<u>CHAPTER 6</u>

DATA AND INFORMATION ANALYSIS AND INTERPRETATION

6.1 INTRODUCTION

The researcher conducted a literature study which formed part of the secondary sources of the research, followed by the primary sources by means of data collection through a questionnaire. The information obtained from the literature study was used to inform the development of a questionnaire in order to explore, to understand and to identify best practices in public institutions of higher learning in South Africa with regard to the integration of planning, resource allocation and quality management.

The researcher believes that the quality managers of institutions of higher learning are in the best position to reflect on these issues. All quality managers are involved directly or indirectly in these three functions at their institutions. They should therefore understand quality concepts and should utilise them on a daily basis. The concepts that the researcher used in the questionnaire are therefore regarded as "common" household concepts that quality managers frequently utilise. The researcher furnished the responsible person for quality management at every public institution of higher learning in South Africa with a numbered questionnaire to be completed electronically. The questionnaire had two parts: a part for open-ended type questions and a part for pre-coded questions (Moser & Kalton, 2004:83, 84). Twenty pre-coded questions with a limited number of possible answers to choose from were formulated, followed by eight open-ended types of questions to allow the respondents freedom to decide on the mode, form and length of his/her answer.

The rationale for the use of the questionnaire was to collect data and information that would help the researcher to

- identify universities that implement good quality management practices related to the objectives of this study (*cf.* **1.3.2**); and
- explore, understand and identify practices of effective integration of quality management, resource allocation and planning.

The feedback from the respondents was utilised to identify universities in South Africa that implement “good practice” with regard to the integration of quality management, planning and resource allocation. The concept “good practice” will be utilised in this study to refer to institutions that implement quality management systems and processes that are on a par with the elements of good practice for quality management. Good practices are practices that the researcher viewed as on a par with the characteristics of quality management systems as a result of his literature study. The researcher identified the elements of good practice that he regarded as fundamental for an effective quality management system and phrased them into the above-mentioned type of questions in order to identify in this study the universities with possible “best practice” with regard to the research objectives.

In this chapter, the researcher presents and interprets the data and information that were obtained from the participants. The data that were collected by means of the questionnaire are analysed and presented by means of frequency tables. This chapter first deals with the analysis and interpretation of the data that were generated by means of the questionnaire. The interpretation of the data gathered from the questionnaires will be discussed in two phases: Phase one will present the interpretation of data collected from the pre-coded questions, and phase two will present the interpretation of the data collected from the open-ended questions. The researcher will utilise the data and information gathered during the research to identify the key factors and to come to an understanding of how to best integrate quality management, planning and resource allocation. Welman and Kruger (2001:19) regard an exploratory study as a method to understand whether a phenomenon exists in order to explain and consequently to modify it if necessary. In this research this approach was followed in order to develop a model for the integration of quality management, planning and resource allocation that will be suitable for the Vaal University of Technology (U1).

6.2 PHASE ONE: THE INTERPRETATION OF DATA FROM THE QUESTIONNAIRES

As mentioned, the data and information that were collected from the pre-coded questions and open-ended questions were used to identify “good practices” with regard to the integration of quality management, planning and resource allocation. This information and the information gathered by means of the literature study will help the researcher to develop a model for the integration of quality management, planning and resource allocation. (*cf.* 1.5.3.2).

21 Questionnaires were distributed and 18 completed questionnaires were returned, i.e. 85.7% of the questionnaires were completed and sent back to the researcher.

The participating universities were numbered as U1 – U21. The following are the reasons why some institutions did not complete and return the questionnaires:

TABLE 6 : Reasons for respondents not to complete and return questionnaires

UNIVERSITY	REASON
U 19	In the process of restructuring, documents relevant to the study were submitted as alternative.
U 20	Vacant position: Quality Manager. Acting manager is uncertain with regard to answers to formulated questions.
U 21	No response received.

6.2.1 SECTION A: INFORMATION OBTAINED FROM PRE-CODED QUESTIONS

The frequency variables are coded as Q1 – Q 20 ("Q" = question followed by the number of the respective question as it appears on the questionnaire). The respondents were asked to reflect on the current situation at their institutions by marking the appropriate block to indicate that they strongly disagree/ disagree/ agree or strongly agree with the particular statement. The blocks with the possible answers have the following values:

POSSIBLE ANSWERS	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
VALUES	1	2	3	4

Data gathered from the pre-coded questions were subjected to frequency counts i.e. the responses of the respective respondents were added together in order to find the highest frequency of occurrence. The responses were quantified and presented in the form of percentages.

6.2.1.1 Fequency tables

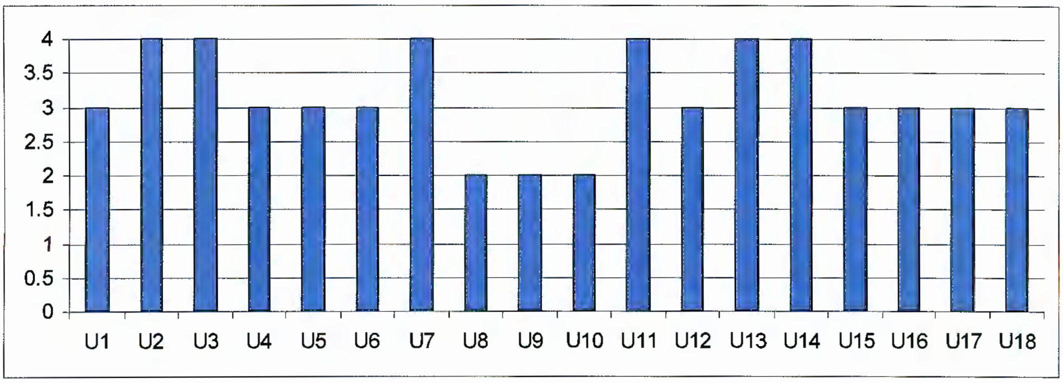
The data are presented by means of frequency tables. The numbers of the tables correspond with the numbers of the questions of Section A of the questionnaire. In the interpretation of the data the researcher utilised the values as indicated in the respective column on "valid percentage" per question. The researcher views any value higher than "3" on the graphs as significant and for the purpose of this study, any value of 3 and higher will be an indication of "good practice". The concept "best practice" will be utilised in this study to refer to an institution that appears to introduce practices that surpass that of the rest of the institutions that participated in this study.

With regard to certain questions, the researcher will combine the data, e.g. the percentages of responses per question for "strongly agree" and "disagree". Responses for "strongly disagree" and "disagree" may also be combined per question. These combinations of percentages will help the researcher with the interpretation of the data and to identify possible trends, gaps, etc.

TABLE 6.1: The institution's quality assurance system is effective to create management information (Q1)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	2	3	16.7	16.7	16.7
	3	9	50.0	50.0	66.7
	4	6	33.3	33.3	100.0
	TOTAL	**18**	**100.0**	**100.0**	

50% of the respondents agree that their quality assurance system is effective to create management information while 33.3% strongly agree. Only 16.7% disagree_that their systems create effective management information. U8, U9 and U10 disagree that they have quality assurance systems that are effective to create management information.

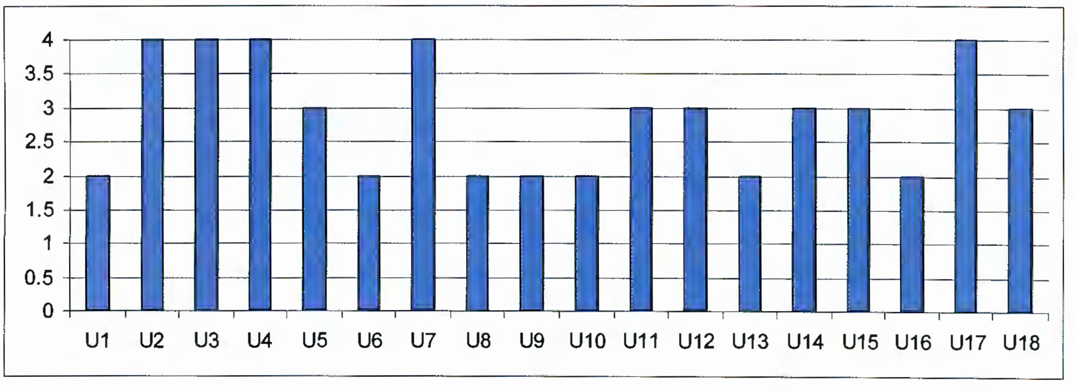


The graph shows that the respondents of U2, U3, U7, U11, U13 and U14 are of the opinion that their institutions implement a quality assurance system that is effective for the creation of management information.

TABLE 6.2: The above-mentioned information informs planning activities at our institution (Q2).

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	2	7	38.9	38.9	38.9
	3	6	33.3	33.3	72.2
	4	5	27.8	27.8	100.0
	TOTAL	**18**	**100.0**	**100.0**	

Only 27.8% of the respondents strongly agree that the information that was gathered by means of their quality assurance activities was utilised for different planning activities. 38.9% disagree that it is the case at their institutions. U1, U6, U8, U9, U10, U13 and U16 disagree with the statement in this question.

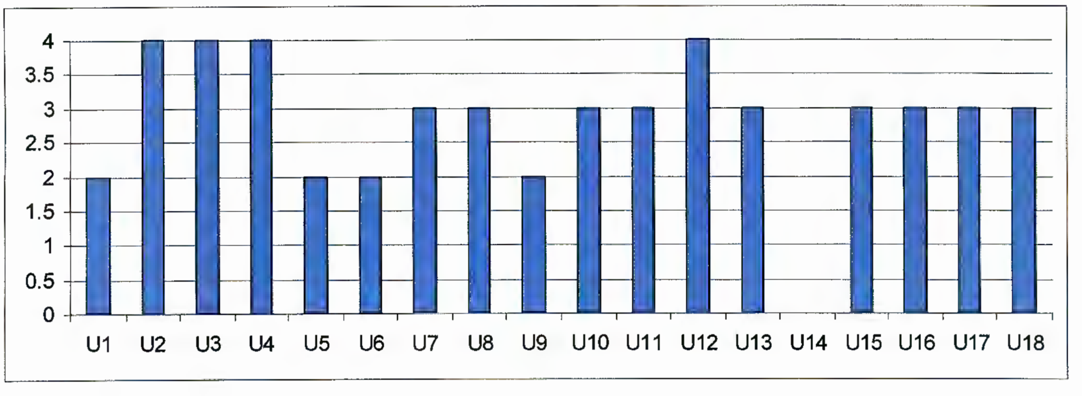


According to the above graph it is only U2, U3, U4, U7 and U17 that have best practice with regard to the utilisation of information that were gathered during quality assurance activities.

TABLE 6.3: Resources are allocated on the basis of strategic objectives (Q3)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
Valid	2	4	22.2	23.5	23.5
	3	9	50.0	52.9	76.5
	4	4	22.2	23.5	100.0
	Total	17	94.4	100.0	
Missing	System	1	5.6		
Total		**18**	**100.0**		

The majority (76.4%) of respondents (a combination of 23.5% and 52.9%) are of the opinion that resources are allocated at their institutions based on strategic objectives. 23.5% disagree with this statement. One institution, U 14 did not respond to the question.

