7.1 INTRODUCTION

The previous chapter presented the connections between the findings of the literature study as well as the empirical survey that was conducted. This chapter will discuss the main findings that the researcher obtained in this study. Therefore, the results of chapter 6 as well as the information gathered by means of the literature study will be drawn together. This chapter will show how the results of the empirical study relate to the literature study as well as the underpinning theory of this study. The findings of the literature study and the outcome of the empirical study will be utilised to inform the recommendations in this chapter. The researcher will then utilise the information gathered from the empirical study, the literature study and the recommendations to design a “generic” model for the integration of quality management, planning and resource allocation.

7.2 KEY FINDINGS AND RECOMMENDATIONS

The researcher followed the “grounded theory” approach in this study in order to investigate concepts, to explore (as an exploratory study) new territory, to understand a complex phenomenon such as the integration of quality management with planning and resource allocation and to develop a conceptual generic model for utilisation by institutions of higher learning. An objective of this study is to develop a model that will be suitable for specifically U1. This model should be generic for implementation by other institutions of higher learning that fail to integrate quality management, planning and resource allocation (cf.1.4.2).

The findings and recommendations should be understood within the context of the following objectives and sub-objectives of this study (cf. 1.3.2, 1.3.3):

- The development of a quality management system based on the TQM philosophy for the U1 which integrates key elements of quality management that will have a wider application for institutions of higher learning.
- The conceptualisation and clarification of the concept institutional quality management (with special reference to continuous improvement).
• The conceptualisation and clarification of the concepts planning and resource allocation.

• The identification of good practices with regard to systems that provide for sufficient monitoring and evaluation to generate management information.

The above research aims were operationalised into the following subobjectives (cf. 1.3.3) in order

• to reach a deeper understanding of quality management, quality systems and quality mechanisms in higher education which include the integration of quality assurance and development with planning and resource allocation;

• to utilise good quality management practices from other universities as well as information gathered from published literature in order to identify applications that support the integration of planning and resource allocation;

• to identify useful and effective monitoring and evaluation systems as the basis for management information; and

• to relate and utilise the HEQC’s conceptualisation of quality management and the outcome of the empirical and literature study to the development of a framework for the integration of quality management, resource allocation and planning.

The following is a presentation and discussion of the major findings and recommendations of this study, based on the literature study and the outcome of the empirical study:

FINDING 1

A HIGH PERCENTAGE OF INSTITUTIONS IN SOUTH AFRICA FAIL TO INTEGRATE QUALITY MANAGEMENT, PLANNING AND RESOURCE ALLOCATION.

Only 57.1% of the respondents indicated that the most recent institutional audit report of the HEQC reflects positively on the ability of the respective institution to integrate quality management, planning and resource allocation (question 19). This finding emphasises the rationale, need and relevance for this study and concurs to a great extent with the research problem statement and questions (cf. 1.2.1, 1.2.3, 1.3.1, 1.3.2). The researcher is of the opinion that the problem with the quality management systems of the majority of the institutions failing to integrate quality management, planning and resource allocation is due to
the fact that they are not underpinned by the systems theory. According to the literature study, the systems theory underpins the notion of integration of institutional functions or its subsystems (cf. 3.4). A component, subsystem or function within a system may therefore not benefit without regard to the whole system; if this happens, the total system is sub-optimised (cf. 3.6.2). The institution of higher learning is viewed in this study as an open system with subsystems. According to the systems theory, the individual subsystems are simultaneously applied in such a way that the result of their simultaneous application is greater than the sum of their individual efforts (cf. 3.2.2).

The critical management processes of reviews, strategic planning and resource allocation/budgeting should never function in isolation (cf. 4.2). The literature states clearly that processes of educational planning cannot be separated from resource allocation, because it is tied to financial planning (cf. 4.4.5.4). According to the literature study one of the cyclical phases of strategic planning is that planning should be supported by resource allocation and budgeting processes (cf. 4.2.1). Resource allocation and budgeting form part of an institution's planning processes during which certain decisions are made in order to ensure that the respective institution will attain its goals (cf. 4.3.3). The successful attainment of an institution's goals is therefore dependent on its planning, decision-making, budgeting and resource allocation processes (cf. 4.3.3).

**Recommendation 1:**

*Universities should establish structures that work across functional lines and enhance cross-functional collaboration in order to enhance quality management, planning and resource allocation.*

**Recommendation 2:**

*Institutions should develop cyclical processes of planning, budgeting and resource allocation (e.g. PDCA, ADRI, etc.).*

**Recommendation 3:**

*Institutions should implement quality management systems and models that are underpinned by the systems theory (e.g. TQM, SAEM, etc.)*
FINDING 2

IN GENERAL A HIGH PERCENTAGE OF INSTITUTIONS HAVE A LACK OF COMMITMENT TO THE INTEGRATION OF QUALITY ASSURANCE WITH PLANNING AND RESOURCE ALLOCATION.

The researcher is of the opinion that a main reason for the above-mentioned finding is due to a lack of understanding and commitment of the institutional leadership to the systems approach and systems thinking. It will be extremely difficult to integrate processes that will ensure quality enhancement if the leaders are not familiar with and committed to the implementation of quality management systems that are based on the systems theory. The outcome of the empirical study shows that some managers do not understand the need for integration of functions (cf. 6.2.2), this lack of understanding and commitment counteracts any initiative to implement initiatives on operational level to enhance integration.

The literature study emphasises that quality improvement processes need commitment, resources and appropriate structures (Malter 2007:6-10). According to the literature study, 'effective institutional leadership' starts with the commitment of top management (cf. 3.6.3). Integration of institutional functions is imperative for quality management, as it counteracts silo management. Quality management is the primary responsibility of management. Top management is, according to Feigenbaum, the “drivers” of quality (cf. 3.6.1.4). Commitment to the systems approach should therefore be passed from top management to every individual in an institution (cf. 3.6.1.1). Top management should not only have a clear understanding of the theory, but they should also be convinced and instrumental in the development of systems and mechanisms that are underpinned by it.

**Recommendation 4:**

Commitment of institutional leaders should start at top management level as the “drivers” for the notion of integration of quality management, planning and resource allocation.

**Recommendation 5**

Managers, starting at top management, and every staff member should understand systems thinking and the need for integration of institutional functions in order for to promote and encourage the notion of synergy institution-wide. It is therefore imperative that training and information sessions should be conducted in this regard.

**Recommendation 6**
The institutional leaders and every staff member should understand and should have the appropriate skills to implement the institution's quality management model, processes and procedures that are based on the systems theory.

**FINDING 3**

**A HIGH PERCENTAGE OF INSTITUTIONS LACK MECHANISMS THAT WILL ENSURE THE EFFECTIVE INTEGRATION OF QUALITY MANAGEMENT, PLANNING AND RESOURCE ALLOCATION.**

Question 19 of the pre-coded questions deals with the outcomes of the most recent HEQC audits with regard to the respective university's ability to integrate quality management, planning and resource allocation; question 20 relates to question 19 as it deals with mechanisms that are in place (e.g. structures) to ensure the effective integration of quality management, planning and resource allocation. U11 is one of the “top”-ranked institutions in this context in the study (see table 6.25). It also has a relatively high score for question 19 (cf. table 6.19) but not as much as the “good practice” in this regard of U2, U3, U4, U5 and U18. Unfortunately, data are not available with regard to the outcome of the audit review for U6, U8 (they combined the functions of resource allocation and quality assurance) and U12 (U12 combined the planning and resource function). A reason for this might be that the respective universities did not receive their audit reports at the time that the survey of this research was conducted, or that audits have not yet been conducted.

