified in the current process of BBA application processing

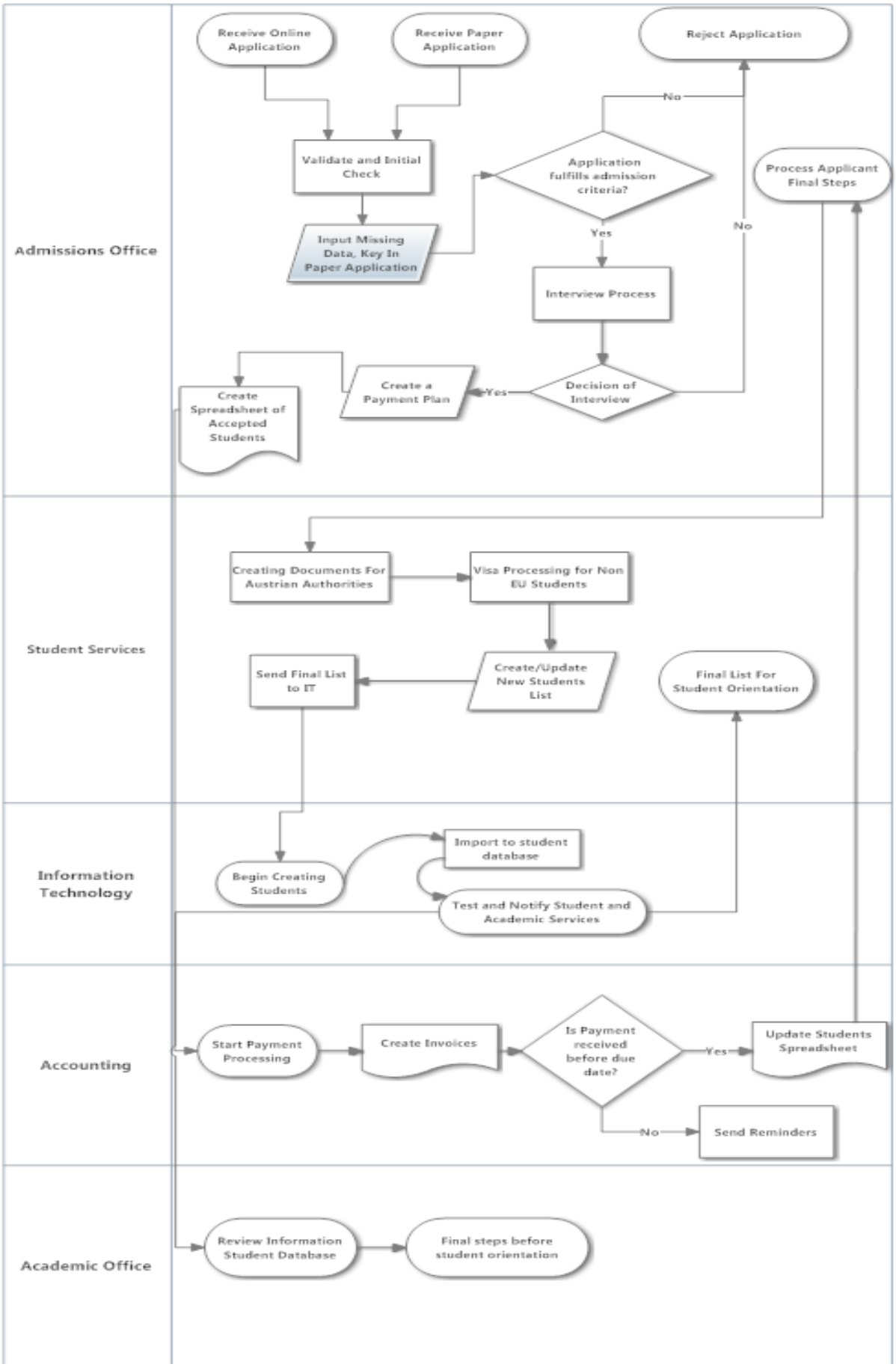


Figure 13: Current State Map- Processing an application to the BBA program

6.2 Future process – Processing an application to the BBA program

From analyzing the process flows of the current process and the identification of wastes see Table. Following kaizen improvements are suggested:

a) Improvements in the online validation process so as to reduce the number of unsuitable applications. It was observed that a number of applicants from a number of international countries were applying to the University for Visa Purposes. This puts a lot of workload on the admissions officer during the screening process.