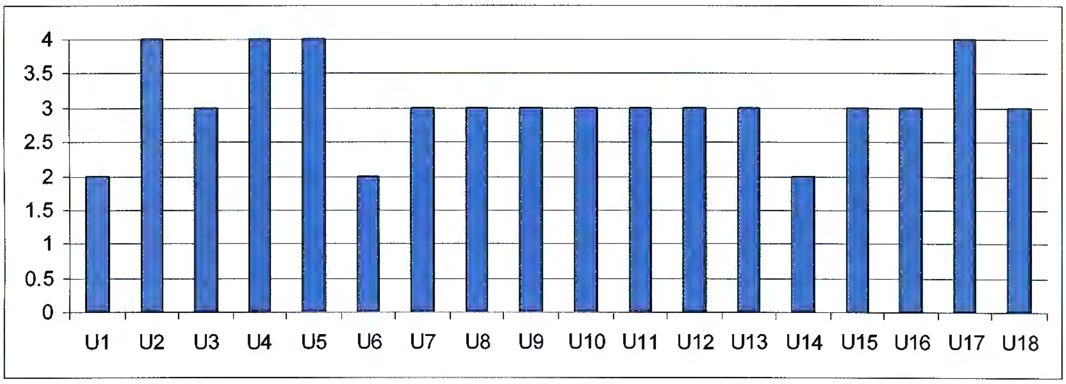


U2, U3, U4 and U12 have good practice with regard to the allocation of resources based on strategic objectives.

TABLE 6.4: The objectives for quality management are integrated into institutional planning (Q4)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	2	3	16.7	16.7	16.7
	3	11	61.1	61.1	77.8
	4	4	22.2	22.2	100.0
	TOTAL	**18**	**100.0**	**100.0**	

The majority of respondents (61.1% agree and 22.2% strongly agree) that the objectives for quality management are integrated in their planning exercises. U1, U6 and U14 disagree with this statement.

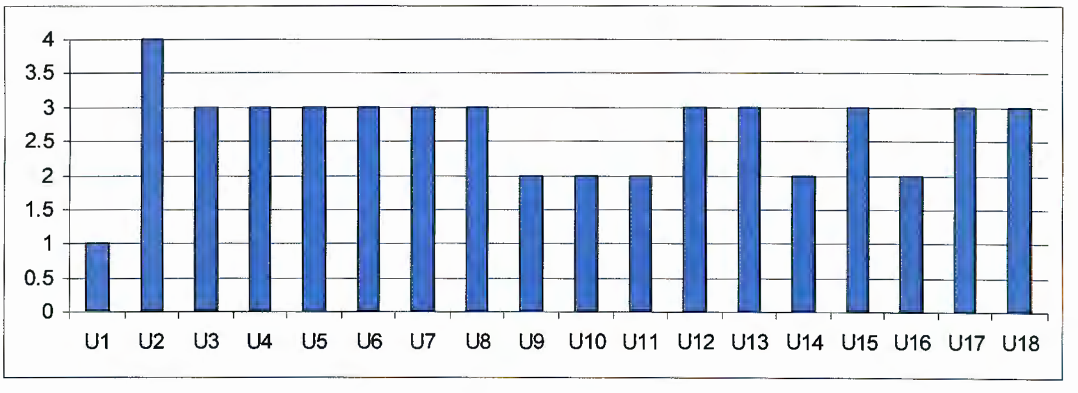


U2, U4, U5 and U17 have good practice with regard to the integration of quality management objectives with institutional planning.

TABLE 6.5: The objectives for quality management are integrated into financial planning (Q5)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	1	1	5.6	5.6	5.6
	2	5	27.8	27.8	33.3
	3	11	61.1	61.1	94.4
	4	1	5.6	5.6	100.0
	TOTAL	**18**	**100.0**	**100.0**	

66.7% of respondents (a combination of responses for the valid percentage categories "agree" and "strongly agree") agree that quality management at their institutions are integrated into financial planning, 33.4% disagree with this statement. .

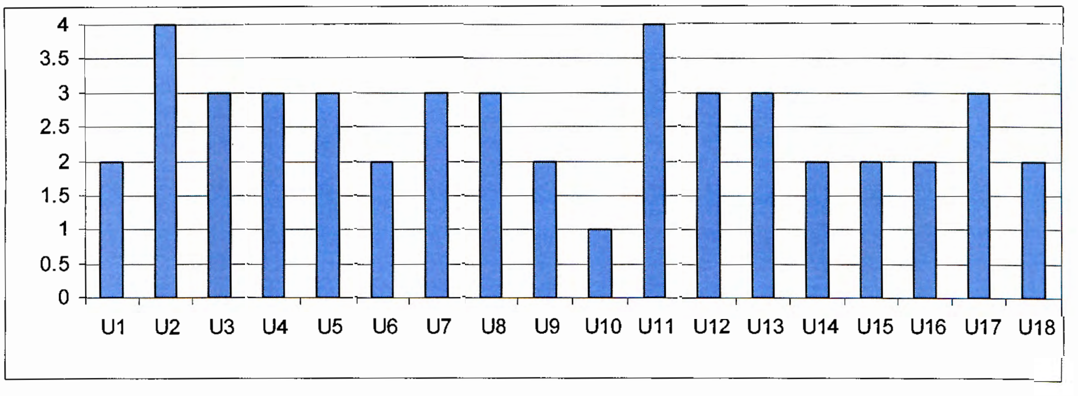


It appears that U2 has "good practice" with regard to the integration of financial planning and quality management.

TABLE 6.6: Financial planning ensures adequate resource allocation for the improvement of quality (Q6)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE-PERCENT
VALID	1	1	5.6	5.6	5.6
	2	7	38.9	38.9	44.4
	3	8	44.4	44.4	88.9
	4	2	11.1	11.1	100.0
	TOTAL	**18**	**100.0**	**100.0**	

A combination of the responses (44.4% and 11.1%) indicates that 55.5% of the respondents agree with the statement that financial planning ensures adequate resource allocation for the improvement of quality at their institution. 44.5% disagrees with the statement. U10 strongly disagrees with the statement.

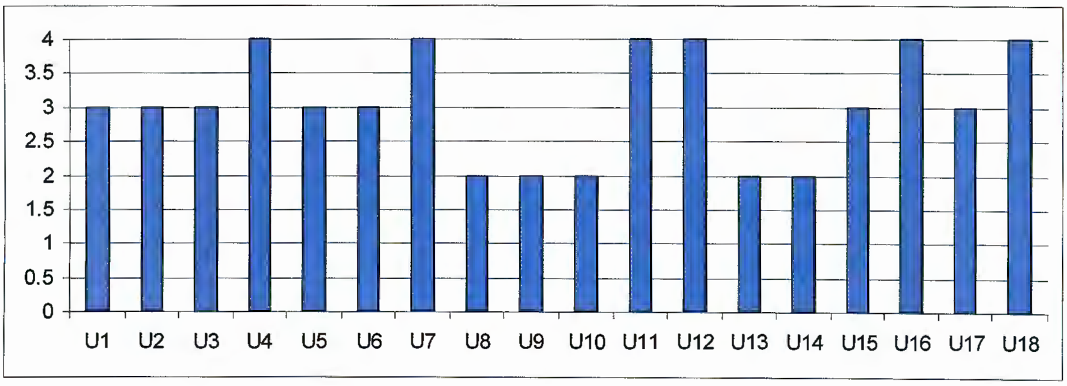


There are only two respondents (U2 and U11) that are convinced that financial planning at their institutions ensures adequate resource allocation for the enhancement of quality.

TABLE 6.7: Regular reviews are held in order to ensure the effectiveness of the integration of quality management objectives with resource allocation (Q7)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	2	5	27.8	27.8	27.8
	3	7	38.9	38.9	66.7
	4	6	33.3	33.3	100.0
	TOTAL	**18**	**100.0**	**100.0**	

72.2% of respondents (a combination of 38.9% that agree and 33.3% that strongly agree) agree with the statement that regular reviews are held to ensure the effectiveness of the integration of quality management objectives with resource allocation. U8, U9, U10, U13 and U14 disagree with the statement.

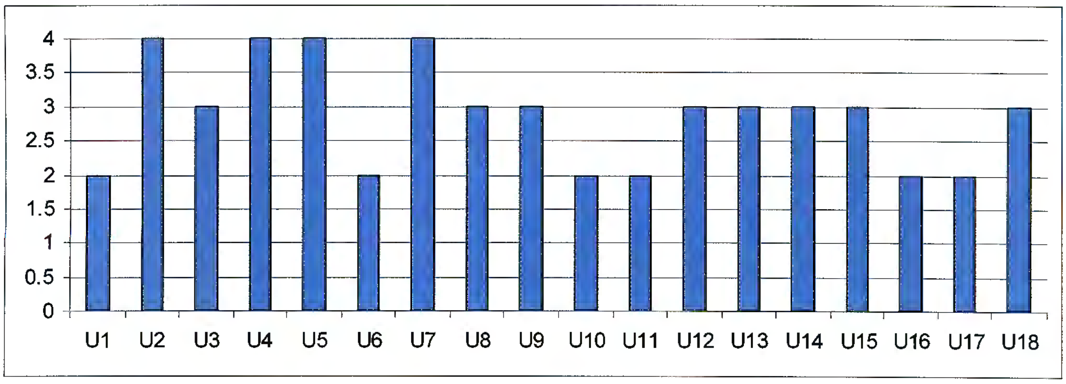


Six universities (U4, U7, U11, U12, U16 and U18) have good strategies in place <u>(good practice)</u> in order to ensure the effectiveness of the integration of quality management objectives with resource allocation.

TABLE 6.8: Institutional planning includes quality management prioritisation/ target setting at all decision-making levels (Q8).

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	2	6	33.3	33.3	33.3
	3	8	44.4	44.4	77.8
	4	4	22.2	22.2	100.0
	TOTAL	**18**	**100.0**	**100.0**	

66.6 agree (a combination of 44.4% and 22.2%) with the statement that institutional planning includes quality management prioritisation/ target setting at all decision levels. 33.3% of respondents disagreed with this statement. U1, U6, U10, U11, U16 and U17 disagreed with the statement.

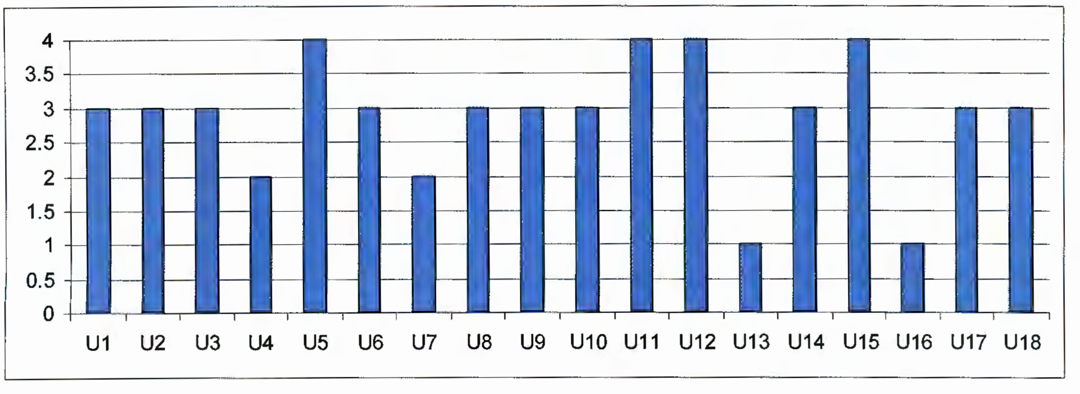


U2, U4, U5 and U7 implement good practice with regard to the setting of quality management targets at all decision-making levels during institutional planning.

TABLE 6.9: **Participation of members on all levels is a characteristic of planning at our institution (Q9)**

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	1	2	11.1	11.1	11.1
	2	2	11.1	11.1	22.2
	3	10	55.6	55.6	77.8
	4	4	22.2	22.2	100.0
	TOTAL	**18**	**100.0**	**100.0**	

The majority of respondents (77.8%) indicate that, with regard to institutional planning, participation of members on all levels is characteristic of their institutions. 22.2% (a combination of 11.1% that disagree and 11.1% that strongly disagree) disagree with the statement. .