The universities that obtained the highest scores for the above two questions are U2, U3, U4, U5 and U18. These universities are ranked under the “top 6” universities with regard to quality management, planning and resource allocation (cf. 6.2.1.2). U2 established a Resource Allocation Committee, U4 a Planning Committee, while regular meetings are held with key stakeholders in order to ensure integration at U3 and U5. The majority of the universities indicated with regard to open-ended question 1 (cf. 6.2.2) that they have “structures” in place that oversee the integration of quality management, planning and resource allocation, for example a Planning Committee, Resource Allocation Committee, etc.). These structures should operate as interrelated elements functioning as a whole. This point of departure concurs with the fundamental principle of quantum physics (cf. 3.2), namely that there are not parts at all; a part is nothing else but a “pattern in an inseparable web of relationships” (Capra, 1997: 37). Cooperation between functions is imperative and should work across functional lines (cf. 3.6.1.1). Crosby promotes cross-functional quality improvement teams as fundamental to quality improvement processes (cf. 3.6.1.3).
It is imperative, according to the literature study, that a university's management should focus on the establishment of links between institutional functions (cf. 3.4.3). It is, for example, imperative that the quality assurance structure of an institution has strong links with management and forms part of the "real management function" (cf. 3.9.4.4). The data collected from the precoded questions 19 and 20 indicate that an average as much as 42% of the respondents (41.2% disagree with question 19, and 42.8% disagree with question 20). They are of the opinion that their institutions fail to integrate quality management, planning and resource allocation. This emphasises the rationale for this study. The responses on open-ended question 8 emphasise this finding. The respondents refer to "gaps" in their systems that impede the integration of quality management, planning and resource allocation. Although the respondents were very vague on the types of - and reasons for - these gaps, the majority referred to issues such as a "lack of integration", "no integration", "lack of a link between reports and decision making" and "lack of understanding the need for integration", etc. (cf. 6.2.2).

The literature study that was conducted indicated that many universities abroad implement renowned quality models such as TQM. The principles of TQM draw on the contributions of many quality gurus and are based on the following notions that are relevant for this study (cf. 3.6.1.1, 3.6.1.2, 3.6.1.4 and 3.10):

- Continuous improvement (Deming and Juran)
- Cross-functional collaboration (Deming)
- Resources are imperative for improvement (Juran)
- Top management are the drivers of quality (Feigenbaum)

TQM is a quality model that is based on the systems approach. The TQM model emphasises and recognises the role of each part of the organisation as a subsystem and each individual as a worker in the system that contributes to the achievement of the system's goals. According to the literature study, top management should have a clear understanding of the necessity to implement TQM principles and should ensure that the right conditions are created for participation in institutional quality assurance and improvement activities (cf. 3.6.5.1).

The above-mentioned issues emphasise the need for an integrated approach with regard to quality management in order to prevent quality problems. Quality management takes place according to the HEQC by means of "institutional arrangements for assuring, supporting,
developing and enhancing, and monitoring the quality of an institution's core business" (CHE 2004b: 26). The literature study refers to several mechanisms that contribute to the enhancement of the integration of quality management, planning and resource allocation. This includes reporting mechanisms (cf. 3.9.1.2), the utilisation and adoption of industrial type of quality models and mechanisms for institutions of higher learning (cf. 3.9.3), processes that combine input to produce output, etc. According to the literature study, budgeting processes can be used as mechanisms to plan and to manage an institution towards the achievement of its goals and plans (cf. 4.4.). Institutions should implement resource allocation models (RAMs) that integrate planning processes with the distribution of revenue amongst a system's constituent parts. Models such as the rational model (cf. 4.4.2.1) link allocation of resources to strategic plans and goals on all institutional levels.

**Recommendation 7**

Structures and networks should be established that integrate the functions of different functionaries and subsystems (for example, planning, quality management and resource allocation) in a combined effort in order to cooperate towards the final outcome. It is imperative that cross-functional structures and working teams should facilitate and oversee the linking of resources with plans (e.g. Planning and Resource Allocation Committees).

**Recommendation 8**

A quality assurance system, its processes and procedures, should ensure that the quality management information that is collected by means of quality assurance exercises feeds into its planning exercises, resource allocation and other decision-making processes on all levels. Regular reviews in order to monitor this integration are imperative.

**Recommendation 9**

There should be a strong link and regular interaction between an institution's quality structures that gather management information and its management on strategic, tactical and operational levels in order to enhance the dissemination of information.
FINDING 4

IN GENERAL INSTITUTIONS SUCCEED TO INTEGRATE QUALITY MANAGEMENT AND PLANNING BUT FAIL TO INTEGRATE QUALITY MANAGEMENT WITH RESOURCE ALLOCATION

The literature study emphasises that quality management, planning and resources are integrated elements (cf. 4.1). According to the literature study, resource allocation forms part of the "second phase" of planning. The integration of quality management and resource allocation is imperative as it determines the success of quality management systems (cf. 3.8.1), being the essential foundational elements which determine the success of an institution of higher learning to achieve its goals (cf. 4.2). An institution of higher learning cannot deliver the required quality with insufficient resources (cf. 3.9.1.3). An institution’s quality assurance system encompasses the resources to implement quality management which includes appropriate structures, clear responsibilities, effective processes and procedures (cf. 3.3.9.4).

There should be a strong link between quality assurance and resource allocation at institutions of higher learning. Continuous reviews should inform planning (cf. 4.2.1, 4.4), resource allocation and decision-making processes (cf. 3.9.4.3). The outcome of quality assessment activities should inform remedial/corrective action plans and processes (cf. 4.1, 4.4, 4.5). This emphasises the interconnectedness and necessity for a link between quality assurance and resource allocation (cf. 4.5).

Managers can then utilise the information for decision-making purposes and decide how best to use the resources on which they have discretion (cf. 4.3.3). Some institutions implement resource allocation models (RAMs) that can be used as quality management mechanisms (e.g. to provide incentives in order to motivate staff and students to enhance quality). An institution’s RAM can be utilised to complement its structure for governance and planning. It can provide a transparent and consistent method of resource allocation to its respective subsystems (cf. 4.4.5.4).

Only 53% of the respondents (cf. 6.2.1.1) indicated that data and analysis of quality reviews at their institutions feed into resource allocation exercises. Only one respondent strongly agrees with this statement. As much as 47.1% fail to integrate quality assurance outcomes with resource allocation. The literature study emphasises the importance of linking quality assurance and resource allocation as a prerequisite for the improvement of the core business of a university. This is an indication that there is a "gap" between the integration of
quality assurance outcomes and resource allocation. This is also evident with regard to the responses to question 6 where only 55.5% of the respondents agree that financial planning ensures adequate resource allocation for the improvement of quality at their institutions. The researcher concurs with the statement of William Massy, that the complexity of resource allocation in higher education makes it impossible to offer a guide for institutional resource allocation. If such a guide were followed it would ensure success (cf. 4.1).

Recommendation 10

An institution can utilise a RAM (e.g. the rational model) as a mechanism to link an institution’s priorities, goals and plans with its resources.

Recommendation 11

Implement a RAM that fits a university’s management and planning structure.