b) Improving the accessibility and design of the online interface, to reduce errors and improve the use. This could lead to a reduction in manual data entry tasks such as keying in application details. Some of the initial data entry errors also can be reduced and this will lead to reduction in any inappropriate processing that result from these errors.

c) Since there are a number of departments that are involved in these activities, better work-flow management through better communication, teamwork, and meetings. This reduces the number of redundant activities since departments have a better understanding about the responsibilities of the departmental units and the status of the process.

d) Automating some workflow activities. It was observed that a number of errors were caused because of the use of spreadsheets. This also leads to unnecessary motion of documents between departments. A lot of time is also spent waiting for a department to update documents before the next process can take place.

e) The initial activity selected for workflow automation is the creation of payment plans; this is created by the admissions department and if created online, reduces the wait time for accounting to move to the next stage. The application can be extended to create invoices and reminders based on the payment data. All updates take place on the system so data is centralized and can be viewed on a real time basis by both departments.

f) The other activity that could be changed is the automation of student creation. Students in the current process are created at the last stage of the process flow. This is the stage when the list of new students is compiled by the student services and sent to the IT department. This list is sent in the last week before the students join. This is a batch process and any error in the import process has an effect on the student's profile on the system.

    a. Since this is a profile will impact their ability to access IT and other services at MU Vienna. It is critical that this process runs without errors. Also errors if any have a greater impact on the quality of services provided by the University when resolved at the end of the process cycle.

    b. It is suggested to create the student after receiving the payment; this will be done by the accounting department, since the process is in the payment stage. This would be a pull process and triggered when the payment is entered into the system. All subsequent changes such as visa or any changes to the students profile can be directly made in the system and data can be validated for consistency and accuracy at an earlier stage in the cycle.