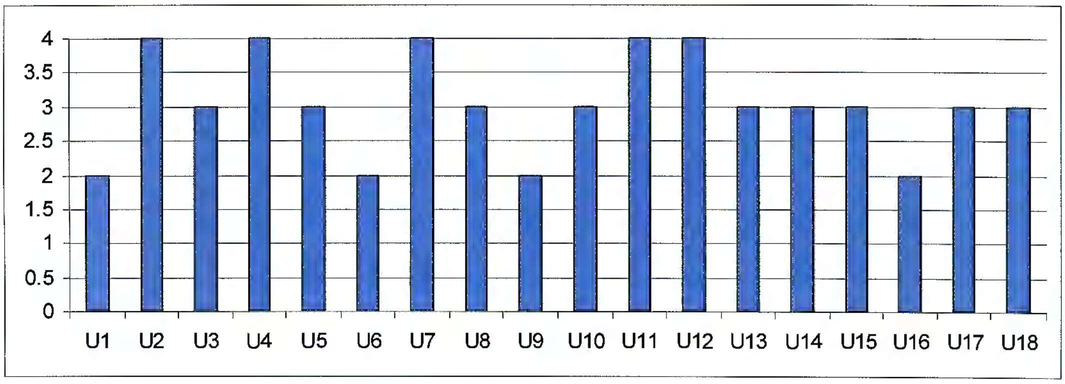


U5, U11, U12 and U15 have good practice with regard to participation during planning exercises.

TABLE 6.10: Budgeting processes follow planning at our institution (Q10).

		Frequency	Percent	Valid Percent	Cumulative Percent
VALID	2	4	22.2	22.2	22.2
	3	9	50.0	50.0	72.2
	4	5	27.8	27.8	100.0
	TOTAL	**18**	**100.0**	**100.0**	

77.8% (a combination of 50.0% and 27.8%) agree with this statement. As low as 22.2% of the respondents disagree with the statement that budgeting processes follow their planning processes.

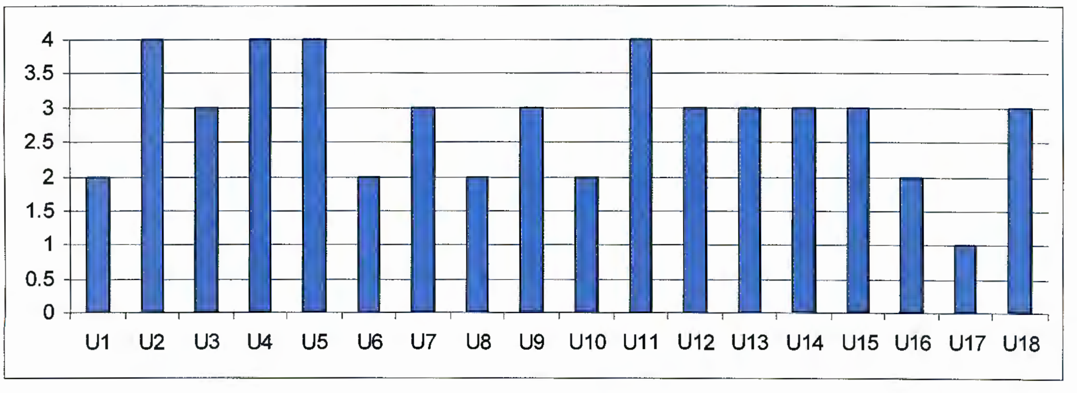


The respondents of U2, U4, U7, U11 and U12 strongly agree that their institutions implement good practice with regard to the principle that budgeting follows planning.

TABLE 6.11: Quality management information (e.g. outcomes of reviews and surveys) informs goal setting during planning (Q12)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	1	1	5.6	5.6	5.6
	2	5	27.8	27.8	33.3
	3	8	44.4	44.4	77.8
	4	4	22.2	22.2	100.0
	TOTAL	**18**	**100.0**	**100.0**	

27.8% of the respondents disagree with the statement that quality management information informs goal setting and planning at their institutions, 5.6% strongly disagree (if combined, a total of 33.4% disagree with the statement) . 66.6% agree that it is the case.

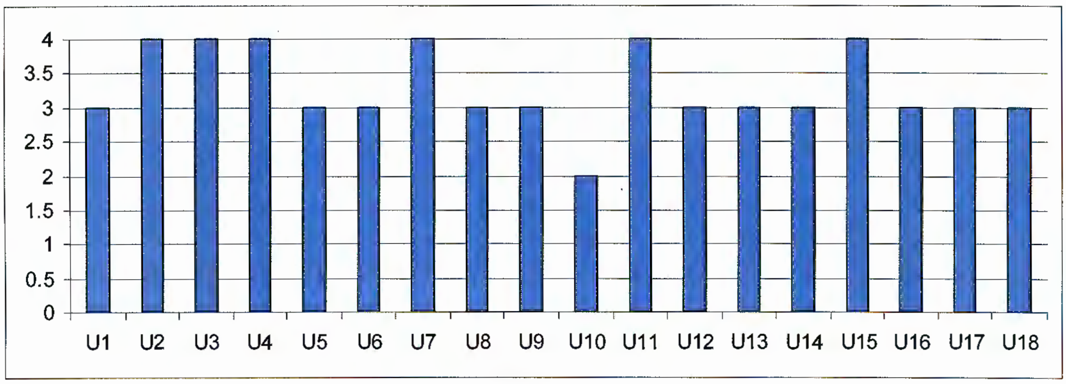


The respondents of U2, U4, U5 and U11 strongly agree that quality management information informs goal setting during planning at their universities.

TABLE 6.12: Effective mechanisms are in place to generate quality management information (Q12)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	2	1	5.6	5.6	5.6
	3	11	61.1	61.1	66.7
	4	6	33.3	33.3	100.0
	TOTAL	**18**	**100.0**	**100.0**	

The majority of respondents (94.4%) are of the opinion that their institutions have effective mechanisms in place to generate quality management information.

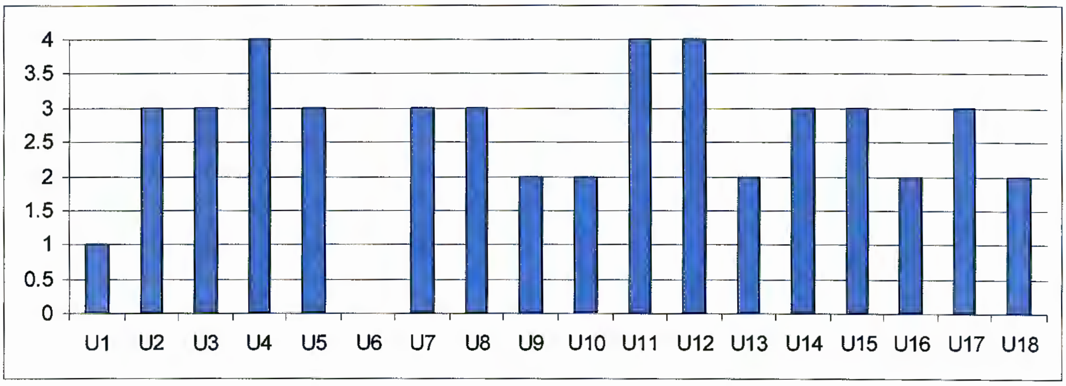


U2, U3, U4, U7, U11 and U15 have effective management mechanisms in place (good practice) to effectively generate management information.

TABLE 6.13: Regular reviews are held in order to ensure the effectiveness/ impact of the integration of quality management objectives with institutional planning (Q13)

	FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID 1	1	5.6	5.9	5.9
2	5	27.8	29.4	35.3
3	8	44.4	47.1	82.4
4	3	16.7	17.6	100.0
Total	17	94.4	100.0	
Missing System	1	5.6		
TOTAL	**18**	**100.0**		

<u>64.7 % (17.6% strongly agree and 47.1% agree) of the respondents agree with the statement that regular reviews are held at their institutions in order to ensure the effectiveness of the integration of quality management objectives with institutional planning. 35.3% (5.9% combined with 29.4%) disagree with this statement.</u>

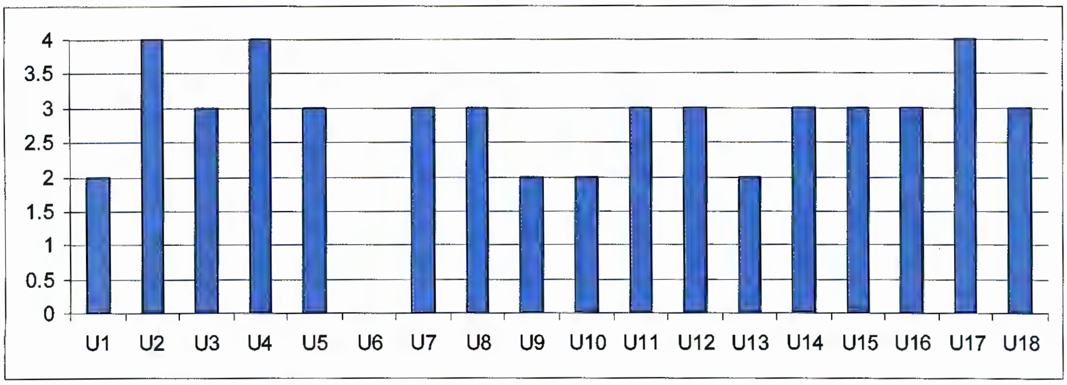


Only three institutions, U4, U11 and U12, have best practice with regard to a system that they introduced in order to conduct regular reviews on the impact and effectiveness of their quality management objectives and institutional planning.

TABLE 6.14: Self-evaluation findings feed into strategic planning processes (Q14)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	2	4	22.2	23.5	23.5
	3	10	55.6	58.8	82.4
	4	3	16.7	17.6	100.0
	Total	17	94.4	100.0	
Missing	System	1	5.6		
TOTAL		**18**	**100.0**		

The majority of respondents (76.4%) agree with the statement that self-evaluation findings feed into their strategic planning processes (58.8% agree and 17.6% strongly agree).

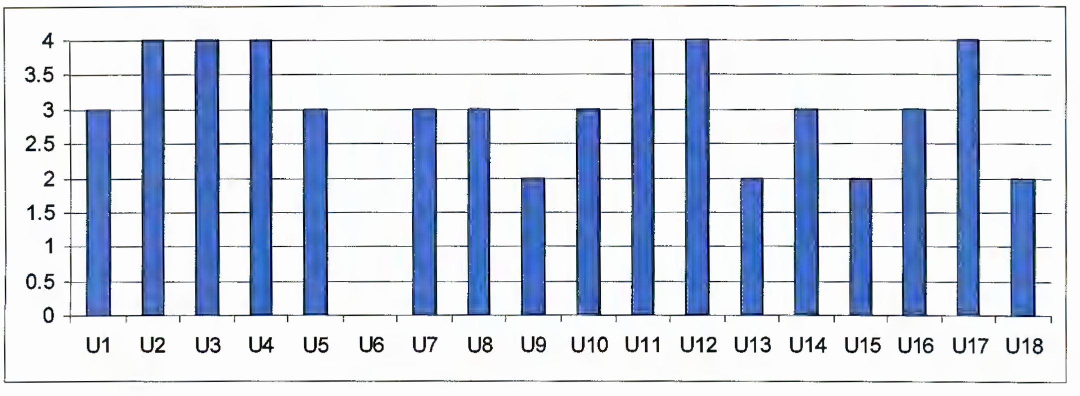


The respondents of U2, U4 and U17 indicate good practice with regard to the utilisation of self-evaluation findings in strategic planning.