Recommendation 12

Avoid silo management with regard to the functions of quality management and resource allocation by means of the establishment of structures, and the development and implementation of processes that then will ensure interaction and synergy.

The researcher identified from the literature and empirical study “key elements” for the integration of quality management, planning and resource allocation.

7.3 KEY ELEMENTS FOR THE INTEGRATION OF QUALITY MANAGEMENT WITH PLANNING AND RESOURCE ALLOCATION

As a result of this study the researcher regards the following as key elements for the integration of quality management with planning and resource allocation:

7.3.1 THE SYSTEMS THEORY SHOULD UNDERPIN AN INSTITUTION’S QUALITY MANAGEMENT SYSTEM.

7.3.2 Commitment and the driving force to integrate quality management with planning and resource allocation start at and should be demonstrated by top management.
7.3.3 Appropriate structures should be established in order to oversee the integration of quality management with planning and resource allocation.

7.3.4 As silo management counteracts integration it should be avoided by adopting and adapting principles of quality models that are based on the systems theory, for example TQM.

7.3.5 Mechanisms should be developed and utilised in order to integrate quality management with planning and resource allocation (e.g. the implementation of a rational model for resource allocation).

7.3.6 Models that ensure the continuous processes of planning, resource allocation, quality assurance and replanning should be utilised or adapted for the purpose of integration of the institutional functions: quality assurance, planning and resource allocation (e.g. the PDCA or ADRI models).

7.3.7 Cross-functional collaboration with regard to the critical management areas of quality assurance, planning and resource allocation is imperative.

7.3.8 An institution’s RAM should be utilised as one of the mechanisms of an institution to integrate resource allocation with planning.

7.3.9 There should be a strong link and interaction between structures that are responsible for quality assurance and management on all institutional levels.

This study should develop (research objective 4) a generic model for the integration of quality management, planning and resource allocation that institutions of higher learning can utilise, which should also be suitable for implementation by U1 (cf. 1.3.2). The following is a summary of recommendations for specifically U1 with regard to the integration of quality management, planning and resource allocation.

7.4 SUMMARY OF RECOMMENDATIONS FOR U1

As was already mentioned in chapter 6 (cf. 6.2.1), data of the precoded questions of this study are represented by means of frequency tables with values for possible answers: 1 for strongly disagree, 2 for disagree, 3 for agree and 4 for strongly agree. The need for integration of quality management, planning and resource allocation at U1 is evident from the outcomes of the precoded questions of which 14 of a total of 20 statements were indicated by the respondent of U1 as significantly low (a value of 2: disagree) or ( a value of 1:
(strongly disagree). This emphasises the rationale for this study and the need for a model to integrate quality management, planning and resource allocation at U1. Whereas the above-mentioned findings and recommendations are relevant for any institution of higher learning in South Africa that fails to integrate quality management and resource allocation, they are equally relevant for U1. U1 should therefore consider the implementation of the above-mentioned recommendations. 9 of U1’s responses that have significantly low values are related to quality management and planning questions. Two responses with significantly low values are related to resources and quality management questions. Two responses with significantly low values are related to resources and planning questions.

The following is an attempt to highlight the key elements for the integration of the critical management functions of quality assurance, planning and resource allocation that are relevant for U1. The following remarks concur with the majority of the above-mentioned recommendations (cf. 7.1):

7.4.1 QUALITY ASSURANCE OUTCOMES SHOULD FEED INTO DECISION-MAKING, PLANNING AND RESOURCE ALLOCATION PROCESSES IN ORDER TO ENHANCE QUALITY MANAGEMENT

According to the literature study, reviews, strategic planning and resource allocation are critical management processes and they may not function in isolation (cf. 4.2). According to the literature study, the results of continuous reviews should inform planning and decision-making processes on strategic, tactical and operational levels (cf. 3.9.4.3). Continuous improvement can only be ensured if the results from quality assurance exercises are incorporated into institutional plans, according to the literature study. Institutional plans are linked to resource allocation as a phase of planning. Quality assurance outcomes should feed into an institution’s decision-making, planning and resource allocation processes. The information gathered from reviews should be regarded as an important source of management information and should (cf. 3.9.4.3) inform all forms of planning, including remedial action plans and financial plans (cf. 4.3.3, 4.5).

7.4.2 U1 SHOULD DEVELOP A STRATEGIC FRAMEWORK AND DIRECTION FOR PLANNING, RESOURCE ALLOCATION
Quality management objectives should be set and continuously revised. They should feed into planning on all levels in order to ensure ongoing improvement. Quality management objectives must feed into the strategic plan, into plans on tactical levels such as an Academic Plan and Financial Plan and into operational plans such as Faculty, Departments and Unit Plans. These form a strategic framework for achieving an institution's quality objectives with regard to its core business (cf. 4.2). The plans of an institution should be suitable to achieve its stated objectives (cf. 3.7.4, 3.8.3.1).

7.4.3 TOP MANAGEMENT SHOULD BE COMMITTED TO SYSTEMS THINKING

Senior management is responsible to create institutional values, goals and systems that will guide the institution to reach its objectives (cf. 3.9.4.4). The integration of quality assurance with planning and resource allocation is key to the success of any institution of higher learning and imperative for reaching institutional goals. The literature study emphasises that the systems theory underpins the notion of integration. Commitment to systems thinking should start at top management and should cascade to all levels of management.

7.4.4 U1 SHOULD ESTABLISH MECHANISMS THAT WILL ENSURE THE INTEGRATION OF QUALITY ASSURANCE, PLANNING AND RESOURCE ALLOCATION.

The literature study concurs with the statement of the HEQC, namely that the success of quality management depends to a large extent on the integration of mechanisms for quality assurance with planning and resource allocation (cf. 4.5). U1 should consider establishing mechanisms that will ensure the integration of quality assurance with its planning processes, including financial planning. According to the literature study, the integration of quality assurance with planning and resource allocation can be enhanced by means of appropriate structures (cf. 3.6.1.2, 3.6.3). Structures can be established to oversee the functions of quality assurance and the collection, interpretation and dissemination of management information for the purpose of institutional planning and decision making. These structures
should therefore focus on enhancing the integration of the institution’s planning, including financial planning and quality assurance functions.

7.4.5 U1 SHOULD DEVELOP AND IMPLEMENT A CONTINUOUS IMPROVEMENT MODEL THAT INTEGRATES THE CRITICAL MANAGEMENT FUNCTIONS OF THE INSTITUTION.

The institution should consider utilising quality models that ensure continuous improvement by means of cyclical phases of planning, reviews, adjustments and replanning (cf. 3.9.2.3). Models that can be utilised are PDCA, ADRI, etc. (cf. 3.6.6.3).

7.4.6 U1 SHOULD DEVELOP CROSS-FUNCTIONAL STRUCTURES THAT ENSURE PARTICIPATION OF MEMBERS ON ALL LEVELS OF THE INSTITUTION WITH REGARD TO QUALITY MANAGEMENT, PLANNING AND RESOURCE ALLOCATION.

