

FACTORS DETERMINING THE PROFITABILITY OF A COMMERCIAL ENTERPRISE AT A HIGHER EDUCATIONAL INSTITUTION

by

Tania Ilse Mollentze

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Study Leader: Prof. J.P.S. Pretorius

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Abstract

Nine critical factors were identified by means of a literature study, as being imperative to the success of any third income stream initiative. These success factors were identified as *sound administration, a strategic vision with goals and objectives, an innovative and entrepreneurial approach, aligned commitment, motivated employees, partnership with the community, globalisation, an academic heartland and service delivery.*

Two income stream initiatives, namely the Centre for Rapid Prototyping and Manufacturing (CRPM) and Centre for the Built Environment (CBE) at the Central University of Technology, Free State (CUT) were investigated for the existence of the identified factors. Before the existence of the success factors could be evaluated, the relative profitability or success of the two ventures had to be determined. An interview with managing personnel of the initiatives, was used to determine the relative success or profitability of the two initiatives. It was established that both initiatives could be considered as being profitable since they had a positive cash flow, the income and assets grew since the incorporation of the initiatives and the ventures contributed positively towards the academic education of students.

The existence of each identified success factor was determined by means of a questionnaire which was completed by staff members of the university who were actively involved in the activities of the CRPM and CBE.

The overall conclusion that could be made was that the nine critical success factors identified in the literature study, as being imperative to the success of a commercial venture, were indeed present at these two profitable and successful third income stream initiatives. It could therefore be concluded that the factors identified in the literature study were indeed critical factors, necessary to ensure success and profitability of a commercial venture which is part of a higher education institution.

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CHAPTER 1 - Background

1.1 Introduction

Universities across the world are forced to transform into more enterprising, even aggressively entrepreneurial institutions (Clark, 1996:xiv). This is especially the case in South Africa. The future of universities is threatened by decreasing government funds and competition from commercial suppliers of education. If a tertiary institution wants to ensure its future by successfully competing with the commercial sector and other educational institutions, it needs to commercialise its knowledge and move towards becoming a profit orientated entity (one that does not purely rely on state funding, as was the case in the past).

Universities in South Africa are experiencing pressures due to especially reductions in government financial support. Tertiary institutions, not only in South Africa, but all over the world, need to respond dramatically to these new circumstances. Development of the *Third income stream*, as it is generally known, is becoming of imperative importance to the survival of tertiary institutions. South African universities are becoming increasingly involved in entrepreneurial activities, such as science and technology parks, research centres, business incubators and commercial centres (Jordaan, 1999:19).

Universities which have been responsible for primarily education and research over the last few hundred years, have to now follow a commercial approach to day-to-day operations and sustainability. It is inevitable to ask: "*Will they survive with their current skills and competencies?*" and "*What do they need to achieve sustainability?*". This research project aims to identify success factors necessary to achieve commercial success.

1.2 Problem Statement

Before the problem can be stated, certain aspects with regard to the transformational process that tertiary institutions are currently facing need to be reviewed: the current situation in South Africa and third income stream initiatives.

1.2.1 Circumstances in South Africa - National Budget 2004/05

In December 2002, the Department of Education released its proposals for restructuring the institutional landscape of the higher education system. Table 1.1 on page 2 outlines the medium-term output targets of this transformational process. These proposals form a key element in the broader strategy for the transformation of the higher education system as a whole. Furthermore a new funding framework was introduced from the 2004/05 financial year to facilitate this process of change (Department of Finance, 2005:356). Figure 1.2 on page 4 graphically shows the decrease in projected government payment on capital assets of tertiary institutions. In contrast, figure 1.1 on page 3, shows an increase in expenditure trends and estimates.

Levels and allocation methods of funding have been amended to consider planned student enrolments as well as institutional performance in meeting national goals and objectives. Another change in the new level of funding is that planned student enrolment should be approved in advance by the Minister.