TABLE 6.15: The basis of planning on all levels is guided by the institutional strategic plan (Q15)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	2	4	22.2	23.5	23.5
	3	7	38.9	41.2	64.7
	4	6	33.3	35.3	100.0
	Total	17	94.4	100.0	
Missing	System	1	5.6		
TOTAL		**18**	**100.0**		

76.5% (a combination of 41.2% and 35.3%) of the respondents agree with the statement that the basis of planning at their institutions is guided by the institutional plan.

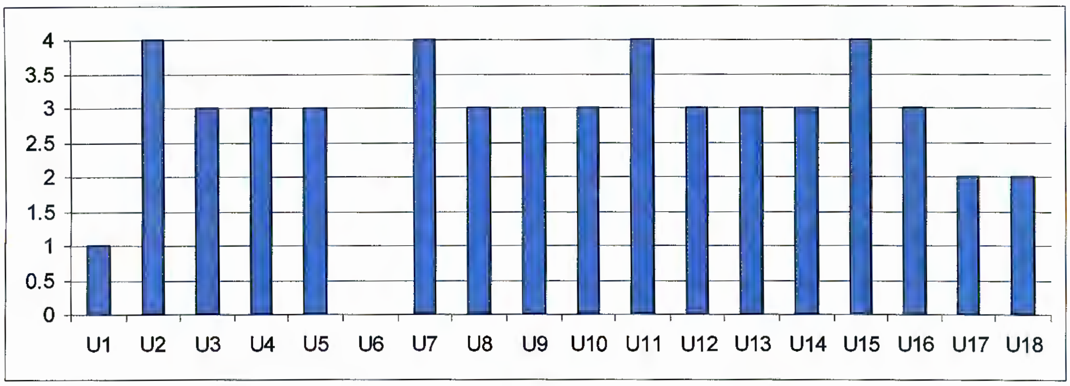


The respondents of U2, U3, U4, U11, U12 and U17 are convinced that their institutions implement good practice with regard to the linkage of operational plans with their institutional plan (e.g. the institutional strategic plan).

TABLE 6.16: Data and analysis of quality reviews feed into planning on operational levels (Q16)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	1	1	5.6	5.9	5.9
	2	2	11.1	11.8	17.6
	3	10	55.6	58.8	76.5
	4	4	22.2	23.5	100.0
	Total	17	94.4	100.0	
Missing	System	1	5.6		
TOTAL		**18**	**100.0**		

The majority of respondents (82.3%) agree that data and analysis of quality reviews feed into planning on operational levels at their institutions.

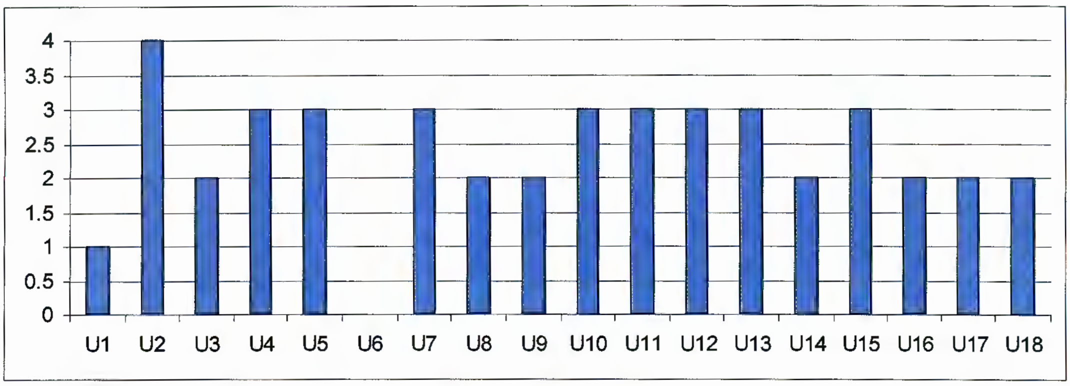


U2, U7, U11 and U15 strongly agree (good practice) that the information gathered during quality reviews feed into their institutions' operational planning. One of the institutions, U6 did not answer the question.

TABLE 6.17: Data and analysis of quality reviews inform resource allocation exercises (Q17)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	1	1	5.6	5.9	5.9
	2	7	38.9	41.2	47.1
	3	8	44.4	47.1	94.1
	4	1	5.6	5.9	100.0
	Total	17	94.4	100.0	
Missing	System	1	5.6		
TOTAL		**18**	**100.0**		

Only 53% agree that data collected from quality reviews inform resource allocation exercises at their institutions. 47.1% of the respondents disagree with this statement. Only one institution strongly agrees with the statement.

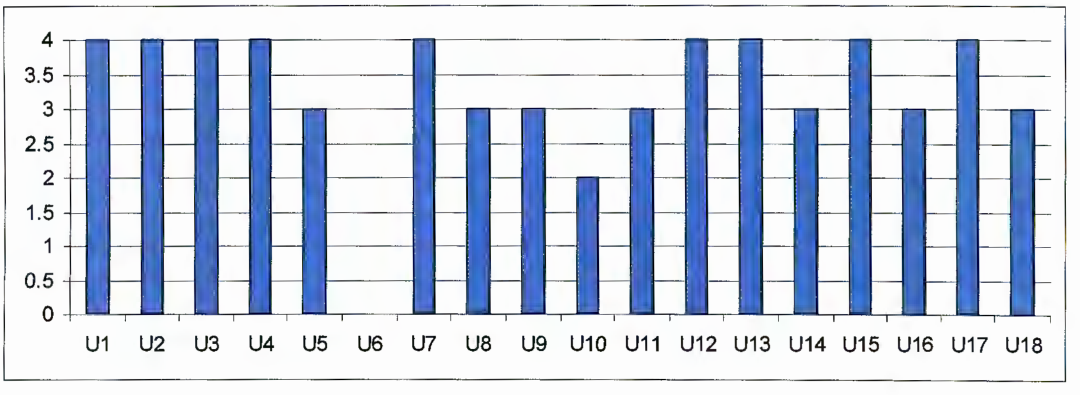


The respondent of U2 is the only one that is convinced that at his/her institution data and analysis of quality reviews inform resource allocation exercises. U1, U3, U8, U9, U14, U16, U17 and U18 disagree with this statement.

TABLE 6.18: Our institution implements an ongoing improvement cycle of evaluations (Q18)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	2	1	5.6	5.9	5.9
	3	7	38.9	41.2	47.1
	4	9	50.0	52.9	100.0
	Total	17	94.4	100.0	
Missing	System	1	5.6		
TOTAL		**18**	**100.0**		

The majority of respondents agree with the statement that their institutions implement a continuous cycle of evaluations (a combination of 41.2% agree and 52.9% disagree).

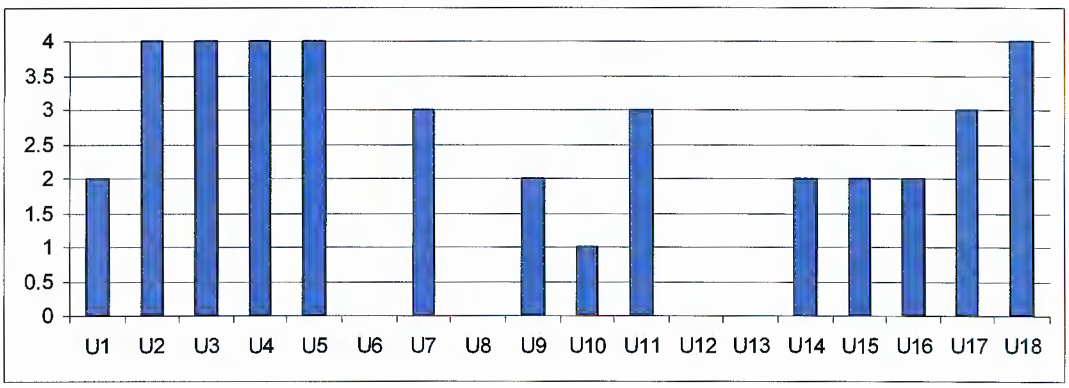


U1, U2, U3, U4, U7, U12, U13, U15 and U17 implement a quality assurance system that is based on continuous evaluations. Only U10 disagrees with this statement.

TABLE 6.19: The most recent institutional audit report of the HEQC reflects positively on the institution's ability to integrate quality management, planning and resource allocation (Q19)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	1	1	5.6	7.1	7.1
	2	5	27.8	35.7	42.9
	3	3	16.7	21.4	64.3
	4	5	27.8	35.7	100.0
	Total	**14**	**77.8**	**100.0**	
Missing	System	4	22.2		
TOTAL		**18**	**100.0**		

As high as 42.8% (a combination of 7.1% and 35.7%) of the respondents disagree and 57.1% agree (a combination of 35.7% and 21.4%) with the statement that the most recent institutional audit report of the HEQC reflects positively on the ability of the institution's ability to integrate quality management, planning and resource allocation.

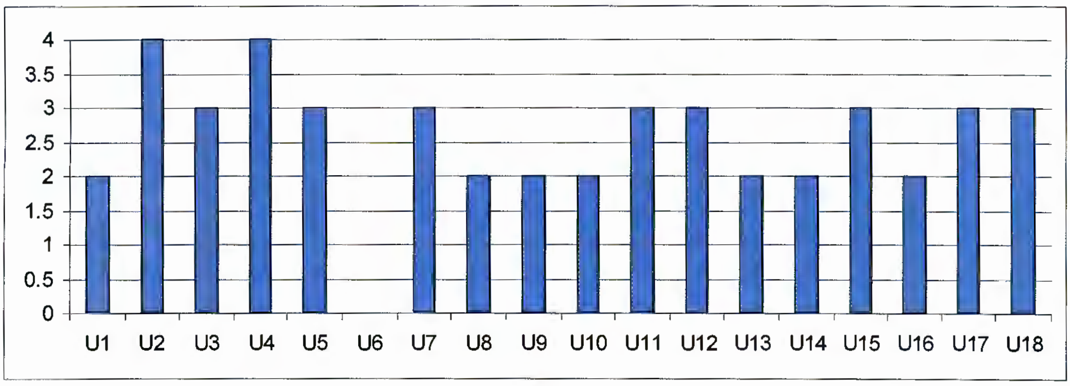


The HEQC audit report displays satisfaction with the integration of quality management, planning and resource allocation at U2, U3, U4, U5 and U18.

TABLE 6.20: Our institution has mechanisms in place in order to ensure the effective integration of quality management, planning and resource allocation (Q20)

		FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
VALID	2	7	38.9	41.2	41.2
	3	8	44.4	47.1	88.2
	4	2	11.1	11.8	100.0
	Total	17	94.4	100.0	
Missing	System	1	5.6		
TOTAL		**18**	**100.0**		

58.9% (a combination of 11.8% and 47.1%) of the respondents indicate that they are of the opinion that their institutions have mechanisms in place to ensure the effective integration of quality management, planning and resource allocation. 41.2% disagree with this statement.



Good practices with regard to institutions that have mechanisms in place that ensure the effective integration of quality management, planning and resource allocation are at U2 and U4. For the purpose of this study, it is imperative for the researcher to identify the institution with "best practice" in order to determine the factors that ensure the integration of quality management, planning and resource allocation at the respective institution(s). This information will inform the development of a model for the integration of quality management, planning and resource allocation at U1. The proposed model could also be applicable to other Universities of Technology.

6.2.1.2 Ranking of institutions with possible "best practice"

The following table indicates the institutions with the highest scores for all questions. The values (1= strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree) that the respondents allocated to each of the twenty pre-coded questions were added in order to "rank" institutions from a total possible best score of 80 (a maximum value of 4 per question X 20 questions).