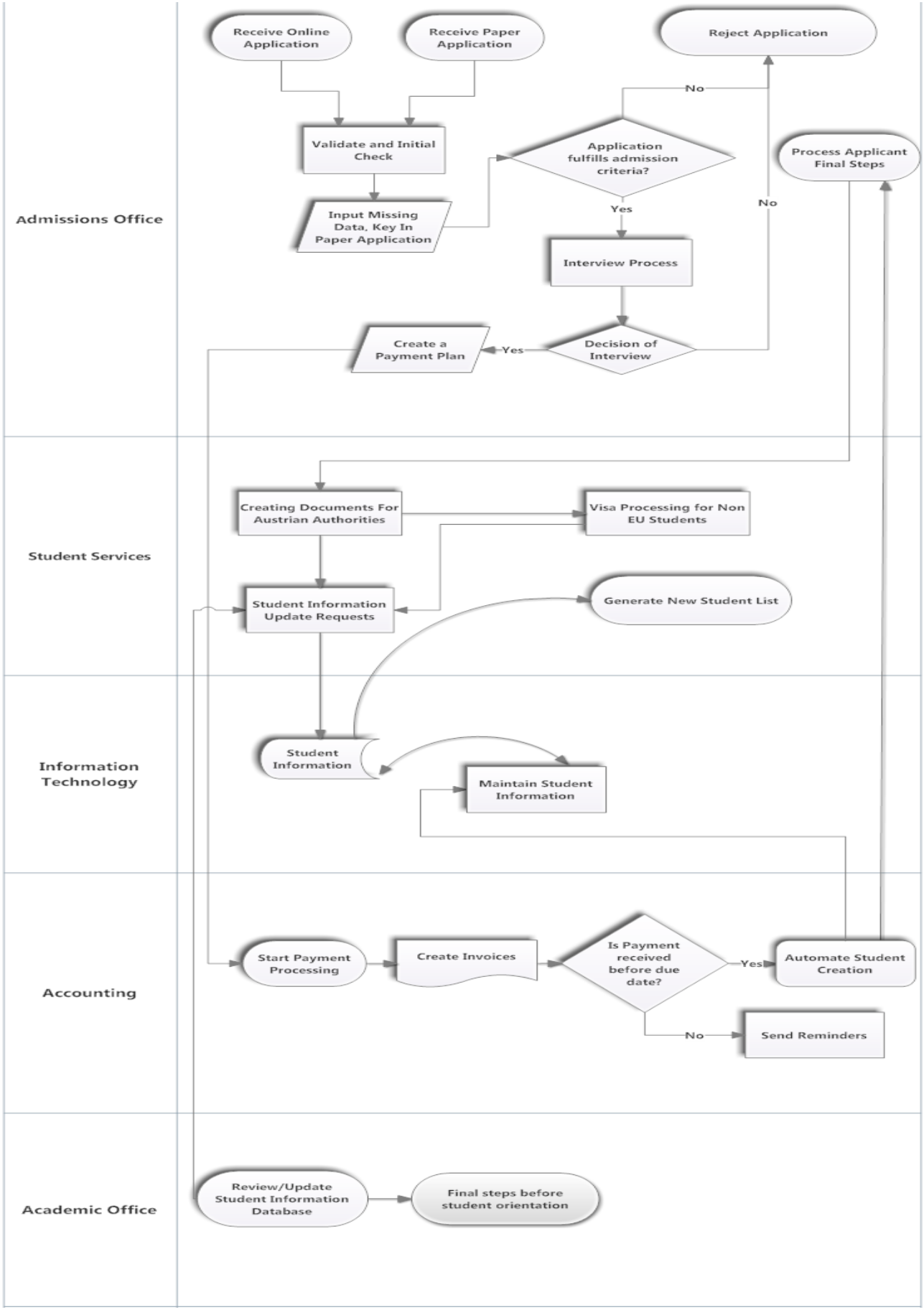


Figure 14: Future State Map- Processing an application to the BBA program

7.0 Analysis & Suggestions

In this the section the current quality practices at the University are analyzed and some suggestions are made to improve the current quality management system. The section begins with a brief analysis of the current quality practices and concludes with a proposed quality management system.

7.1 Analysis of Quality Management Practices

In the analysis of the quality management practices aspects that are common to TQM and Lean are benchmarked against the current quality management system at MU Vienna. The aspects that were considered are the following:

- Systems view of the organization
- Involvement of senior management in the quality process
- The use of facts in decision making
- Process view of the organization
- An organization structure that supports innovation, learning and continuous improvement
- Workflows and inter-process communication within the organization

The methods to arrive at these conclusions are described in the concepts and research methods section of this thesis and are through in-depth interviews, analysis of secondary data, observation, action research and the use of swim flow charts. The assessment presents both the positive and the quality gaps with existing quality management system.

During the assessment the following positive points were found:

- Management Awareness and setting of development goals to reach the objectives
- Documented strategic development plans
- A strong commitment to sustainability in terms of research and integration within the various study programs
- Strong partnerships with external stakeholders especially in research in areas related to sustainability and environmental protection
- A strong focus on global markets
- Good feedback from the industry about the students.
- Incentives to help student participation in environment and sustainability programs
- The development of quality instruments to improve processes through feedback mechanisms

- The development of quality instruments has helped the University identify some quality problems.

- For example the drop box at the student service center, help improve services, also problems with class schedules was brought out through course evaluations.

- There are also incentives to encourage student participation for example a scholarship or cash incentive is offered to students that come up innovative sustainable business ideas. These are also tested for financial feasibility and are practical ways to involve students in achieving some of the sustainability goals.

There are a number of gaps or areas where quality can be improved. The following are some of the points which can be improved.

- The employees are not aware about some of the guiding principles behind TQM

- Quality is viewed only from a social dimension or in meeting the requirements of the accreditation agencies. Thus some principles of TQM which can help the University improve its customer focus, continuous improvement, employee involvement are not known.

- There is a reluctance to adopt any of the ISO quality management system standards due to the perception that they are expensive. There is a lack of knowledge with respect to ISO quality management standards or some of the pricing for small organizations.

- External auditors are limited to the Accreditation councils or environmental agencies such as the global research institute.

- The organization structure is overly hierarchical for a small entity and quality is managed within departments through department heads. This is representative of functional management and does result in cases of departmental interests superseding the Universities objectives.

- The hierarchical nature of the organization and having departmental heads control quality at the departmental level makes the process of employee involvement in innovation, learning and continuous improvement difficult.

- There is a lack of both a systems or a process view of the organization. There is a need for processes to be defined at the organizational level.

- There are no well-defined processes for the management of the organization.

- There are departmental processes however they need to be defined better.

- There are cases of communication lapses between administrative and academic departments. Thus a more holistic view of the organization is required.

- Management ownership towards quality is sometimes missing because of time and other organizational priorities.

- In some cases the workload is excessive for the allocated staff.

- There is lack of participation from the undergraduate students in any of the committees.

- There are reliability issues with the course evaluation form since it is handed to the student at the end of the semester. There is a need for more innovative ways to get feedback about courses from the students.

- Currently statistical quality methods used are histograms and line graphs in analyzing results from course evaluations and service feedback forms. Use of TQM statistical methods such as Cause-and-Effect Diagrams, process charts, flow charts and lean tools such as value stream mapping for capturing data and process flows are not used.