Table 1.1 Medium-term output targets (Department of Finance, 2005)

Measurable Objective: Improve the access, efficiency and outputs of the higher education system through governance, planning, monitoring and financing frameworks			
Sub-programme	Output	Measure/Indicator	Target
Higher Education Planning and Management	Restructuring of the institutional landscape of the higher education system	Implementation of institutional mergers	Number of higher education institutions reduced from 36 to 22 by January 2005
		New national institutes for higher education (NIHES)	NIHES established in Mpumalanga and the Northern Cape by January 2005

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Measurable Objective: Improve the access, efficiency and outputs of the higher education system through governance, planning, monitoring and financing frameworks			
		Regional rationalization of programmes that are costly and under-subscribed or which require specialized expertise	Rationalization of identified programme areas by February 2005
	Graduates to meet human resource and knowledge needs	Increase in the participation rate in higher education	20% participation rate by 2012
	Promote staff and student equity	Staff and student profiles of higher education institutions progressively reflect the demographic composition of the broader society	Equity targets to be developed in conjunction with higher education institutions by June 2004
	Goal-oriented and performance-based funding	Funding linked to graduate and research outputs	New funding framework phased in from the 2004/05 financial year
Higher Education Policy	New qualifications framework for higher education	Policy framework in place	February 2005
	Policy on measuring and rewarding research outputs of institutions	Policies in place for measuring and rewarding research outputs	New policy and research outputs implemented by April 2005

Figure 1.1 Summary of expenditure trends and estimates to Universities and Universities of Technology (Department of Finance, 2005:357)

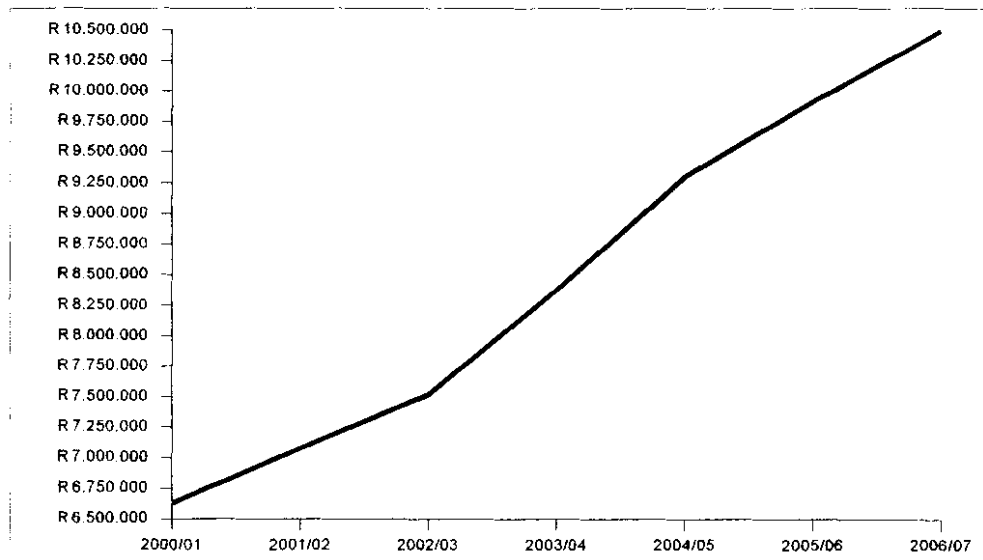
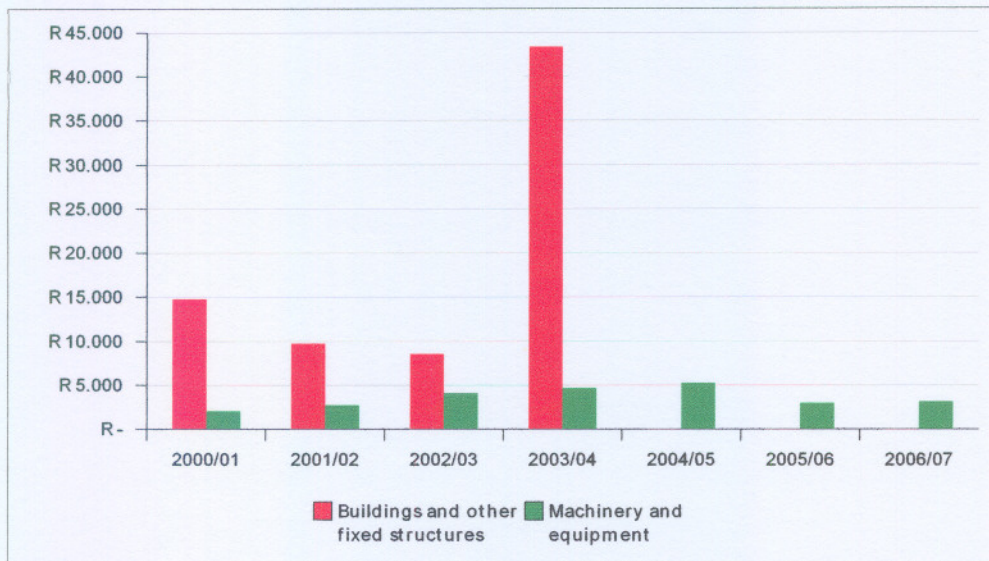


Figure 1.2 Payments on capital assets (Department of Finance, 2005:357)

Apart from changes in the funding framework, student numbers will be drastically cut from the 2005 academic year. Tertiary institutions in South Africa have mainly two sources of funding, namely: class fees and government subsidies. With government subsidies being drastically decreased and fewer students paying class fees as a result of cuts in student numbers, the problem of funding is going to be profound. The result is that tertiary institutions that have not yet focused on finance generation, will have to do so in the very near future.