This study attempts to identify the universities with the highest scores which fact is regarded by the researcher as an indication of possible "good practice" with regard to the aim of this study. The following table illustrates the "ranking" of universities with regard to the outcomes of the survey.

TABLE 6.21: Ranking of institutions with possible good practiceS

UNIVERSITY	TOTAL (80)	RANKING
U2	77	1
U4	73	2
U11	68	3
U7	67	4
U3	66	5
U5,12	64	6
U15	61	7
U17	60	8
U18	57	9
U8, 13, 14	51	10
U16	49	11
U9	47	12
U10	45	13
U1	43	14
U6	29	15

It is evident that of all responses received U2 has the highest score.. U2's respondent strongly agrees with all statements except for the following three, which he/she indicates as 3 (agreed):

Question 7: "Regular interviews are held in order to ensure the effectiveness of the integration of quality management objectives with resource allocation."

Question 9: "Participation of members on all levels is a characteristic of planning at your institution."

Question 13: "Regular reviews are held in order to ensure the effectiveness and impact of the integration of quality management objectives with institutional planning."

The above-mentioned table is a clear indication that for the purpose of this study, U2 has evidence of "best practice".

The following is an attempt to integrate the information of the literature review that was undertaken with the data of the empirical survey.

6.2.1.3 Interpretation and remarks on the pre-coded questions

In order to ensure the validity of this research, the outcome and analysis of the empirical survey, as well as information obtained from the literature study, were utilised in order to triangulate the findings of the research (*cf.* Chapter one) (Fetterman, 1989).

The reflections on the data and the literature study will be clustered under three broad themes. The following themes were drawn from the research aims, objectives and subobjectives of this study (*cf.* 1.3.2 and 1.3.3):

1. Quality assurance mechanisms and information (*cf.* 1.3.2.2., 1.3.2.3., 1.3.2.4., 1.3.3.1., 1.3.3.2., 1.3.3.3)
2. Quality management objectives and planning (*cf.* 1.3.2.3., 1.3.3.1)
3. Quality management and financial resources (*cf.* 1.3.2.3., 1.3.3.2)

This information will inform the development of a model for the integration of quality management, planning and resource allocation for U1 (*cf.* 1.3.2.1., 1.3.3.4).

A) Quality assurance mechanisms and information

Questions 1, 2, 7, 12 and 14 of the pre-coded questions dealt with the attributes of a quality management system that contributes to the generation of management information. The literature study emphasised that the outcome of quality assurance initiatives at an institution of higher learning should be translated into management information. This information is valuable during planning, resource allocation and decision-making processes and is imperative for an institution to reach its goals and objectives.

As high as 83.3% of respondents are convinced that their institutions' quality assurance system creates effective management information (table 6.1). This concurs with the respondents' response to question 12 on the effectiveness of their mechanisms to generate management information. As high as 94.4% of institutions indicate that their mechanisms are in place and effective (*cf.* table 6.12).. Quality assurance mechanisms as discussed in the literature study refer to a variety of "devices" that can be implemented in a quality assurance system in order to detect deficiencies. Quality assurance mechanisms that institutions usually utilise in their quality assurance activities which inform planning (*cf.* 3.10., 4.2.1., 4,2,1,2., 4.2.1.3, etc.), resource allocation and reviews are devices such as tracking systems, satisfaction surveys, interviews, reviews, etc. (*cf.* 4.2.1.3., 3.9.1.4., etc.). Systematic reviews of programmes and departments demonstrate an institution's accountability to its customers (*cf.* 3.9.4.2) and generate valuable management information that informs planning on all levels (*cf.* 4.2.1). The latter refers to development initiatives and remedial actions (staff development, student support, maintenance of infrastructure, enhancement of administrative services, target setting, etc.).

The researcher is of the opinion that the perception of the majority of respondents (94.4%) that their institutions introduced quality assurance systems that create effective quality management information, is a result of the respective institution's alignment of their systems with the HEQC audit requirements. The researcher is of the opinion that the majority of institutions developed and implemented quality assurance mechanisms such as satisfaction surveys, focus group interviews, class feedback systems, etc. as a result of the above-mentioned external pressure, audit impact and the initiatives of the institutions to refine their own institutional processes

Question 1 (in the questionnaire) links directly with the research problem, namely that the attributes of a quality management system represents the capability to create management information (*cf.* 1.3.1.2). The basis for management information is an institution's quality assurance initiatives. As already mentioned, management information is imperative for planning and decision-making purposes (*cf.* 3.9.4.3, 4.3). Quantitative data (statistics) and qualitative information (reports, remedial action reports, etc.) should be collected (*cf.* 3.9.1.4, 4.2.4.2, 4.3.3, 4.4.5.4), processed, analysed and distributed to managers on all institutional levels. This information feeds into the above-mentioned planning processes. Therefore, the dissemination of information is imperative for good management, feedback on what is already accomplished with regard to goals that were set; and plans that were implemented to determine what actions need to be taken (which reminds of the EFQM model) (*cf.* 3.6.6.3). The characteristics of an effective management system include reporting and reliable management information (*cf.* 3.9.4, 4.3.3) that inform planning and remedial action processes (*cf.* 4.2.1). .

Question 2 deals with the information that is gathered during quality assurance activities (reviews, evaluations, surveys, etc.) and how it informs planning in general (operational, tactical and strategic). 61.1% of the participants agree and 38.9% of the respondents disagree that their institutions utilise the information gathered during these exercises for the purpose of planning. This question relates strongly with question 14, namely "self-evaluation findings feed into strategic planning". 76.4% of the respondents agree with this statement. There is only a 15.3% difference between the statistics of the two related questions. The researcher is therefore of the opinion that the majority of respondents are convinced that quality management information feeds into planning exercises. The literature study emphasises the utilisation of management information for planning and decision-making purposes (*cf.* 4.1) and the fact that planning cannot be conducted without information that is accurate and relevant (*cf.* 4.3.3). The researcher is also of the opinion that the 38.9% of the institutions that fail to integrate management information with planning do so as a result of a number of reasons, including a lack of mechanisms to generate effective and relevant information and a lack of structures to integrate management information with decision-making and planning exercises. This might also be a sign of silo management (*cf.* 3.4.3, 3.6.2, 3.9.3.3).

Question 18 deals with "ongoing improvement cycles" of evaluations (*cf.* 4.1, 4.2.1, 4.5.4.1, etc.). This question was intended to identify best practice with regard to continuous processes of planning, implementation, reviews and re-planning. Cyclical planning on all levels ensures continuous improvement (*cf.* 5.3). The respondents' opinion on the implementation of processes for continuous improvement is imperative for this study (*cf.* 1.3.2; 1.8). Institutional management systems should therefore be characterised with ongoing processes of improvement. A quality management system is a 'design' (*cf.* 3.6) to manage continuous improvement of all processes in order to meet the expectations of the customers (*cf.* 3.5.1.3; 3.9.1.3). Quality is never "good enough", thus there should always be better ways to satisfy the client. This emphasises continuous improvement as a "generic principle" of all quality management systems (*cf.* 3.6.1, 3.6.4, 3.9.4.3, 4.5, 4.5.4.1). Institutions that use continuous improvement as their quality index would start by establishing baseline data from which they measure their annual improvements (*cf.* 3.6.4). The outcome of these exercises are valuable for goal setting and planning on all levels (see previous questions 1; 2; 3; 4; 5; 8; 11; 12; 13; 14 and 16). Continuous improvement is imperative for any organisation such as an institution of higher learning as an "open system" that operates in a highly competitive environment (*cf.* 3.4.1). The notion of continuous improvement, therefore, forms an integral part of the core values of the majority of quality models that institutions are utilising (*cf.* 3.6.6, 3.9.4.3); it is the "driving force for quality improvement within organisations across the world" (*cf.* 3.6.6). Only 5% of the institutions strongly disagree that their institutions implement a continuous cycle of evaluations. U1, U2, U3, U4, U7, U12, U13, U15 and U17 indicate that they strongly agree with the statement in question 18.

Continuous improvement is central to this study because it underpins the notions of planning, resource allocation and quality management. Planning at institutions of higher learning should take place on all levels, i.e. strategic, tactical and operational levels (*cf.* 3.6, 3.9.4.2, 4.2, 4.2.1, 4.2.1.2, 4.1.2.3, 4.2.1.3, 4.2.3)..It will be extremely difficult to plan on all levels without a strategic plan and strategic intent that is not supported by adequate resources and not linked to an institution's vision and mission statements (*cf.* 4.2.1). Planning on all levels of an institution of higher learning should be cyclical in order to ensure that continuous improvement takes place (*cf.*3.9.2.3.). Many institutions introduced models for continuous improvement that were initially developed for implementation in industry such as the PDCA (Plan, Do, Check, Act) model (*cf.* 4.2.1) and ADRI (Approach, Deploy, Review, Improve).

B) <u>Quality management objectives and planning</u>

According to the literature study, information gathered by means of quality assurance processes (part of an institutional quality management system) should be utilised for target-setting, decision-making and planning purposes (*cf.* 1.3.1.2). Senior management should set targets and develop objectives on strategic and tactical levels. All planning and decision making should be linked to these objectives (*cf.* 1.3.1.2, 3.6.1.4, 3.6.3, 4.2.1.3, etc).

Therefore, objectives, goals and plans on operational level "cascade" from the objectives on strategic and tactical levels. Questions 4 and 5 are related to the concept of integration of quality management objectives with planning initiatives. The statement of question 4 refers to quality management objectives that are integrated into institutional planning. The literature study shows that quality goals or objectives at an organisation are usually developed on all its levels as a result of reviews (Vicki *et al.*, 1997:218). The majority of institutions agree on the statement in question 4, namely that the objectives for quality management at their institutions are integrated into their planning exercises (83.3%).

The literature study emphasised the systems approach to quality management as it underpins the notion of the integration of planning and resource allocation with quality management. The literature study refers to the outcome of quality assurance activities (quality assurance mechanisms such as surveys, evaluations, reviews, audits, etc.) that should be utilised for planning and resource allocation purposes (*cf.* 3.9.1.3, 3.9.2.3, 3.9.4.1, 3.9.4.2, 3.9.4.3, and 4.2.1). Management information should therefore be accessible for managers in order to make decisions. This is characteristic of the systems approach. The statement in question 8 refers to institutional planning that includes quality management prioritisation and target setting at all decision-making levels. Questions 8, 11, 14 and 16 are strongly related. Question 11 deals with quality management information that informs goal setting during planning. Quality management information is the product of data and analysis of the data that are generated by means of quality assurance activities. Question 16 deals with data and analysis of quality reviews that feed into planning on operational levels. Quality management information should inform goal/target setting and planning on all decision-making levels (strategic, tactical and operational). Question 11 focuses on quality management information that informs goal setting and planning and relates strongly to question 8 on the integration of targets in planning on all decision-making levels. The statistics of both questions correlate (66.6%) with regard to the percentage of respondents that agree with the statements. As high as 33.3% of respondents disagree with both statements which fact is a clear indication that there is a lack of mechanisms that ensure the integration of management information with target setting and planning at these institutions. The respondents of the following institutions strongly agree with both statements which is an indication of possible institutional "good practice": U2, U4 and U5.