According to the literature study, participation is an important element of quality management (cf. 3.6., 3.6.6.4). Participation in quality management enhances awareness of quality across the organisation and makes participants aware of costs (cf. 3.6.1.3). Crosby is one of the exponents for the creation of a platform for participation of members within an institutional setting where the participants can raise their concerns and where quality awareness can be fostered (cf. 3.6.1.3). Effective participation encourages the notion of empowerment and unleashes the potential of participants to contribute towards the achievement of an organisation’s goals (cf. 3.6.3, 3.9.4.4). Participation of members in decision-making structures is imperative for effective management. Institutions should establish structures such as quality councils (cf. 3.9.4.4) and train members of quality improvement teams to ensure greater success with regard to the development and implementation of plans (cf. 4.4.2.2). Participation is, according to the literature, imperative during decision-making processes such as resource allocation exercises. The principle of democracy advocates participation (cf. 4.4.4.1).

The researcher’s proposed model for the integration of quality management, planning and resource allocation based on the combination and adaptation of the dimensions of the ADRI and PDCA/PIRI models will be presented in the section that follows.
7.5 A MODEL FOR THE INTEGRATION OF QUALITY MANAGEMENT, PLANNING AND RESOURCE ALLOCATION

As mentioned in chapter three (cf. 3.1) quality management of institutions of higher learning are straddling micro-, meso- and macrolevels. In this context, microlevel refers to an institution's vision, mission, objectives, strategies and plans. The mesolevel refers to the influence of external bodies of an institution and the macrolevel to national policy developments impacting on institutions of higher learning. The focus of this study is on the microlevel i.e. the quality management of an institution of higher learning and the integration of quality planning and resource allocation. One of the objectives of this study is to develop a generic model that will also be suitable for U1 in order to integrate quality management, planning and resource allocation. A need for this model is emphasised by the outcome of the empirical study, namely that as much as 47% of institutions that were audited by the HEQC fail to integrate quality management, planning and resource allocation. This outcome motivates the rationale for this study. The concept "model" as it is used in this study will now be discussed, followed by various models that are related to the objectives of this study.

7.5.1 MEANING OF THE TERM “MODEL” IN THIS STUDY

A "model" can be described as a supportive construction for research (Jonker, 1994:208). It is a useful tool with regard to explaining phenomena that are complex in nature, as it simplifies and systemises the research domain. It therefore helps the user to understand complicated phenomena (Nadler, 1989:5). A model consists of illustrative devices or diagrams (De Corte et al., 1981:6).

According to Mouton and Marais (1990:144), a model does not provide explanations of phenomena that are complex but should be regarded as a representation of a system, object or an idea. Therefore, as merely a representation of reality, a model should not be regarded as 'reality' (Vos, Strydom, Fouche & Delport, 2007:30). A model provides a very basic indication of the links and relations between the different components in a process. As merely a representation of a system, object or an idea, a model cannot provide all the attributes that match with its subject matter. According to Vermaak (1999:208), because of the fact that a model concentrates on certain aspects of reality, more than one model can be applicable when building a specific model. Continuous improvement underpins the major quality management models (cf. 3.6.6.4).
7.5.2 CONTINUOUS IMPROVEMENT AND QUALITY MANAGEMENT

One of the aims of this study is to conceptualise quality management, planning and resource allocation within the notion of continuous improvement. According to Rao et al. (1996:199), the notion of continuous improvement is a central and fundamental concept of Total Quality Management. The notion of continuous improvement is associated with the philosophy of quality gurus such as Deming and Juran (cf. 3.10). The model that Schewart developed, namely the "cycle of continuous improvement" or the Schewart cycle, Plan-Do-Check-Act (PDCA), was adjusted by Deming to PDSA or Plan-Do-Study-Act (cf. 4.2.1). The PDCA cycle is also known as the "helix of never-ending-improvement" (cf. 3.6.3).

This study emphasises the importance of continuous improvement at institutions of higher learning. The focus is therefore not on achievements and the maintenance of quality only, but on ongoing improvement (cf. 3.5.1.4). The literature study shows that continuous improvement can be achieved by means of multi-functional teams, by information and data gathered from customers, empowerment of staff members and the utilisation of management information in order to enhance the quality of internal processes (cf. 3.6.4). A quality assurance system is designed to manage continuous improvement of processes in order to meet the needs and expectations of the customer (cf. 3.6).

U2 (an institution that conducts for the purpose of this study "best practice"), implements the ADRI model. The phases of the ADRI model correlate with the phases of the PDCA model (Plan-Do-Check-Act). The following figure (figure 7.1) illustrates the ongoing cycle of improvement of the ADRI (Approach-Deployment-Results-Improvement) model which correlates with the phases of the PDCA model. U2 adapted the ADRI model by changing the "Results" phase or dimension of the model to "Reviews".
According to U2, this model ensures ongoing improvement, and the integration of quality assurance with planning and resource allocation. The following section presents a discussion of the phases of the ADRI model as implemented by U2.

**7.5.2.1 Approach**

On microlevel, U2 aligns its Operational Plans with its Implementation and Strategic Plans. The Operational Plan stipulates in detail what should be done by when, by whom, to what standard and with what resources. Resource allocation follows planning at U2. U2 has a manual with details regarding how processes should be implemented (a Faculty and Support Services Toolkit). The resource allocation plans of U2 are aligned with the Operational Plans. U2 develops institutional goals, objectives, strategies and targets that link with the demands of the external environment (macro- and mesolevels). The planning process of U2 incorporates issues that are identified as top priorities on its Risk Register (the latter which forms part of the Improvement phase). The planning process is based on a system that is informed by extensive management information which includes quality assurance outcomes (reports and plans of reviews, audits, etc.), as well as statistical data.
7.5.2.2 Deployment

The Deployment phase represents the implementation process of the operational plans (which are linked to plans and goals on tactical and strategic levels). This phase refers to management processes, to the appropriate structures that support deployment, to people’s skills, authority and knowledge as well as to necessary resources to implement the plans to reach the goals on all levels. This also refers to the monitoring of the effectiveness and efficiency of processes and interventions (when and where necessary) and participation of relevant stakeholders in the processes.

7.5.2.3 Review

The Review phase represents the functions of monitoring and evaluation. U2 utilises this phase to determine what is achieved with regard to the goals, plans, inputs and processes. The risk management system is a mechanism that U2 utilises in order to show a causal relationship between the previous two phases of the ADRI model. U2 utilises quantitative and qualitative results.

7.5.2.4 Improvement

Characteristic of this phase is “adjustments” and “remedial actions”. Improvement represents the utilisation of the outcome (quantitative and qualitative information that is gathered during the Review phase) of U2’s comprehensive quality assurance activities. U2 focuses on what needs to be enhanced in this phase, the adjustments that should be made, the empowerment of staff and the activation of its structures in order to ensure continuous improvement. U2 develops remedial action goals and relevant Improvement Plans during this phase. The plans are linked to the university’s budget process and controlled by means of a risk management system.

U2 developed an integrated risk management system that identifies and evaluates the university’s potential and real risk areas. It is used by the senior management of U2 as a controlling measure with regard to its operational goals, plans and resources and how they link with the institutional priorities, goals and plans, including its remedial action initiatives (see the Review phase). The Risk Register is updated on a continuous basis by the quality management division of U2. For the purpose of this study and from a quality management point of view, it is important to take note that the Risk Register of U2 is a valuable internal risk control mechanism that optimises the integration between U2’s plans and its resources.
The Risk Register links with the institution’s quality assurance initiatives and ensures that risks are identified, evaluated and managed on a continuous basis.