1.2.2 Defining a Third Income Stream

In the recent past, tertiary institutions had to rely on two main income streams, namely government funding and class fees. A *third income stream* commonly refers to *entrepreneurial activities* undertaken by these institutions to support the traditional two income streams. According to Jordaan (1999:19), science parks, technology parks and business incubation centres became the general way with which technological universities started to expand their technology function.

1.2.3 Profitability of an entrepreneurial venture

Different standards exist for different commercial entity types with regard to profitability analysis as table 1.2 on page 5 shows the different objectives of financial and economic processes. However, the majority of businesses would be considered to be profitable when making a profit or when shareholders' value increases. Flynn stated that the word *profitability* is used as an expression of how well a company has performed relative to some benchmark (2003: 946). This definition makes it clear that more than mere monetary gain can make a third income stream initiative profitable and successful. Referring to Flynn's definition, a benchmark was set in order to determine whether or not the initiatives were profitable. The benchmarks were identified as:

- A positive cash flow
- Growth in assets and income
- Contribution towards academic education of students.

These aspects are discussed in more detail in the following section.

Table 1.2 The different objectives of Financial/Economic Processes (Adapted from Helfert, 1997:29))

FINANCIAL ACCOUNTING	INVESTOR ANALYSIS	MANAGERIAL ECONOMICS
PROFIT DETERMINATION	FINANCIAL INFORMATION	ACTIVITY ECONOMICS
Revenue recognition	Adjustment process	Task analysis
Expense recognition	Trend analysis	Economic allocation
Cost allocation	Profit projection	Contribution analysis
Profit definition	Cash flow projection	Trade-off determination
VALUE DETERMINATION	COMPARATIVE DATA	RESOURCE EFFECTIVENESS
Historical costs	Industry analysis	Investment base
Conservatism	Competitor analysis	Capital investments
Equity as residual value	Economic conditions	Capital divestments
Contingency recognition	Adjustment areas	Human resources
TAX DETERMINATION	MARKET ANALYSIS	SHAREHOLDER VALUE
Legal data requirements	Share price patterns	Cash flow patterns
Income/expense timing	Market trends	Cost of capital
Tax management issues	Value drivers	Investor expectations
Statement adjustments	Market models	Ongoing business value

1.2.3.1 Positive cash flow

Any commercial entity, be it operating in the commercial environment or as part of

a tertiary institution, should have sufficient cash flow to sustain itself. Cash is used to pay for expenses that arise and to acquire assets that may become necessary during the operations of the entity. One of the expenses that the venture itself has to be able to fund is the maintenance of machinery and equipment. Regular maintenance of machinery and equipment is imperative to ensure the optimal functioning thereof. It is therefore important for any commercial entity to be able to sufficiently maintain its machinery and equipment from its own funds. Since a third income stream initiative is part of a tertiary institution, it may be easier to get funding from the university should it be necessary. In this regard however, it is important that the commercial activity is able to pay for its own expenses from its own funds. In the light of the current transformations, it is important that the third income stream initiative is able to fund itself without any reliance on the institution's funds.

1.2.3.2 Growth of assets and budget

An asset is a resource which is controlled by the enterprise as a result of past events. Assets are kept in the business because the business expects future economic benefits to flow from the asset (Flynn, Et al., 2003:41). Growth in assets therefore signifies past events which contributed positively to the current position of the business. Growth in assets can therefore be considered as symptomatic of a healthy, profitable commercial venture.

1.2.3.3 Contribution to academic education of students

Academic education should remain the primary objective and priority of each and every higher education institution (Refer success factor 8, Chapter 2). A third income stream initiative or any entrepreneurial venture at a tertiary institution can contribute significantly to the education of its students and even the personnel involved. The involvement of an institution's lecturers can provide the lecturers and students with industry exposure. This can contribute significantly to the academic education of all students. Should this be the case, the third income stream initiative can definitely be considered to be profitable and value-adding.