Question 16 is related to questions 8, 11 and 14, as it deals with data and analysis of quality reviews that feed into planning on operational levels. Question 14 deals with the integration of self-evaluation findings into strategic planning and question 11 with the integration of quality management information with planning. The statistics of question 16 with regard to respondents that agree (a combination of 58% and 23.5% = 82.3%) with the statement is slightly higher in comparison with the statistics of question 14 (76.4%). The researcher is therefore of the opinion that at the majority of institutions quality management information feeds into operational planning as well as into strategic planning

Targets and institutional priorities should underpin decision making on all levels. 66.6% of the respondents agree with this statement (question 8). The literature study emphasises the importance of quality assurance mechanisms that create valuable management information which informs decisions during planning. Target setting informs plans and sets a framework for decision making during the allocation of resources (*cf.* 3.4.1, 3.9.4.3, 4.2, 4.2.1, 4.3, 4.4.2.1, 4.4.5.5).

Reviews should be held on a regular basis in order to ensure the impact of the integration of quality management objectives with institutional planning (*cf.* 3.6.1.2, 3.6.6, 3.9.2.3, 3.9.4.3, 4.2.1, 4.5). Many institutions introduce cyclical reviews of programmes and departments. One of the prominent "generic" questions during departmental and programme reviews should be related to the integration of the objectives on strategic and tactical levels with plans and strategies on operational level (*cf.* 4.2.1, 4.2.1.2, 4.2.1.3, 4.2.3.1, 4.2.3.2). Questions 13 and 15 are related; The latter refers to the strategic plan and how all plans are linked to it. Question 13 refers to regular reviews that should be held in order to ensure the effectiveness / impact of the integration of quality management objectives with institutional planning. 35.3% of the respondents disagree with the statement of question 13. The majority of respondents (64.7%) agree with this statement. 23.5% disagree with the statement in question 15, but as high as 76.5% agree. The researcher is therefore of the opinion that the majority of institutions of higher learning succeed to link planning on tactical and operational levels with their respective institution's strategic plans. The researcher is also of the opinion that the majority of institutions utilise their strategic plans as a framework for planning on tactical and operational levels (*cf.* 4.2.3).

In the literature study the importance of an institutional RAM (Resource Allocation Model) was argued as a mechanism to reach an institution's strategic objectives (*cf.* 4.4.5), etc. From a systems approach, one can argue that an organisation can only reach its strategic objectives if it succeeds to integrate quality management with planning and resource allocation. Question 20 is related to mechanisms that should be in place at institutions of higher learning to ensure the effective integration of quality management, planning and resource allocation. U2 and U4 were identified in this study as institutions with good practice in this regard. The literature study refers to the integration of plans, goals and objectives with budgets. The literature study refers to several models that ensure continuous enhancement and integration of planning, deployment of plans, evaluations, adjustments and re-planning (*cf.* 4.4.5). One of these models is the PDCA model (Plan, Do, Check, Act) which can be viewed as a mechanism that an institution can use in order to integrate planning and resource allocation with quality assurance initiatives (*cf.* 3.6.6.4, 4.2.1). The respondent of U2 indicates in an open-ended question in the questionnaire that the institution implements with great success a similar model as the PDCA. U2 implements the ADRI model (Approach, Deploy, Review and Improve). The ADRI model compares with the PDCA model (*cf.* 4.4.5).

C) Quality management and financial resources

Question 3 focuses on the linkage of resources with an institution's strategic objectives. 76.4% of the respondents agree with the statement and 23.5% disagree. According to the literature study, objective setting, planning and resource allocation of the core business of an institution of higher learning provide a strategic framework for achieving its quality objectives (*cf.* 3.6.1.2, 3.10, 4.1, 4.2, 4.2.1.3, 4.2.4.2, 4.3.3, 4.4, 4.4.2.1). Questions 5 and 6 are related. Question 6 focuses on financial planning as a function to ensure adequate resources for the purpose of quality improvement, and question 5 on the integration of quality management objectives in financial planning. Apart from partnership and processes, one of the key components to accomplish excellence within an organisation is, adequate resources (*cf.* 4.2.1, 4.2.1.3, 4.5). . 66.7 % of the respondents agree with the statement of question 5. The 11.2% difference indicates institutions that might implement a quality assurance system that integrates quality objectives with financial planning, but fails to allocate adequate resources for the improvement of quality. If the objectives of quality management are integrated into institutional planning, the assumption can be made that the objectives will also be integrated into financial planning.

The data show that although quality management objectives at the majority of institutions (83.3%) are integrated into institutional planning (question 4) the integration of quality management objectives with financial planning *per se* (question 6) is much lower (55.5%). There is a 27.8% difference between 83,3% and 55.5%. The researcher is therefore of the opinion that there might be a lack of integration of quality management objectives with resource allocation with regard to 27.8% of the institutions that participated in the study. The fact that quality management objectives are more likely to be integrated in institutional planning than in financial planning, might be an indication of the existence of "silo management" or "stove pipe management" at the above-mentioned institutions (*cf.* 3.4.3, 3.6.2)

Universities are viewed (in this research) as "complex systems" that comprise interdependent (synergistic) functioning components (*cf.* 3.6.2). The objectives of an institution can only be achieved if they are integrated in the total system which consists of interdependent functioning components or subsystems (*cf.* 3.1). In this regard literature emphasises the principles of the systems approach, i.e. universities function as a whole and the whole system (*cf.* 3.2, 3.2.1) should therefore be optimised in order to achieve its objectives.. Components within a system should service the total system and not the individual components themselves (the latter method constitutes silo management). If the differences in the responses to questions 4 and 5 are due to the existence of silo management, the researcher assumes that 16.6% of the respective institutions' subsystems are "sub-optimised" in their endeavour to achieve their institutional objectives. They should therefore focus on initiatives in order to enhance synergy amongst departments.

According to the literature study, the outcome of quality assurance activities informs an institution's objectives and plans for the enhancement of quality. One can therefore assume that if an institution's resources are linked to its strategic objectives, adequate resource allocation will be done for the purpose of quality enhancement because the latter is translated into objectives, goals and plans. As mentioned above, literature emphasises the necessity of adequate resources to implement plans in order to reach the objectives and goals of an organisation. Universities cannot achieve their goals without adequate resources (*cf.* 4.2.1, 4.2.1.3, 4.5). Only 55.5% of the respondents are of the opinion that financial planning ensures adequate resource allocation for the improvement of quality at their institutions (question 6). There might be several reasons why a much lower percentage of respondents agree with the statement made in question 6 in comparison with the respondents' response to question 3. It might be that the respondents are of the opinion that the funds allocated are not sufficient for the improvement of quality (question 6 refers to "adequate" resource allocation). It might also be that there is a lack of integration of quality management objectives with financial planning. This integration is imperative because the aims of an organisation usually guide the process of decision making and resource allocation (*cf.*4.1).

According to the above-mentioned statistical data, the majority of institutions of higher learning succeed to allocate resources on the basis of strategic objectives, they also conduct regular reviews in order to identify deficiencies.

The statistics obtained from the responses to question 17 concurs with this statement. Only 53% of the respondents agree with the statement in question 17, namely that data and analysis of quality reviews inform resource allocation at their institutions. This might be a result of numerous possible factors as have been discussed in the literature study: silo management (*cf.* 3.3.2.2; 5.3), effective leadership, commitment and understanding on senior management level (*cf.* 3.3.2.1), of skepticism with regard to quality management information and processes, the absence of structures that ensure effective communication and insufficient dissemination of information (*cf.* 3.3.4.2), etc. Questions 5 and 17 are related and the data on both questions correlate: With the statement in question 5 on quality objectives that inform financial planning 66.7% of the respondents agree, whereas with that in question 17 on data obtained from quality reviews informing resource allocation, 53% of the respondents agree; the difference between 66.7% and 53% is only 11.2%.

An institution's objectives, goals and plans can only be reached if sufficient resources are available. Budgeting should take place after planning exercises are done; this principle concurs with the notion of "budget follows plan" (*cf.* 4.5). Question 10 evaluates the "planning" principle. Budgets are "goals with price tags", which fact emphasises the link between goals, plans and resources and concurs with the statement that budgets are management's plan "phrased in financial terms" (*cf.* 4.4, 6.2.1.4). The majority of institutions (77.8%) agree with the statement made in question 10, while only 22.2% disagree. Only four universities "strongly agree". These institutions might be implementing good practice (U5, U11, U12 and U15).

53% of the respondents are of the opinion that data obtained from quality reviews inform processes of resource allocation at their institutions. This emphasises a lack of integration of quality management information with resource allocation and also emphasises the need for and the relevance of this study. It is a futile exercise for an institution if it has effective quality assurance mechanisms in place (94.4% of the respondents are convinced that their institutions have effective quality assurance mechanisms – see the data obtained from question 12), but the information that is generated is not linked with institutional resource allocation. The researcher is of the opinion that the reason for the ineffective integration of quality management information and planning is a clear indication of the violation of the systems theory and a possible indication of silo management (*cf.* 3.4.3, 3.6.2) at the majority of public universities in South Africa.

A principle for an effective quality management system is participation of the members of an organisation on all levels (*cf.* 3.6, 3.6.3, 3.7. etc.). This principle is also emphasised by the "quality gurus" (*cf.* 3.6.1.3) and included in the quality management models that the majority of institutions of higher learning are utilising (*cf.* 3.6.6.2, 3.6.6.4). Question 9 evaluates the participation of members on all levels with specific reference to planning exercises. U5, U11, U12 and U15 are the institutions that might have good practice with regard to the participation of members on all levels with regard to planning. As high as 77.8% of the respondents agree with the statement made in question 9.

Question 19 focuses on the most recent institutional audit report of the HEQC and its reflection on the respective institution's ability to integrate quality management, planning and resource allocation. The HEQC's criteria state that the success of quality management at an institution of higher learning will be determined to a large extent by the degree to which planning, quality assurance and quality development mechanisms are integrated (*cf.* 1.2.1). The responses to this question provide a more objective view regarding the state of affairs with regard to this study. Only 35.7 % of the respondents strongly agree that they received a positive report from the HEQC in this regard, while 21.4% agree with this statement. As high as 42.8% disagree with the statement which emphasises the relevancy and need for this study. Almost half of all public institutions of higher learning fail to integrate quality management, planning and resource allocation according to the audits by external experts (*cf.* 3.8.3.2). Institutions with possible good practices in this regard are U2, U3, U4, U5 and U18.

Question 20 refers to mechanisms that should be in place at institutions of higher learning in order to ensure the integration of quality management and resource allocation. The combined data of respondents that agree with the statement is 58.9% and the percentage of respondents that disagree is 47.1%. Questions 19 and 20 are related to each other. The data show a strong correlation between institutions that have effective mechanisms in place in order to ensure the integration of quality management, planning and resource allocation (question 20) and the findings of the HEQC's audits in this regard (question 19). See the following table

CORRELATION OF DATA : QUESTIONS 19 AND 20:

QUESTION 19	QUESTION 20
The most recent institutional audit report of the HEQC reflects positively on the ability of the institution's ability to integrate quality management, planning and resource allocation	Mechanisms are in place to ensure the effective integration of quality management, planning and resource allocation
AGREE 57.1%	AGREE 42.8%
DISAGREE 42.8%	DISAGREE 47.1%

6.3 PHASE TWO: INTERPRETATION OF INFORMATION OBTAINED FROM THE OPEN-ENDED QUESTIONS

The following discussion presents the information that was gathered by means of the open-ended questions in the questionnaire. The information will be presented according to the specific open-ended questions.

Question 1: What structures at your institution are established that ensure the integration of planning, quality management and resource allocation?

The majority of respondents indicate that their universities have structures in place that ensure the integration of quality management, planning and resource allocation. U2 indicated that they established a Resource Allocation Committee that implements an integrated approach by sourcing and considering information from the Executive Deans as well as from a variety of stakeholders, including the university's Bureau for Institutional Research and Planning as well as the Quality Unit. U3 and U5 indicate that they do not have formal structures in place for integration of these functions but argue that "regular meetings" are held between top management members to oversee the integration of quality management, planning and resource allocation.