The following Table 9 summarizes the gaps in the quality management practices at MU Vienna.

TQM & Lean Aspects	Quality Management Practice
Systems view of the organization	Hierarchical Functional based Organizational Structure, the organization needs to viewed as a system composed of interrelated parts
Involvement of senior management in the quality process	Lacking in most cases this could be due other priorities such as commercial development activities of the university
The use of facts in decision making	The use of statistical tools to measure variance in processes can be improved
Process view of the organization	There needs to be more participation and intra department communication to look at the common organizational processes and inter process communication issues
An organization structure that supports innovation, learning and continuous improvement	This can be achieved through more innovative organizational structures that support cross functional teams. A process view of the organization will also lead to continuous improvement in processes.
Workflows and inter-process communication within the organization	Lean approaches are currently not used and the employees do not have awareness about their use. Through the education and the use of lean tools, the university can improve the process flow and can identify waste or non-value added steps in the process flow

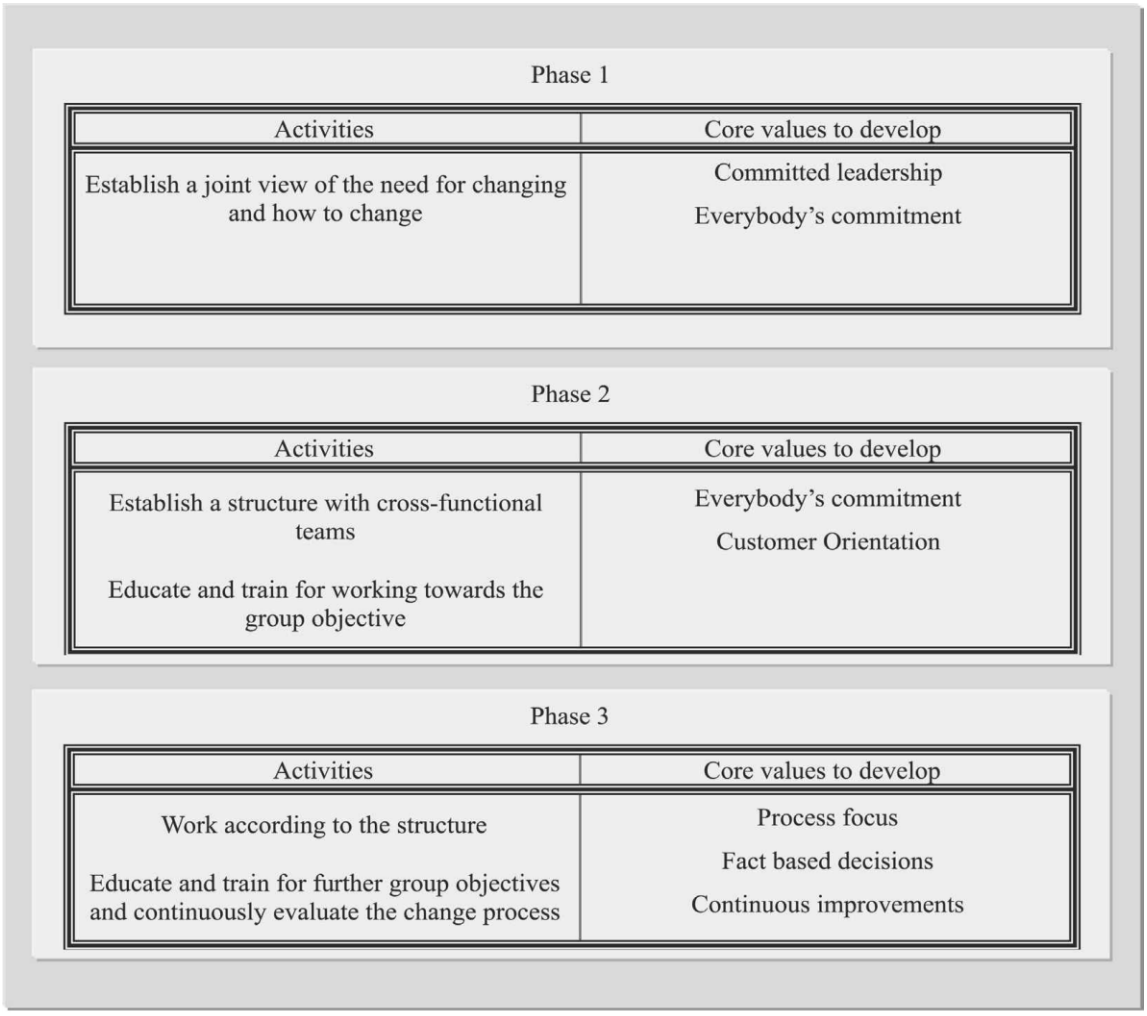
Table 9: Gaps in the quality management practices at MU Vienna

7.3 Proposed Quality Management System

Implementation of a TQM system can be quite challenging so it is essential to implement in phases. The proposed model is based on the TQM model from Hansson and Klefsjo (Hanson & Klefsjo, 2003, pp. 71-81).