It is not an unfamiliar practice for organisations to implement continuous quality improvement cycles that are based on the elements of different quality management models. The combination of the PDCA and ADRI cycles was advocated by Weeks-Kaye (2004:1). Weeks-Kaye combined the elements of the PDCA cycle with the ADRI cycle in order to develop a planning and quality framework:

TABLE 7.1 Planning and quality framework: a combination of the PDCA cycle and the ADRI cycle (Weeks-Kaye, 2004:1).

<table>
<thead>
<tr>
<th>PLANNING CYCLE</th>
<th>QUALITY CYCLE</th>
<th>PLANNING AND QUALITY FRAMEWORK: KEY STEPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLAN: Planning direction: What do we want to achieve?</td>
<td>APPROACH: Planning for quality; What do we want to achieve?</td>
<td>1. Identify planning mechanisms; how to plan for the future and for quality</td>
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<tr>
<td></td>
<td></td>
<td>2. Consider the internal and external environment and develop a vision and strategic direction to provide the context for planning</td>
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<td></td>
<td></td>
<td>3. Develop objectives</td>
</tr>
<tr>
<td>DO: What are we doing?</td>
<td>DEPLOYMENT: How are we doing it?</td>
<td>4. Develop strategies to achieve objectives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Identify not only the activities/programmes to achieve strategies, but more importantly “how” they will be implemented (assuring quality) i.e. policies, processes and procedures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Develop an annual top-level planning timetable</td>
</tr>
<tr>
<td>CHECK: Reviewing against intentions</td>
<td>RESULTS: What are the outcomes?</td>
<td>7. Develop guidelines and timetables for reviewing strategic plans, i.e. progress towards objectives; content</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Monitor and regularly review policies, processes and procedures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9. Identify outcomes and demonstrate levels of achievement against intentions</td>
</tr>
<tr>
<td>ACT: What actions are taken as a result of review?</td>
<td>IMPROVEMENT: Learn and adapt.</td>
<td>10. As a result of reviews, identify if any changes need to be made to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>i) strategic plans and/or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) activities, policies, processes and procedures to ensure quality outcomes and/or refine direction and priorities</td>
</tr>
</tbody>
</table>

CHAPTER 7
CONCLUSION AND RECOMMENDATIONS
The researcher also combined the phases of the ADRI cycle and PDCA cycle to develop a generic model (cf. figure 7.4) with a stronger focus on the integration of quality management, planning and resource allocation and with specific emphasis on the interconnectedness of planning and resource allocation. The researcher regards planning and resource allocation as a single dimension with three interrelated phases. The researcher's proposed model therefore sets a framework in which the integration of quality management, planning and resource allocation can be achieved with a strong focus on the interrelatedness and interconnectedness of the planning and resource allocation dimensions of the proposed model.

Many universitites, e.g. the University of Wollongong (UOW, 2007:2), utilise adapted versions of the PDCA model. The Australian Catholic University (ASQ, 2007:1) utilises the PIRI model (Planning-Implementation-Review-Planning). According to the researcher the latter is more relevant for the purpose of this study. The planning phase of this quality management cycle includes goals, objectives, target and standard-setting exercises. The implementation phase refers to the phase where a university’s resources are deployed in order to achieve the goals and plans that were set during the planning phase. The review phase represents the evaluation of the implementation phase against the background of the institutional goals, objectives and plans. The improvement phase is associated with opportunities and exercises to identify the areas that need remedial action and adjustments. This information feeds into the planning and subsequent implementation phases. The phase “Do” of the PDCA model is replaced in the PIRI model with the concept “Implement” because it represents the implementation phase of goals and plans. The “Check” phase of the PDCA model is replaced with “Reviews”. The researcher is of the opinion that the concept “check” is more relevant to an industrial context and may create the illusion of “managerialism” as discussed in this study. The concept “review” is more relevant for universities that follow a developmental approach with regard to quality assurance. “Act” is replaced with “Improvement”, the latter represents the adjustment and remedial action phase of the model and is therefore a better description of this dimension. Figure 7.2 illustrates the PIRI model that a university can utilise as a quality management model which is based on the PDCA model.
Figure 7.2 illustrates how the PIRI model can be utilised by an institution of higher learning as a quality management model that is based on continuous improvement. The literature study emphasises from a systems theory point of view the importance of the integration of institutional goals and plans on all levels i.e. strategic or macrolevel, tactical or mesolevel and operational or microlevel. The following figure (7.3) illustrates the linkage and relationship of institutional priorities, goals and plans on macrolevel with that of the meso- and microlevels. It illustrates also the integration of quality assurance initiatives by means of reviews as well as the linkage of budgets and resources to plans.
7.5.3 THE UNIVERSITY AS AN OPEN SYSTEM WITH SYNERGISTIC FUNCTIONING COMPONENTS

As mentioned earlier, this study is based on the grounded theory approach, therefore, the researcher's understanding of the way in which institutions of higher learning deal with the integration of quality management, planning and resource allocation, as well as the literature and empirical studies that were conducted, provided the basis and enabled the researcher to develop the above-mentioned model (cf. 7.3), as well as the following model (cf. figure 7.4). These models relate to the PIRI model. (The researcher utilised the PIRI model to develop the following PraIRI model (Planning and resource allocation-Implementation-Review-Improvement). The PraIRI model is illustrated in figure 7.4.)
FIGURE 7.4 The PraIRI Model: An integrated quality management model

The PraIRI model as (an integrated quality management model) will now be discussed.

7.5.3.1 The macro- and meso-environment

Figure 7.4 illustrates the impact of the macro- and meso-environments on the micro-environment of an institution of higher learning. It illustrates the existence of "penetrable boundaries" by means of an arrow from the macro-environment that penetrates the layers of the (cf. 3.4.1) meso- and micro-environments. It also illustrates the impact of the external environment on the micro-environment. The inputs from the external environment are transformed by means of interconnected processes of the subsystems in the micro-environment (cf. 3.2) into outputs (cf. 3.2.2). The micro-environment is an open system. An arrow from the macro- and meso-environment towards the micro-environment shows that the external environment has an impact on the micro-environment. It is therefore imperative for the university as an open system to interact with the external environment (cf. 3.10), to conduct regular environment scans (cf. 4.2.1.2), etc. This characterises and distinguishes a university as an open system (cf. 3.3) from an organisation that operates as a closed system.
The macro-environment "layer" is characterised by external elements that are beyond control of the university and that are often also unpredictable (cf. 3.3.1). Some of the issues in the macro-environment layer are the community's wealth, political developments, social environment, global environment, technological environment, economic trends, the White Paper on Transformation (1997a), national imperatives of the government, social changes, national policies, national strategies, government decisions, global economy (which is knowledge-driven), government's fiscal policy, etc (cf. 2.3, 3.3.1, 3.3.1.3, 3.7.1, 3.5.1.4). The meso-environment includes the external customers, expectations of customers, customer needs, the Department of Education (DoE), the Higher Education Quality Committee (HEQC), professional bodies, competitors, suppliers, etc (cf. 3.3.1.2, 3.5.1, 3.6.1.2, 3.8, 3.8.1, 4.4.1).