Some of the respondents indicate that their universities established "Planning Committees" for this purpose (U7, U10). U6 and U8 combined the functions of planning and quality assurance, which method ensures integration of the functions. There are institutions that established structures that combine planning and the allocation of resources (U11, U12 and U4). These institutions hold regular reviews (e.g. 5 year cycles) and utilise its review outcomes (strategic plan, operational plans) for the purpose of planning on all levels. Annual budgeting processes require motivations from various structures based on a business plan which is linked with strategic priorities.

Question 2: What are the mechanisms that your institution implements in order to ensure the integration of quality assurance and development?

U2 implements the ADRI (Approach, Deploy, Review, Improve) model (*cf.*3.6.6.3) in order to integrate quality assurance and development. The institution develops an institutional strategic plan and an implementation plan (Approach) followed by operational plans on faculty and support unit levels (Deploy). Monitoring and reviews are conducted by means of institutional and unit self-evaluations, external reviews and audits (Review). Improvement plans link with the institutional budget process. An institutional risk register forms part of the improvement phase. This institution's review processes indicate a clear integration of quality assurance initiatives and planning. The outcomes of reviews feed into the institution's strategic planning cycle and risk register. There is also evidence of effective dissemination of information of review outcomes and monitoring of improvement plans on strategic, tactical and operational levels. Institutions such as U3, U15 and U4 mention that institutional plans (also including an approved Quality Improvement Plan – U4) address a number of areas of improvement which were highlighted through review processes.

U5 has an Institutional Operating Plan (four years) which provides a broad framework for tactical and operational plans (faculty and divisional plans). At U7 the integration of quality assurance and academic planning is enhanced by assigning the functions to one department. Universities such as U8, U13, U18 and U14 ensure the integration of quality assurance and development by means of structures (committees) and lines of communication, i.e. reporting to the Deputy Vice-Chancellor Teaching and Learning and establishing a Director's Forum (U8). This structure is responsible to plan development initiatives that are on a par with the outcomes of quality assurance reviews. U11 utilises reviews to identify weaknesses. This is then followed by initiatives of line managers to implement remedial actions (i.e. arranging workshops in collaboration with the Centre for Learning, Teaching and Development). U12's strategic plan is linked to the institution's balanced score card which highlights the quality assurance needs for development.

Question 3: Explain your institution's resource allocation model (RAM) for channelling of funds on institutional level (allocation of funds to various functional levels)

U2, like U12, U3, U4,_and U13, indicate that the institution allocates funds on the basis of annual planning against institutional priorities and plans. According to U 5, resources are allocated to functional areas based on previous allocations and additional funding can be allocated based on detailed motivations. The Finance Department of U6 developed a Strategic Resource Allocation Model (SRAM) as a budgeting tool that steers the resources into "value chain activities critical to strategic success". The SRAM of U6 is not a static budgeting process but it allows for adjustments of allocation of resources by utilising quarterly reviews, steering and driving the university to reach its goals. The budget process of U6 is a consultative process between the university's executives and the SRAM Working Committee. U 13's respondent states that the main purpose of the budgeting philosophy of the university is to try and align strategic planning (vision, mission and strategic goals) with resourcing of the various plans and activities that cascade from the philosophy on all institutional levels as to ensure "consolidated and common plan (goal) congruence". U13's resource function is viewed by its respondent as a continuous and integrated cycle of planning, supporting and monitoring that leads back to "refined planning". Resourcing thus strives to integrate planning and quality management on all of U13's institutional levels.

The RAM of U8 calculates the "work required" in a particular School and includes a multitude of factors in the process of resource allocation. The allocation of resources at U8's college level is based on performance and outputs. According to the respondent of U7 the institution has no specific model in place for channelling funds on institutional level. Strategic plans and operational plans of U7 are discussed at a "budget meeting" for the purpose of allocation of funds. This concurs with the allocation of funds at U1. U10's and U15's respondents indicate that they are not sure on how resources are allocated. U10's respondent states that the institution's senior manager of finance "never shares the institution's RAM". U14's respondent is not sure whether a RAM at his/her institution exists. U 11's respondent states that the institution's RAM takes account of the income and expenditure of cost centres (academic and support functions). Income includes fees, subsidy and third stream income of various types. The RAM of U11 takes account of the institution's strategic goals. The better a cost centre performs, the more likely it is that it will be rewarded financially. After this model has been used, the institution's Committee for Strategic Planning and Allocation of Resources (SPARC) may allocate special funds for strategic projects pending the availability of funds. According to U18's respondent, the main mechanism at the institution is to top-slice functional areas. In addition a further top-slice is made for strategic priorities within a budget period.

Question 4: Explain the system/model that your institution developed in order to ensure continuous improvement

U2 implements the ADRI model (Approach, Deploy, Review and Improve) in order to ensure continuous processes of improvement (comparable with Deming's spiral of ongoing improvement - the PDCA model as discussed in this study. U2's review processes are triggered by the institution's review cycle, national programme accreditation reviews, professional body accreditation evaluations, international accreditation applications and by decisions of senior and top management. The Quality Unit of U2 engages with the respective unit under evaluation while the entire review process is monitored by the institution's Committee of Vice-Principals and the Registrar (CoVPs&Reg). The outcome of the reviews is captured as trends and feeds into the institution's planning cycle, followed by decisions that are made on strategic as well as operational levels (CoVPs&Reg meetings and Faculty/Unit meetings). U7 also implements the PDCA model in order to ensure continuous improvement. U13 developed a Quality Promotion Plan which is based on the continuous improvement cycle. This plan has three phases: phase one for development planning, phase two focuses on internal module reviews and improvement and phase three on departmental self-evaluations and reviews. U13's phase two on module reviews focuses on development i.e. it integrates the self-evaluation of modules with a developmental approach.

Many institutions (U1, U3, U4, U6, U11, U15, U16, U17 and U18) state that the "Quality Office" is responsible for the support and monitoring of quality by means of regular reviews followed by reports that are disseminated to structures such as Senate. U1, U2 and U16 make use of various mechanisms including surveys. U18 utilises previous self-evaluation reports as the point of departure during reviews. U14 implements an electronic quality management system and conducts audits and reviews on an "*ad-hoc* basis". The outcome of reviews usually feeds into planning. It is unclear if U5, U8 and U10 have a specific model in place that ensures continuous improvement. The respondent from U8 states that the institution has many different systems in place (not one model), including student feedback and external reviews. U12 relies on a score card that links all survey findings and improvement areas, from strategic unit reviews and programme reviews to the Quality Improvement Plan.

Question 5: <u>Explain how your institution utilises the outcome of quality assurance reviews for the purpose of budgeting</u>

The majority of institutions (U2, U3, U5, U6, U7, U11, U13, U14 and U15) utilise the outcome of quality reviews and accreditation visits for a variety of purposes and at a variety of levels, including informing the budget planning process. According to the respondent of U9, the reviews at the university are mainly used for appointing of new staff or the creation of new jobs. U2 links planning, budgeting and quality management processes through its ADRI model. Budgeting processes follow the development of budgeting processes in the "Improvement" phase of ADRI. The Improvement phase (which concurs with the PDCA "Act" phase), is informed by the outcomes of the Review phase of ADRI. This concurs with the quality assurance cycle of U11: The reviews of U11 impact on subsequent plans and the evaluation of those plans has an impact on the allocation of funds and on the planning of the next cycle.

At U3 a risk level is linked to identified deficiencies and the university's budget committee determines within budget limitations how to render assistance. U4 and U13 established a Subcommittee of Senate to ensure that all recommendations and improvement plans are linked to the next budgeting cycle. U15's quality committee makes recommendations that are based on the outcome of reviews for budgeting purposes at central level. U13's committee does not allocate any funding (it is the responsibility of the respective unit/School), but approves improvement plans. The plans are utilised for the allocation of funds during the institution's budgeting process. According to U4, accountability for the implementation of improvement plans is located within its performance management system. Progress reports are submitted to the Senate Executive Committee for scrutiny within a year of the approval of improvement plans.

U1, U8, U16, U17 and U18 have no formal links between the outcome of quality assurance reviews and institutional budgeting processes. According to U8 and U1 the Executive Deans are required to ensure that their respective budgets take cognisance of needs that were identified during reviews.

Question 6: What mechanisms are in place to ensure the integration of quality management with planning at your institution?

Institutions such as U3 have structures in place that oversee the integration of quality management with planning (e.g. U3's Planning Committee and the involvement of senior managers i.e. the Vice-Chancellor and the Vice-Rector Quality and Planning). This concurs with the structures of U4. This university has an Institutional Planning Department in collaboration with an Institutional Information Unit, Quality Assurance Unit and Social Responsiveness Unit. They are responsible for environmental scans, for drafting a Teaching and Learning Report and a Social Responsiveness Report.

U6's Committee for Quality and Planning is responsible for finalising the strategic goals and objectives of the institution. The 'goals' relate to the integration of quality management, planning and resource allocation". The respondent from U6 states that the university's quality improvement plan is linked with the institutional operational plan. The institution's quality improvement plan is not a static document as it is updated after each review or audit. U7 and U9 merged the Academic Planning Office with the Quality Assurance Unit under one directorate in order to ensure that the integration of quality management and planning takes place. U1, U8 and U10 have no specific mechanisms in place for ensuring integration of these functions. Planning is not centralised but happens on operational (Faculty) levels. Although the respondent of U14 indicates that there is coordination within the DVC: Institutional Planning and Operations, it is not clear what mechanisms are in place to enhance or ensure integration. This is also the case with U13 and U18 where the respondents vaguely claim that structures are in place in order to involve more people in the planning process (e.g. the Extended Management Forum of U18).

The respondent of U17 states that the institution has methods in place to ensure the integration of quality assurance activities and institutional planning but is also vague on the methodology. The respondent states that many of the elements in the institution's strategic plan are the result of the institution's internal and external quality assurance activities (i.e. assessment of the internal strengths and weaknesses, external opportunities and threats, the identification of values and goals, the identification of strategies and performance measures and the development, implementation and periodic review of action plans). According to the respondent of U15, quality improvement plans are the result of review processes and these plans inform strategic planning processes on operational levels (divisions and units).

Question 7: What mechanisms are in place to ensure the integration of quality management with resource allocation?

As mentioned previously (*cf.* the response of U2's respondent on question 6), U2 links planning and budgeting processes by means of the implementation of the ADRI model. Budgeting processes follow after the development of plans in the 'Improvement' phase of ADRI. The respondent of U3 states that when directors and managers engage in budgeting processes, reference is made to the outcome of reviews. A 'risk level' is linked to the deficiencies that were identified during reviews which inform the decision-making process of the institution's budget committee. U4 indicates that requests for additional budgetary allocations over and above previous budgetary levels need to be directly linked to strategic objectives of the university, including those related to quality management. U6 implements an Academic Human Resource Allocation Model. The purpose of this model is to estimate the academic human resource needs for the institution expressed in staff cost unit terms and, on the other hand, to distribute these staff cost units equitably among academic departments on the basis of agreed upon departmental workload norms and approved, available financial resources. The respondent of U7 mentions that the merging of the Academic Planning Office with the Quality Assurance Division under one directorate helps the institution to integrate quality management with resource allocation. The respondent of U8 indicates that the institution implements a Faculty Index as a RAM. U10, U14 and U15 have no specific model for the allocation of resources. According to the respondent of U12, resources are allocated by means of the implementation of a Balanced Score Card. Resource allocation at U16 takes place by means of a Senior Management Team meeting.

Question 8: What are the "gaps" in your system that impede the integration of planning, resource allocation and quality management?