It is also recommended that the University considers some of the management guiding principles used in the ISO standard. Certification is not required by standards such as ISO 9004 which could be a good starting point for the University. Some of the ISO standards that address process approach,

Figure 15: Core value TQM model for small organizations (Hanson & Klefsjo, 2003, p. 79).



Continuous improvement of processes can also be applied using lean approaches. However while using the ISO standards to setup and define a management system, it is important to note that the system meets the expectation of the stakeholders and can help the University achieve its development goals and objectives (Hoyle, 2007, p. 76)

The TQM model was originally developed by Hanson (2001) as cited in (p. 79). This model is considered as it addresses the organizational challenges to implement TQM and can be applied within a small private university.

It is recognized that any systemic change needs to be gradual as some of the failures to apply TQM methods to small organizations are due to applying TQM methods rapidly without having a system to introduce these methods.

The phases are not mutually exclusive, however in order to implement this it is essential to have committed leadership and the commitment of all the employees. The following is a brief description of the phases:

Phase 1

The first phase deals with management and leadership commitment to change and a feeling amongst employees that change is required. This could involve seminars in quality and the involvement of employees in this early stage of the process.

Phase 2

This phase can begin when a joint view on how the change will be accomplished is established, what is important in this stage is a structure to work towards this new holistic view. What can help in this stage is working with a quality award model, working in cross functional teams and feedback loops to monitor the progress. This can also be a phase where tools from lean production can be used by the cross functional teams for mapping out business processes, identifying value streams and wasteful activities.

Phase 3

The third phase involves establishing the 2 phase in this phase the organization should continue to work with the new structure. The different teams should continue working with the different tools and techniques that support the core values. The three core values that the organization should focus on process focus, fact-based decisions and continuous improvements. There are formal methods to establish such as those found in a quality award model. This is proposed through the ISO management and leadership standards.

ISO Management Standards

The ISO Management Standards addresses the aspects of continuous improvement, provides a systems view of the organization increases the involvement of senior management in the quality process and focuses on facts, processes and innovation.

It is recommended that the University considers some of the management guiding principles used in the ISO standard. Certification is not required by standards such as ISO 9004 which could be a good starting point for the University. Some of the ISO standards that address process approach, continuous improvement of processes can also be applied using lean approaches.

However while using the ISO standards to setup and define a management system, it is important to note that the system meets the expectation of the stakeholders and can help the University achieve its development goals and objectives (Hoyle, 2007, p. 76).

ISO standards can be applied to both big and small organizations including universities. It provides guiding principles to setup a management system which includes the processes, activities that an organization performs to meet the expectations of its stakeholders.

The standards provide a model to setup and operate a management system. The key operating principle of the ISO management system is the PDCA cycle which is also referred to as the Deming cycle. This principle can be briefly summarized as follows:

P refers to planning or establishing a plan, this would relate to the objectives of the University and how the university plans to fulfill them. During the planning stage it is recommended to set plans that are specific and can be measured.

D refers to Do - This is the implementation phase of the plan where the activities and processes take place that are needed to execute the plans

Check - This is the stage where the results of the implementation phase are measured against the goals of the plan. It is essential to set measurable goals and objectives so that the results can be measured or monitored during the process.

A refers to Act – Within the act phase based on the variance of the measured result to the planned objective corrective action should be performed. This is also where processes can be improved to get the results according to what was planned.

The ISO 9004 2009 standard is suggested as a good starting point and some of the reasons why it should be considered are illustrated in Table 10. This is adapted from (ISO, 2009) .

Stakeholders	Needs and Expectations
Owners/shareholders	Sustained profitability Transparency
People in the organization	Good work environment Job security Recognition and reward
Suppliers and partners	Mutual benefits and continuity
Society Environmental protection	Ethical behavior Compliance with statutory and regulatory requirements

Table 10: ISO 9004 2009, Stakeholders

The following figure illustrates a quality management systems overview for MU Vienna. (Thawesaengskulthai, p. 526).