7.5.3.2 The micro-environment

The micro-environment refers to the university as an open system. Figure 7.4 illustrates how the phases of the PraIRI model enclose the system on all its levels: strategic, tactical and operational (cf. 3.6, 3.9.4.2, 4.2.1, 4.2.1.2, 4.2.1.3, 4.2.3, 4.3.3, 4.4, 4.4.5.4). This includes its core business as well as its support functions as subsystems as illustrated in the centre of the model (teaching and learning, research and community engagement with their support systems). These subsystems constitute the university as a "complex system" (cf. 3.4) comprising a number of interrelated and interdependent "subsystems" or "functioning components". Each component or subsystem is regarded as a "system" in its own right (cf. 3.4.3). In the middle of figure 7.4 is the concept "synergy" that illustrates a core element of systems thinking with reference to concepts that are typical of systems theory, i.e. interconnected, interdependent, integration, interaction, interrelationship, etc (cf. 3.10). As the integration of quality assurance, planning and resource allocation is only possible if the subsystems are synergistic functioning components (cf. 6.2.1.4), it is also important that multifunctional teams should be established (cf. 3.6.4). Therefore from a systems thinking point of view, the concept "synergy" (as represented in the centre of the model) illustrates that the individual subsystems are simultaneously applied in such a way (therefore they are partially overlapping each other) that the results of their simultaneous application are greater than the sum of their individual efforts (cf. 3.3.2). As a "system" in its own right, each component or subsystem has its own PraIRI cycle which constitutes the notion of the spiral or "helix" of never-ending improvement (cf. 3.6.3).

Figure 7.5 illustrates the planning and resource allocation dimension of the PraIRI model.
The above-mentioned three dimensions or phases that constitute the Planning and resource allocation phase ("Pra"), i.e. data and information collection, creativity and feasibility, will now be discussed.

7.5.3.3 The dimensions of the “Pra” phase

Planning in this study refers to planning on strategic, tactical and operational levels. The strategic plan lays down the planning goals on tactical and operational levels. The institutional plans can be regarded as supporting plans that are linked to the strategic priorities and plans of the institution. Each supporting plan has its own objectives and strategies. On the tactical level core function strategic plans are linked with the institutional...
strategic plan (e.g. academic plan). Strategic plans on operational level include faculty plans, administrative and service unit plans, site of delivery plans (if an institution has more than one site of delivery), facilitating plans (e.g. IT plans, human resources plans, etc.). During the planning and resource allocation phase the university usually identifies and defines what it should achieve, develops an approach for this purpose and allocates the necessary resources in order to achieve its objectives. Budgeting takes place on operational level and follows the planning exercise. Figure 7.3 illustrates how the strategic plan informs the operational plan, how the operational plan informs the plans on tactical as well as operational levels and how resource allocation is linked to these exercises.

In the following figure the first phase of Planning and resource allocation will be illustrated. The PraRI model should be followed as a quality management framework during all planning exercises. This includes an institution's strategic plan that informs its enabling plans on tactical level and its operational or action plans which include its annual budget.

![Diagram](image)

**FIGURE 7.6** Phase one of planning and resource allocation: data and information collection

The figure shows the macrolevel and mesolevel or external environment that surrounds the microlevel of a university. As discussed above (cf. 7.5.3), the university as an open system should interact with its external environment as it is uncontrollable, unstable, unpredictable and has an impact on the system. In order to ensure that a university as an open system does not become extinct in a world that changes rapidly, it should interact with its external environment and it should conduct environment scans on a regular basis. It is therefore

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**CHAPTER 7**

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important for universities continuously to conduct an environmental assessment (Evans & Lindsay, 2002:246) which should inform their revision processes with regard to institutional mission, strategic objectives, strategic plans, etc. The impact of the external environment can determine the relevance and success of the university within a world where “only the fittest will survive”. The university should therefore adopt a spirit and strategy of “organisational Darwinism” (cf. 3.3.1). The information gathered (on a regular basis) from the external environmental analysis should feed into the planning process.

This information includes also the needs and expectations of an institution’s “external customers” on the meso-environment level (see figure 7.4), e.g. it is imperative to take note of the HEQC’s programme evaluation criteria, the Department of Education’s- (DoE) and SAQA’s requirements, etc. when an institution plans for the offering of a new academic programme. It is also important in this data and information collection phase of planning to collect information through quality assurance activities. Information and data that feed into the planning phase should be quantitative and qualitative in nature: data collected from reviews, reports on self-evaluation exercises, surveys, remedial action plans, audit reports, focus group interview reports, statistical data, etc. All information that is gathered during the Review and Improvement phases of the PraIRI model should be regarded as management information that feeds into the second phase of the Planning and resource allocation phase.

In figure 7.7 the second phase of Planning and resource allocation is illustrated.
This phase can be regarded as the “creative phase”. According to Crosby, current and potential problems should be identified (cf. 3.6.1.3). An institution should therefore identify the key aspects that contribute to the limitation of its capabilities. Information such as its strength and weaknesses can help to identify and formulate its strategic objectives (cf. 4.2.1.2). The management information that was gathered during phase one is now analysed and can inform quality management mechanisms such as a “risk register” (cf. 7.5.2.4). The institution should also revise its current goals and strategic priorities and should align this information with the information that was collected during its quality assurance activities (cf. 4.2.1.3). It is during this phase that not only the causes of deficiencies are identified, but possible solutions for the problems are provided (cf. 3.6.1.2). Cross-functional teams (cf. 3.6.1.1, 3.10) can be established to brainstorm ideas by utilising group techniques to evaluate and rank the best ideas, to quantify benefits and to plan actions. Adjustments should then be made to the vision, mission, goals, objectives and plans in order to align them with the outcome of the creative phase. Effective communication is imperative during planning (cf. 4.2.1.3); this includes horizontal and vertical dialogue, i.e. communication across the organisation. Every member of the institution should understand the mission, goals and objectives on all levels of the institution (cf. 3.9.1.3). Effective communication is
characteristic of the TQM approach and forms part of the criteria of management models such as ISO (cf. 3.6.6.1) and SAEM (cf. 3.6.6.4). Figures 7.8 and 7.9 illustrate this notion of effective communication as an important component of the second and third phases of planning. Feedback to constituencies and the enhancement of effective communication can take place by means of reports, meetings, workshops, participation, etc.

The following figure illustrates phase three of the PraRI model.

![Diagram of PraRI model phase three](image)

**FIGURE 7.8:** Phase three of planning and resource allocation: feasibility of plans

The third phase is the resource allocation phase. The third phase forms an integral part of planning. The researcher emphasises the importance of resource allocation and its integration with planning by adapting the PIPI model to PraRI model. For an institution to reach its goals it is imperative to plan and to ensure the feasibility of the developed plans by means of resources. Resources are usually allocated by utilising a RAM (Resource Allocation Model) to faculty levels in an institution of higher learning, followed by budgeting processes by departments and units. A RAM is according to the literature study a method or "budgeting device" to distribute income between e.g. academic and academic support units (cf. 4.4). Budgeting is discussed in this study as management "plans that are phrased in financial terms" (cf. 4.4). An institution's priorities and goals inform the development of its plans (phases one and two of the PraRI model) that are finally (in phase three) converted into budgets (cf.4.4). It is advisable that structures such as cross-functional teams (cf. 3.6.1.1) should be established, as these can assist in resource allocation processes. Some institutions established a central office to oversee the integration of institutional priorities and
goals with resource allocation (cf. 4.4.5.4). In the third phase, the financial impact of planning should be determined. Planning may lead to certain changes which may include organisational elements such as structures, span of control, salaries, replacement of human resources, working hours, etc (cf. 4.2.4.4). Resource allocation is a complex exercise, mechanisms such as the above-mentioned RAM is imperative to ensure a link between an institution’s enrolment growth and its institutional and human resource needs during this phase (cf. 4.4.4.1). U6 implements in this regard a Human Resource Allocation Model (cf. 6.2.2). An institution’s RAM (resource allocation model) is an important element of the resource allocation phase (see figure 7.7) as it should complement an institution’s structure for governance and planning and should be linked to an institution’s planned activities (cf. 4.4.5.3). A RAM should form part of an institution’s planning and budgeting process as it provides a method to distribute income between all components or subsystems of an institution (cf. 4.4). A RAM can be centralised or decentralised (cf. 4.4.5.3). The University of Oxford’s RAM intends to provide a transparent and consistent means of allocating institutional income to divisions to which responsibility for preparing academic budgets is devolved (cf. 4.4.5.3).