The respondents of U4 and U9 mention the absence of an approved strategic plan as a gap in the institution's system. According to the response of U7 there is a lack of co-ordination, capacity, resources and proper structures that negatively impacts on the integration of planning, resource allocation and quality management. The respondent of U8 mentions that the institution is "not a simple centrally-managed institution". There are "high levels of devolution" and "different reporting lines" that hamper integration of these functions. Some of the respondents refer to a lack of understanding for the need of integration of functions as a major gap at their institutions (U1, U10, U14 and U15). U 14's respondent states in this regard: "...the lack of commitment on the part of executive management...to see the need for integration". U14's respondent mentions that the lack of understanding of the interrelationship between these functions at U14 has resulted in the implementation of a budgeting process that is still done independently and according to "other priorities". This concurs with the remarks of the respondent of U15: "....we are of the opinion that there are not always linear correlations between quality review processes, planning and resource allocation. We believe that there are many processes at play in deciding what should be included in plans and budgets and what should not".

The following table presents a summary of the information gathered from the open-ended questions in the questionnaire:

Question 1: What structures are established at your institution that ensure the integration of planning, quality management and resource allocation?

• Resource Allocation Committee	U2
• Institutional Research, Planning and Quality Unit	U2
• Planning Committee and Resources Committee	U6, U7, U8, U10, U11

Question 2: What are the mechanisms that your institution implements in order to ensure the integration of quality assurance and development?

• ADRI	U2
• Improvement plans link with	U2

budgeting processes. • Quality assurance outcomes feed into planning. • Outcomes feed into a risk register. • Balanced Score Card • Structures are established (e.g. committees).	U2, U3, U4, U11, U15 U2 U12 U2, U8, U13, U18, U14

Question 3: Explain your institution's resource allocation model (RAM) for channelling of funds on institutional level (allocation of funds to various functional levels)

Funds link to plans, budget follows plans, plans link to strategic priorities.	U2, U3, U4, U12, U13
Strategic RAM (SRAM) and RAM that take account of institutional priorities/goals	U6, U11, U18
Structures (e.g. Strategic Planning and Allocation of Resources Committee, Budget Committee, etc.)	U1, U7, U10, U14
"Top slicing" for strategic priorities	U18

Question 4 : Explain the system/model that your institution developed in order to ensure continuous improvement

• ADRI	• U2
• PDCA	• U7
• Quality Management System	• U1,U3,U4,U6,U11,U15,U16,U17, U18

Question 5: Explain how your institution utilises the outcome of quality assurance reviews for the purpose of budgeting

• Reviews inform budgeting process, informed decisions on resource allocation can be made.	• U2,U3,U5,U6,U7,U13,U14,U15
• No formal links between review outcomes and budgeting processes	• U1,U8,U16,U17,U18

Question 6: What mechanisms are in place to ensure the integration of quality management with planning at your institution?

• ADRI	• U2
• Structures to oversee integration, combine planning and quality functions	• U3,U4,U6,U7,U9
• No specific mechanisms	• U1,U8,U10,U13,U17,U18

Question 7: What mechanisms are in place to ensure the integration of quality management with resource allocation?

• ADRI	• U2
• RAM	• U8
• Balanced Score Card	• U12
• Merging of quality and planning functions	• U7
• No specific mechanism	• U1,U10,U14,U15

Question 8: What are the "gaps" in your system that impede the integration of planning, resource allocation and quality management?

• Lack of understanding for the need of integration	• U1,U3, U10, U14
• Lack of alignment when integrating	• U1,U5, U15
• Lack of a strategic plan	• U1, U4
• Lack of capacity	• U1, U7, U16
• Lack of resources	• U1, U7, U10, U18
• Lack of structures	• U1, U7, U8, U18
• Lack of implementation of strategic plan	• U9
• Lack of communication	• U13
• Lack of participation	• U13
• Budgeting for "other" priorities	• U1, U12,U14
• Lack of a link between review reports and decision-making	• U1, U16

In the following table the researcher wishes to identify the universities that have the best possible ability to integrate quality management, resource allocation and planning according to the information that was gathered by means of the open-ended and pre-coded questions in the questionnaire. The responses of institutions that received a "ranking" between 1 and 6 for their responses to the pre-coded questions will be compared with their responses to the open-ended questions. U5 and U12 scored the same total (64) and are therefore "ranked" as 6 from a total possible ranking of 15 (*cf.* 6.2.1.2). The responses of U2,U4,U11,U7,U3,U5, and U12 are compared in the following table:

TABLE 6.22 : Responses on the pre-coded and open-ended questions of the universities with a"ranking" between "1" and "6"

OPEN-ENDED QUESTIONS	FEEDBACK ON OPEN-ENDED QUESTIONS	RELATED PRE-CODED QUESTIONS	FEEDBACK ON PRE-CODED QUESTIONS
1. Structures ensure the integration of planning, quality management and resource allocation.	The majority of institutions integrated resource allocation and planning through established structures (committees and/or divisions).	4. Objectives for quality management are integrated into institutional planning. 5. Participation of members at all levels during planning activities 19. Recent HEQC audit report reflects positively on integration.	U2 is the only institution that strongly agrees on all three statements (questions 4, 5 and 19). U2, U3, U4 and U5 received a positive reflection from the HEQC audit on their ability to integrate quality management, resource allocation and planning.
2. The institution has mechanisms in place in order to ensure the integration of planning, quality management and resource allocation.	U2 implements the ADRI model to ensure integration. Quality assurance information (e.g. review outcomes) informs the institution's risk register. U12 implements the Balanced Score Card. The majority of the respondents are convinced that integration takes place at their institutions by means of established structures. They are also of the opinion that quality assurance outcomes feed into planning	7. Regular reviews are held to ensure the effectiveness/ impact of integration. 8. Financial planning ensures adequate resource allocation for the improvement of quality management priorities. 9. Participation of members on all levels is characteristic of planning exercises. 19. Recent HEQC audit report	U4 strongly agrees with the statements made in questions 7, 8 and 19. U2, U5 and U7 strongly agree with the statement made in question 8. U5, U11 and U12 strongly agree with the statement made in question 9. U3, U4 and U5 strongly agree with the statement made in question 19. Only U2 and U4 strongly agree that mechanisms are in place to ensure effective integration of quality

	exercises at their institutions.	reflected positively on integration. 20. Mechanisms are in place to ensure effective integration.	management, planning and resource allocation (question 20).
3. The RAM of the institution allocates funds to various functional levels.	U6, U11 and U18 have RAMs in place. The majority of respondents mention that they have structures (e.g. Resource Committee) in place, or claim that the institutions that they represent succeed in linking plans with budgets (budgets follows plans).	3. Resources are allocated on the basis of strategic objectives. 5. Objectives for quality management are integrated into financial planning. 6. Financial planning ensures adequate resource allocation for improvement of quality. 17. Data and analysis of quality reviews inform resource allocation exercises.	U2 is the only institution that strongly agrees with all the statements made in questions 3, 5, 6 and 17. U3 and U5 strongly agree with the statements made in question 3. U12 strongly agrees with the statement made in question 17.
4. The university implements a system or model that ensures continuous improvement.	The majority of institutions were very vague in answering this question. They only refer in general to their "quality management systems". Only U2 and U7 implement models that are designed for enhancing continuous improvement (U2-ADRI/PDCA and U7 PDCA).	18. Our institution implements an ongoing improvement cycle of evaluations.	U2, U3, U4, U7 and U11 strongly agree with the statement that they implement a model/ system that ensures continuous improvement.

5. The institution utilises the outcome of reviews for the purpose of budgeting.	According to the respondents of U2, U3, U5, U6, U7, U13, U14 and U15 reviews inform decisions that are made with regard to resource allocation/ budgeting at their universities.	3. Resources are allocated on the basis of strategic objectives. 5. Objectives for quality management are integrated into financial planning. 10. Budgeting processes follow planning exercises. 11. Data and analysis of quality reviews inform resource allocation processes.	U2 strongly agrees with all statements made in questions 3, 5, 6, 10 and 11. U3, U4 and U12 strongly agree with the statement made in question 3. U2 is the only institution that strongly agrees with the statement made in question 5. U2, U4, U7, U11 and U12 strongly agree with the statement made in question 10. U2, U4, U5 and U11 strongly agree with the statement made in question 11.
6. The institution has mechanisms in place to ensure the integration of quality management with planning.	The majority of respondents only refer to "structures" that are in place in order to ensure integration. U2 implements ADRI. 6 Respondents mention that there are no specific mechanisms in place to ensure integration of quality management with planning at their institutions.	2. Management information from the quality assurance system informs planning. 4. Quality management objectives are integrated into institutional planning. 8. Institutional planning includes quality management prioritisation and target setting at all decision levels. 11. Quality management information informs goal setting.	U2 strongly agrees with all statements made in questions 2, 4, 8, 11,12 and 16. U2, U4 and U5 strongly agree with the statements made in question 4. U2, U4, U5 and U7 strongly agree with the statements made in question 8. U2, U4, U5 and U11 strongly agree with the statement made in question

		12. Mechanisms are in place to generate quality management information. 14. Self-evaluation findings feed into strategic planning processes. 15. The basis of planning on all levels is guided by the institutional strategic plan. 16. Data and analysis of quality reviews feed into planning on operational levels.	11. U2,U3, U4, U7 and U11 strongly agree with the statements made in question 12. Only U2 strongly agrees with the statement made in question 14. U2, U3, U4,U5, U11 and U12 strongly agree with the statement made in question 15. U2, U7 and U11 strongly agree with the statement in question 16.

7. The institution has mechanisms in place that ensure the integration of quality management with resource allocation.	U2, U8 and U12 implement a model for this purpose (U2 – ADRI/PDCA, U8 –RAM, U12 – Balanced Score Card). 4 Respondents mention that their institutions have no specific mechanisms in place for ensuring the integration of quality management with resource allocation.	5. The objectives for quality management are integrated into financial planning. 6. Financial planning ensures adequate resource allocation for the improvement of quality. 7. Regular reviews are held in order to ensure the effectiveness of the integration of quality management objectives with resource allocation. 10. Budget processes follow planning. 17. Data and analysis of quality reviews inform resource allocation exercises.	Only U2 strongly agrees with the statement in question 5. U2 and U11 strongly agree with the statement in question 6. U4, U5, U7, U11 and U12 strongly agree with the statement in question 7 U2, U4, U7, U11 and U12 strongly agree with the statement in question 10. Only U2 strongly agrees with the statement made in question 17

6. 4 CONCLUSION

The outcome of this survey is valuable for this study as it identifies institutions that implement "good practice" with regard to the implementation of quality management, planning and resource allocation. The data indicate that U2 is the institution that implements possible "best practice" amongst all institutions that implement "good practice" in this regard. The survey emphasises that quality assurance outcomes should be translated into quality management information. This information should feed into an institution's planning and resource allocation processes and should be utilised in order to make informed decisions on all levels of the institution i.e. strategic, tactical and operational. It should not only inform planning, but also remedial/corrective action initiatives. Continuous improvement is the driving force of quality enhancement. It is therefore imperative for an institution of higher learning to implement quality assurance systems that are based on ongoing improvement. Models that are based on the principles of PDCA (e.g. ADRI) can be utilised in order to ensure continuous improvement, as well as the integration of planning, resource allocation and quality assurance.

Structures and mechanisms to integrate quality management with planning and resource allocation should be established. Many institutions established structures that are cross-functional. This aligns with the systems theory and the notion of the university as a system with synergistic functioning components. The information gathered during the empirical survey and the literature study will inform the development of a model for the integration of quality management, planning and resource allocation. In the next chapter an attempt will be made to develop a model that will be suitable for U1. The proposed model could also be implemented by any other institution of higher learning.