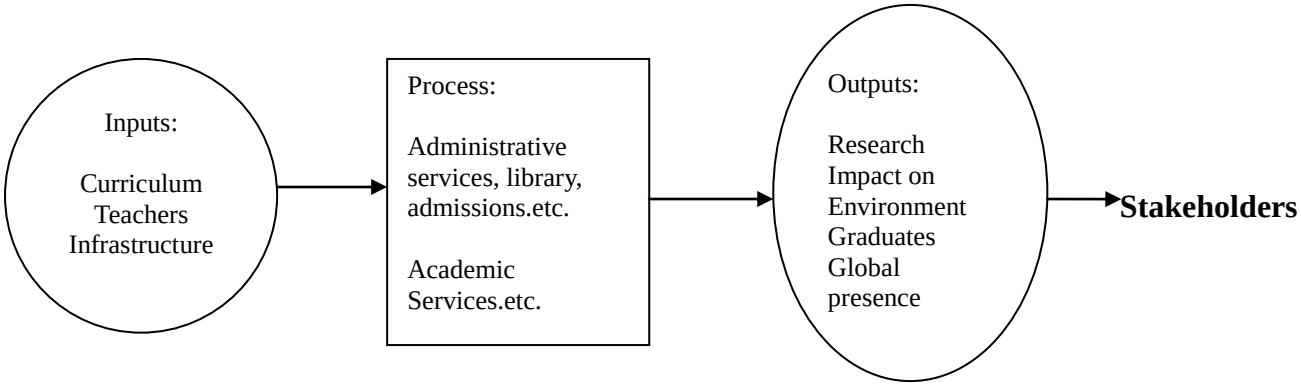


Figure 16: QMS Overview for MU Vienna

In this case the ISO 9004 provides management guidelines for each element of the system. If we consider the stakeholders this can be addressed by ISO guidelines, not limited too but in 4.3, 4.4, 4.6, 5.5, 5.6. of the ISO 9004 standard.

The following simplified version of the 4.4 guidelines relates to stakeholders and specifies the guideline to meet the requirements and needs of all stakeholders. In the case of MU Vienna this would include meeting the requirements of Applicants/Students, Industry, Scientific Community, Society and Media, Sponsors/Partners, Owners, Accreditation Councils. The guidelines for

One of the key elements in the ISO 9004 standard that can apply to MU Vienna is sustained corporate success given by standard 4.2. This applies to stakeholders and is relevant in the case of MU Vienna. The following are some of its simplified guidelines (ISO 9004 2009):

Meet the needs and expectations of stakeholders

- Identify all relevant stakeholders
- Assess the potential impact stakeholders could have on the performance of your organization.
- Plan on meeting the changed expectations
- Long term planning to meet the needs and expectations of interested parties.
- Maintaining contact with the organization’s interested parties.

Developing long-term planning perspectives

- Anticipating the Universities future resource needs.
- Establishing processes for innovation and continual improvement.

To audit and track improvement the ISO 9004 provides self-assessment guidelines which can be used by the University to continuously improve their quality management system.

8. Conclusions & Further Research

MU Vienna is a relatively new University and its mission and vision was established when the University started operations in 2007. The mission combines a strong academic foundation with a commitment to sustainability and innovation. The University is research oriented and the staff consists of mainly young researchers who will aid the university in its future growth aspirations.

The university is currently growing and the number of students has increased over the last year. Also the university has received positive feedback about its students from the travel and tourism industry; this can be seen from an increase in the recruitment of its graduates and more firms offering internship opportunities to the students. Sustainability and Environmental protection are the key principles of the University.

As is mentioned in university documents and its website, sustainability is a key principle and the university operates in a manner that minimizes environmental risks and adverse effects on the environment. This includes adhering to environmental legislation and standards, using energy efficiently, conserving water, preventing pollution, minimizing waste and promoting the use of recycled materials. Sustainability is also an important part of the curriculum at MU Vienna. This can be verified to some extent; however there is more that can be done in terms of management commitment and the involvement of undergraduates in sustainability projects. There is also a need for some external auditing and assessments in the areas of sustainability and environmental protection.

MU Vienna has a number of stakeholders these include prospective students, parents, industry and media, sponsors, partners, owners, accreditation councils. To remain competitive in the long term the needs of its stakeholders have to be met and exceeded by the University. Thus there is a need for quality standards and a quality management system that can help the university meet or exceed its stakeholder requirements in the long term. The principles of Lean and TQM are well defined and there are also established quality management systems that provide the tools to implement TQM. However there is a need to adapt these Quality Management Systems to fit the needs of higher education.