Effective communication is imperative for the third phase of planning. Each manager and subordinate should understand an institution’s purpose, mission, long term goals and strategies, because this knowledge guides the development of plans and helps with regard to decision making during resource allocation and budgeting exercises (cf. 4.2.1.3).

The researcher will now explain the rest of the PraIRI model’s dimensions, namely the “IRI” phases (Implementation, Review and Improvement) (cf. figure 7.4).

7.5.3.4 The Implementation phase

The ADRI model refers to this phase as the “deployment” phase, the PDCA model refers to it as the “do” phase. The strategic plan as well as the annual action plans that were developed during the planning phase should be implemented and monitored within a set of parameters. This requires effective quality management (cf. 3.6.6.4), structures, leadership, monitoring and control (cf. 4.2.4.5, 4.4.2.1). Managers are responsible for the continuous monitoring and enhancement of processes and for making decisions in order to reach the goals and plans on all institutional levels (cf. 4.3.3). The monitoring of the implementation of plans is imperative in order to identify gaps and to support changes (cf. 4.5) as the implementation of plans is not always without stumbling blocks (cf. 4.2.3.2).
The monitoring of the implementation of plans might indicate that certain changes are required. A characteristic of the implementation phase is the establishment of structures and teams, the training of teams, managers and individuals on how to monitor progress towards goals and plans (cf. 3.5.1.1) and the role of committees and (as has already been mentioned) managers, to coordinate and monitor progress. The establishment of multifunctional teams and structures will enhance synergy and will counteract silo management. Clearly communicated assignments, written rules, procedures, standards (cf. 3.4.1), updated policies, decision-making processes and resources are essential for the successful implementation of plans and the attainment of institutional goals (cf. 4.3.3).

7.5.3.5 The Review phase

The Review phase of the PraRI model refers to the review of activities and plans which include, for example, the review of policies in order to ensure their relevance, to programme reviews, department reviews, support services reviews, etc. Institutions should develop and implement review policies, processes and procedures as well as their own guidelines and timetables for reviews. It is imperative to conduct workshops for stakeholders in top management, middle management and operational levels in order to familiarise them with the quality assurance system, its processes and procedures. Quality improvement teams should be established and trained to utilise quality assurance mechanisms, to coordinate self-evaluation exercises and to improve quality by means of problem solving, etc.

Figure 7.9 demonstrates a typical internal review cycle of an academic programme at an institution of higher learning, and figure 7.10 illustrates an internal review cycle of a department at an institution of higher learning. These reviews can be conducted within a 5-6 year cycle and should be followed by an external audit by, for example, the HEQC (cf. 3.7.4), a professional body, etc. The review cycles illustrated in figures 7.9 (Brits, 2001) and 7.10 (Brits, 2007) include the following “building blocks” of an effective quality management system:

- Self-evaluation (cf. 3.9.4.3) - see cycle one.
- Peer review (cf. 6.2.1.4) - see cycle two.
- Continuous/ cyclical processes (cf. 3.9.2.3, 6.2.1.4)
- Remedial action processes (cf. 3.6.1.3, 3.9.2.3)
- Stakeholder participation on tactical and operational levels (cf. 3.6, 3.6.3).
- Triangulation of findings by means of peer review exercises.
• Generation of management information informs planning and resource allocation.

• Benchmarking (cf. 3.6.1.2, 3.6.5.3) by means of peer reviews.

Institutions can conduct regular academic programme reviews or departmental reviews or a combination of departmental and programme reviews. The following figures 7.9 and 7.10 illustrate cyclical processes (cycle one as internal self-evaluation exercise followed by cycle two -external monitoring or peer reviews) for reviews.

FIGURE 7.9: Cyclical reviews of academic programmes (Brits, 2001:16)

Academic and support or service departments may conduct on a regular basis departmental reviews as illustrated in figure 7.10.
The above-mentioned cycles include some of the key elements of an effective quality management system as discussed in this study. The literature review of this study clearly indicated that institutions of higher learning should implement strategies ensuring that their institutional objectives and standards are tested and improved, that there is a sound link between quality and strategic planning and that continuous improvement should take place. This includes the utilisation of effective quality management mechanisms (staff and student feedback, student-tracking systems, focus group interviews, etc). Information should be gathered by means of scientific methods in order to identify the root cause of quality problems.

Quality improvement can only be achieved through formal, structured processes (cf. 4.2.1) that are recognised by management at all levels of an institution and by the participation of all internal stakeholders. Structures such as a Quality Committee (cf. 6.2.2) or Quality Improvement Teams are crucial for steering the quality improvement processes. Malter (cf. 7.2) emphasises the importance of appropriate structures, the development of a commitment statement and resources (human and financial) as important factors in the process of quality improvement.
Successful quality improvement depends on the ability to identify and solve problems (cf. 3.6.2). The concept “problem” refers to a deviation between what should be happening and what is actually happening that is important enough to consider for remedial action or correction of the deviation. “Solving of a problem” can therefore be defined as the action to change the current state of what is actually happening to what should be happening. Figures 9 and 10 refer to “remedial action” processes (cf. 3.6.1.3) and “management information” (cf. 3.6.6.3, 3.9.1.2, 3.9.4.2) at the end of the cyclical process of reviews. The information that is collected during the reviews should feed into the next phase of the PraRi model, i.e. the Improvement phase. The outcomes of the reviews are usually presented in the form of a self-evaluation or external review report (cf. 3.8.3.2, 4.3.3, 6.2.2). These reports are critical reflections on the status of the current situation (i.e. the management of a department, programme, etc.) which is measured against a set of standards or criteria and should have commendations as well as recommendations (cf. 3.8.3, 3.9.2.3, 4.2.1.2). The latter is valuable information that informs the remedial action exercises (cf. 3.9.2.3, 3.10, 4.1) and the initiatives of the Improvement phase.

7.5.3.6 The Improvement phase

This phase compares with the Act phase of the PDCA model (cf. 1.4.1, 3.6.6.3, 4.2.1) and the Improvement phase of the ADRI model (cf. 1.4.1, 6.2.1.4, 7.5.2). The information that is obtained from the Review phase informs the Improvement phase. This phase helps an institution, department or unit to “closing the loop” which refers to the application of the PraRi model to all activities of an institution (all subsystems) with a focus on remedial actions by reflecting on information and data gathered during the Review phase. A characteristic of the Improvement phase is that adjustments or changes should be made to e.g. strategic plans, policies, procedures and processes (cf. 4.2, 4.2.1.2) in order to enhance the core business of the institution. Remedial actions should be conducted in order to address the deficiencies and gaps (cf. 3.6.1.2, 3.6.1.7, 3.6.6.4, 3.9.1.3) that were identified during the reviews (cf. 3.8.3, 3.9.2.3, 4.2.1.2) and are useful in this regard. Figures 7.10 and 7.11 illustrate remedial actions that take place in cycle two at the end of the programme and departmental review process. Quality improvement teams (cross-functional teams) can be established in order to plan for remedial actions (cf. 3.6.1.1, 3.6.1.3, 3.7.2) or to implement remedial actions (figure 7.9). In the case of an institutional audit, an institution can utilise the audit information to draft a Quality Improvement Framework or a Remedial Action Plan.