One of the factors when implementing TQM in the field of education is that students of a university cannot entirely be viewed in the same way as customers in an organization. The university in this case also behaves in a transformative way and students go through a period of change at the university. Hence a customer focus is helpful but has to be adapted to the needs of Higher Education.

The considered aspects for the purposes of benchmarking were some of the convergent principles found in both Lean and TQM and included aspects such as the involvement of senior management in the quality process, a systemic approach to solve problems and a process view of the organization. One of the key considerations was that the university has an organization structure or operates in a more process oriented approach which supports innovation, learning and continuous improvement. However with respect to these aspects, gaps were identified and presented as part of the analysis and suggestions section

To conclude, the concepts and the data collection done as part of this thesis can be used as a reference for education and further research. There are also significant benefits for small private universities like MU, Vienna to adopt TQM and Lean approaches. However both these methodologies require a management approach and commitment from all the employees to provide benefits to the organization in the long term.

Some future research areas are those that look more extensively towards the learning and teaching aspects of higher education. So to conclude further research can be done in these areas where models for higher education are developed which encompass both the pedagogical aspects of higher education and approaches derived from Lean and TQM.

Bibliography

Abby Ghobadian, D. G. (2001). TQM implementation: an empirical examination and proposed generic model. Omega – International Journal of Management Science, 29(4), 343-359.

Alireza Anvari, Y. I., Seyed Mohammad Hossein Hojjati. (2011). A Study on Total Quality Management and Lean

Manufacturing: Through Lean Thinking Approach. World Applied Sciences Journal, 1585-1596.

Babbar, S. (1995). Applying total quality management to educational instruction. International Journal of Public Sector Management, 8(7), 35-55.

Bicheno, J., & Holweg, M. (2008). The Lean toolbox: The essential guide to Lean transformation: Picsie Books.

C., L. I. The UNWTO.TedQual Programme. What it means and implies to grant/keep the UNWTO.TedQual Certification nowadays? Retrieved from http://www.iubh.de/files/de/downloads/Studieng%C3%A4nge/UNWTO.TedQual-QualityandCodeofEthics.pdf

Campanella, J., & Committee, A. S. f. Q. C. Q. C. (1999). Principles of quality costs: principles, implementation and use: ASQ Quality Press.

Campbell, C., & Rozsnyai, C. (2002). Quality Assurance and the Development of Course Programmes.

Dale, B., Besterfield-Michna, Besterfield-Sacre, Urdhwaresh, H., & Urdhwareshe, R. Total Quality Management: Pearson Education India.

Digest, Q. (2001). Quality how do you define it? Quality Digest Retrieved 20/10/2011, from http://www.qualitydigest.com/html/qualitydef.html

ENQA. (2011). ENQA Mission Statement Retrieved 10/11/2011, from http://www.enqa.eu/mission.lasso

Evans, J. R. (2007). Quality and Performance Excellence: Management, Organization, and Strategy: Thomson Business and Economics.

Garvin, D. A. (1987). Competing on the Eight Dimensions of Quality. Harvard Business Review 65(6), 101-109.

Gerring, J. (2007). Case study research: principles and practices: Cambridge University Press.

Gibbs, G. (2010). The dimensions of quality (pp. 2-52). The Higher Education Academy.

Goetsch, D. L., & Davis, S. (2009). Quality Management for Organizational Excellence: Introduction to Total Quality: Prentice Hall.

Hansson, & Klefsjö. (2003). A core value model for implementing total quality management in small organisations. The TQM Magazine, 15(2).

Hoyle, D. (2007). Quality: management essentials: Butterworth-Heinemann.
Ibañez, L. The UNWTO.TedQual Programme. Retrieved from UNWTO.Themis Foundation website:

Institute, L. E. (2009). Principles of Lean.

Kaufman Global, L. (2003). Office Kaizen - Making Lean Work In Service Environments. 2011. Retrieved from http://www.leansupermarket.com/KG%20Office%20Kaizen%20WP%2020090306.pdf

Klefsjö, B., Bergquist, B.and Edgeman. Six Sigma and Total Quality Management: different day, same soup? International Journal of Six Sigma and Competitive Advantage 2(2), 162-178.

Koch, J. V. (2003). TQM: why is its impact in higher education so small? The TQM Magazine, 15(5), 325-333.

Martínez-Lorente, A. R., Dewhurst, F., & Dale, B. G. (1998). Total quality management: origins and evolution of the term. The TQM Magazine, 10(5), 378-386.

Mathur, K. C. (2008). Implementation of TQM in Higher Education. Oorja, 101-113.

Mazur, G. (1996). Paper presented at the ICQ '96, Yokohama.

Parasmal, Y. R. Application of Lean Thinking in Higher Education.

Pekar, J. P. (1995). Total quality management: guiding principles for application: ASTM.

Peter Hines, S. L. (2008). New Development: Creating a Lean University. PUBLIC MONEY & MANAGEMENT FEBRUARY 2008, 28(1), 53-56.

Pettersen, J. (2009). Defining Lean Production: Some conceptual and practical issues. The TQM Journal, 21(2), 127-142.

Psychogios, A. G., & Priporas, C.-V. (2007). Understanding Total Quality Management in Context: Qualitative Research on Managers' Awareness of TQM Aspects in the Greek Service Industry. International Journal of Operations & Production Management 12(1), 40-66.

Quality, A. S. f.). Project Planning and Implementing Tools Retrieved 20/10/2011

Rampersad, H. K. (2001). A visionary management model. The TQM Magazine, 13(4), 211-223.

Rehman, I. u. (2010). IMPLEMENTING TQM INCLUDING A UKAS AND ISO9001 SYSTEM IN AN ACADEMIC ORGANISATION. Paper presented at the 3rd International Conference on Assessing Quality in Higher Education, Lahore,Pakistan.

Reid, R. D., & Sanders, N. R. (2005). Operations management: an integrated approach: John Wiley.

Report, A. (2009-2010). Annual Report 156.

Report, Q. M. (2010). 10.

Robert V. Hogg, M. C. H. (1995). Continuous Quality Improvement in Higher Education. International Statistical Review, 35-48.

Rother, M., & Shook, J. (2003). Learning to see: value stream mapping to create value and eliminate muda: Lean Enterprise Institute.

Sallis, E. (2002). Total quality management in education: Kogan Page.

Sashkin, M., & Kiser, K. J. (1993). Putting total quality management to work: what TQM means, how to use it, & how to sustain it over the long run: Berrett-Koehler.

Satish Mehra, J. M. H., Danilo Sirias. (2001). TQM as a management strategy for the next millennia. International Journal of Operations & Production Management, 21(5/6), 855-876.

Saunders, M., Lewis, P., & Thornhill, A. (2009). Research Methods for Business Students: Pearson Education.

Sha'ri M. Yusof, E. A. (2000). TQM implementation issues: review and case study. International Journal of Operations & Production Management 20(6), 634-655.

Sims, S. J., & Sims, R. R. (1995). Total quality management in higher education: is it working? why or why not? : Praeger.

Standardization, I. O. F. (2011). ISO 9000 essentials Retrieved 10/11/2011

Summers, D. C. S. (2009). Quality management: creating and sustaining organizational effectiveness: Pearson Education.

Suzaki, K. (1987). The new manufacturing challenge: techniques for continuous improvement: Free Press.

Thawesaengskulthai, D.). Application of TQM & ISO Concepts for QA System Development in Higher Education of ASEAN University Network (AUN-QA) and CU-QA 84 Retrieved 20/10/2010, from www.cu-qa.chula.ac.th/en/learning_sharing/Files/TQM_ISO.pdf

Varnavas, A. P., & Soteriou, A. C. (2002). Towards customer-driven management in hospitality education: a case study of the Higher Hotel Institute. International Journal of Educational Management, 16(2), 66-74.

Wit, H., Knight, J. A., Co-operation, O. f. E., Development, Co-operation, O. f. E., Secretary-General, D., & Education, P. o. I. M. i. H. (1999). Quality and internationalisation in higher education: Organisation for Economic Co-operation and Development.

Womack, J. P. (2006). Lean Thinking for Education. Retrieved from http://www.leaneducatorconference.org/proceedings/cat_view/15-2006-lec-procedings.html website:

Womack, J. P., & Jones, D. T. (2003). Lean thinking: banish waste and create wealth in your corporation: Free Press.

Womack, J. P., Jones, D. T., & Roos, D. (2007). The machine that changed the world: the story of lean production -- Toyota's secret weapon in the global car wars that is revolutionizing world industry: Free Press.

Ziskovsky, B., & Ziskovsky, J. (2007). Doing more with less - Going lean in education Retrieved 20/10/2011, 2011, from http://www.leaneducation.com/whitepaper-DoingMoreWithLess.pdf

List of Tables/Figures