It is imperative in the Improvement Phase to conduct benchmarking exercises (cf. 3.6.1.2, 3.6.5.3, 3.6.6.4) in order to identify good practices on institutional, as well as national and
international levels, and to conduct institutional research with regard to gaps or deficiencies (cf. 3.6.1.2, 3.6.1.7, 3.6.6.4, 3.9.1.3) that will inform the remedial actions and the implementation of remedial plans (cf. 3.9.2.3, 3.10, 4.1, 4.3.3, 5.3) enhancing the quality of the core business of the institution. Progress with regard to the implementation of the remedial action plans should be monitored by means of progress reports, meetings and other forms of feedback as illustrated in figure 7.9 at the end of the external review cycle. The Improvement phase helps an institution, department or unit to refine, to replan and to redirect its priorities, goals and objectives. The information gathered during this phase feeds into the Planning and resource allocation phase (the Pra phase in figure 7.4) which constitutes the "helix of ongoing improvement" (cf. 3.6.3) and the feasibility of remedial action plans by means of resource allocation.

The above-mentioned phases and activities take place within a quality management framework that consists of structures with integrated functions (governance and management structures), linked to an institution's plans on strategic, tactical and operational levels. Typical governance structures at an institution of higher learning are Senate, Academic Board, Faculty Boards and relevant sub-committees. A university's rectorate, senior managers, deans and directors constitute its management structure. It is within this framework that the strategic plan, tactical and operational plans are implemented, coordinated, monitored (by means of reports, reviews, etc.). The following figure 7.11 is the researcher's adapted version of the Quality Management Framework of the Murdoch University (MU: 1). Figure 7.11 explains a typical quality management framework of a university. It illustrates the relationship with different structures and functions within the PraRI model.

All the phases of PraRI are conducted within an institution's quality management framework:

**Planning and resource allocation:**

Management in collaboration with all key stakeholders are responsible for the identification of planning mechanisms (cf. 4.2.1, 4.2.2), for the development of institutional objectives, for the allocation of resources (rectorate, deans of faculties, directors, heads of department, faculty committees, etc.).
Implementation

Strategies to achieve the institutional objectives are implemented by means of established structures. Quality is assured through the functions of institutional structures (cf. 3.1, 3.4), policies, processes and procedures (quality committee, quality improvement teams, etc.).

Reviews

Guidelines and timetables for reviews are set, strategic plans are reviewed (cf. 2.4, 3.9.2.3) i.e. progress towards objectives; and outcomes are identified and communicated (central quality promotion department, Quality Improvement Teams, Quality Committee, etc).

Improvement

The results of the reviews (cf. 6.3) help to inform any changes to the strategic plan, tactical plans and operational plans, activities, policies, processes and procedures. The institution's direction and priorities are refined (annual reports, audit reports, etc.).

FIGURE 7.11 QUALITY MANAGEMENT FRAMEWORK
7.7 CONCLUSION

This chapter presented the end product of the researcher’s endeavour. It showed how the results of the empirical research relate to the literature study and the systems theory as the underpinning principle for the integration of quality management, planning and resource allocation. The outcome of the empirical research supports the rationale for this study with regard to a high percentage of public universities in South Africa that fail to successfully integrate quality management, planning and resource allocation. Institutions fail especially to integrate quality management with planning. The outcome of the research also indicates other matters that contribute to the lack of integration of quality management, planning and resource allocation, e.g. a lack of commitment of the management of an institution and a lack of effective mechanisms for integration.

The researcher emphasised the importance of the systems theory as an underpinning theory for addressing the main objectives of this study, as well as the implementation of a sound quality management model that is based on the notion of continuous improvement. The university is viewed in this study as an open system consisting of synergistic functioning components or subsystems. The importance of the establishment of cross-functional teams in order to avoid barriers to quality enhancement such as silo management was emphasised. This study emphasises in this regard the value of a TQM approach to quality management for institutions of higher learning. TQM is underpinned by the systems theory. It can be utilised as a mechanism to enhance integration of functions and to counteract silo management because it focuses on means to integrate functional areas.

This study identified U2 as the institution with best practice with regard to the integration of quality management, planning and resource allocation. The quality management model that U2 implements allows for the integration of quality management, planning and resource allocation (the ADRI model which relates to Deming’s PDCA model). The researcher combined the phases and dimensions of both models and developed the PraRI model. This model emphasises the integration of planning and resource allocation (Pra) within a framework of continuous improvement. It is also a generic model that could be adopted and adapted by any institution of higher learning that experiences difficulties with the integration of quality management, planning and resource allocation. This model is based on the principles of total quality management and is therefore also suitable for implementation by U1 (cf. 1.3.2).

There are a large number of stakeholders in higher education in South Africa as well as on international level that can contribute to research on topics that are related to the notion of
integration of quality management with planning and resource allocation. The researcher is of the opinion that possible research topics in this context are actually unlimited. The scope of this research did not allow for an in-depth study with regard to all the factors that are relevant in ensuring the effective integration of quality management, planning and resource allocation. Institutions that utilise a quality management model that is based on the PDCA/ADRI model can conduct benchmarking exercises and institutional research by utilising the outcome of this research in order to identify best practices and to refine their own quality management systems with regard to the integration of quality management, planning and resource allocation. The aim of this research was not to pilot the implementation and effectiveness of the suggested PraIRI model. However, U1 can implement the model in order to evaluate its effectiveness as a mechanism to enhance the integration of quality management, planning and resource allocation. The model will contribute to the quality assurance system of U1 as it adds an integrated approach to U1’s quality assurance system. Compared to the previous system, the PraIRI model adds a new dimension for continuous improvement of the institution’s core business. It furthermore provides a framework for the institution to accentuate the integration of resource allocation with planning on all levels of the institution, i.e. strategic, tactical and operational levels. This model will therefore enable the subsystems of the institution to link planning and resources with the mission and vision of the institution as recommended in the HEQC Audit Report (CHE, 2007:13). The value of the model (from a total quality management point of view) is that it will set a framework for addressing the needs and expectations of customers and to be accountable to stakeholders by keeping in line with its stated vision and mission.

The previous quality assurance system focused strongly on quality assurance (quality control and the meeting of minimum standards). If U1 decides to implement a new quality assurance system based on the PraIRI model, a new dimension ‘integration of quality control with quality management’ will be added to the institution’s quality assurance system. The proposed model offers a systematic planning and review cycle for the implementation of the institutions plans on all levels with a strong focus on remedial action processes, planning and replanning which will contribute to the notion of continuous improvement of the institution’s core business. The new system sets a framework for the introduction of quality management structures within the context of a decentralised-system. These structures will function as interdependent and interconnected components within the complexity of the U1 as an open-system. The literature study and the empirical research conducted in this study indicated that most institutions of higher learning in South Africa find it difficult to integrate quality management, planning and resource allocation. The proposed model could therefore also be considered for implementation by these institutions.