1.2.4 Stating the research problem

The research problem can now be stated:

- What are the success factors necessary to ensure the successful implementation and operation of third income stream initiatives at higher education institutions in South Africa?
- How valid and present are the identified success factors at two commercial ventures of a tertiary institution?

1.3 Purpose and objectives of this study

According to Bindra (1998:180), limited funding is one of the main constraints on the process of change and development. It can have a profound impact on educational institutions as well as education in general. A magnitude of universities and tertiary institutions had to become involved in entrepreneurial activities. Although tertiary institutions should have the theoretical business knowledge of how to run a commercial enterprise, it is not quite clear whether these institutions have all the other necessary skills, motivation and experience to successfully compete as a commercial enterprise. They now have to compete nationally and even internationally for students and customers.

This study was undertaken to answer two questions: Firstly, "What is necessary to enable the success of these entrepreneurial activities?" and secondly, "Do tertiary institutions, together with their entrepreneurial activities have the necessary knowledge, skills and motivation to survive the transformation?"

In the light of the above, the objectives of this study can be formulated:

Primary objective:

- The identification of specific success factors necessary to ensure the desirable implementation and operation of third income stream initiatives at higher education institutions in South Africa. In this regard, a third income stream initiative can be considered as being successful or profitable if the

initiative provides the institution with financial benefit and contributes towards the prime objective of the tertiary institution by means of providing students and lecturers with practical exposure.

Secondary objective:

- The evaluation of two initiatives at a tertiary institution in South Africa, at the hand of the identified critical success factors, to determine the presence of the factors. In order to identify the presence of the factors, it is necessary to first evaluate the relative success of the two initiatives at the tertiary institution.

1.4 Research Methodology

A literature study was conducted to identify the critical success factors necessary to ensure the profitability and success of a third income stream initiative as part of a higher education institution. After the identification of the critical success factors, two initiatives at the Central University of Technology, Free State (CUT) were evaluated to determine the presence of the identified success factors at these initiatives. It is however, very important to note that these initiatives were not compared with each other, but rather against themselves. The profitability or success of each was determined at the hand of set criteria, after which the existence of the success factors at the specific institutions were tested.

The validity and presence of the identified factors were investigated and evaluated by means of questionnaires that were completed by the personnel of the initiatives. The relative profitability or success of each commercial venture was determined and evaluated through interviews with its managing personnel. The managing personnel were chosen as interviewees in order to gain extensive and detailed information, while the actively involved personnel were chosen as questionnaire respondents since they constituted a representative sample of the initiatives.

The two initiatives that were chosen at the CUT were:

- The Centre for Rapid Prototyping and Manufacturing (CRPM)
- The Centre for the Built Environment (CBE)

These two initiatives were chosen due to the following reasons:

- Both of these institutions seemed to be sustainable entrepreneurial centres and thus third income stream initiatives since they have been in operation for at least five years.
- One service-orientated initiative and one manufacturing initiative provided the opportunity to make better conclusions with regard to the implementation and validity of the success factors.
- Both initiatives were accessible to the researcher.
- Both ventures are part of the same tertiary institution and are subjected to the same institutional policies and procedures. Selecting two ventures at the same institution was done in an effort to minimise the potential influence that might arise from the differences between the policies and procedures across different institutions.

The research hypothesis can be stated as follows:

Hypothesis 1:

It is possible to define a set of criteria contributing to the successful functioning of commercial initiatives as third income stream generators of a higher educational institution.

Hypothesis 2:

The two selected commercial ventures are successful income generators, measured at the hand of the identified criteria under hypothesis 1.

1.5 Chapter division

The chapters are divided as follows:

- **Chapter 1:**

This chapter encompasses the problem that has been identified in terms of the identification of critical success factors necessary to ensure the

profitability of a third income stream initiative at a higher education institution. Chapter 1 also explains the research problem as well as the purpose and objectives of the study. Furthermore, the relevant research methodology applied in this writing is identified and discussed. The chapter therefore forms an overall introduction to the research study.

- **Chapter 2:**

The literature study, conducted in order to identify the critical success factors, is presented. The chapter forms a crucial part of this thesis since the identification of the critical success factors is the primary objective of this research study.

- **Chapter 3:**

A discussion of the research methodology applied in the study. The compilation, evaluation and execution of the empirical research in the form of interviews, as well as the respondents and reasons for choosing them are discussed.

- **Chapter 4:**

Chapter 4 is dedicated to the findings of the empirical research where the results of the research process are discussed and represented.

- **Chapter 5:**

Chapter 5 concludes this study and is dedicated to making conclusions and substantiated recommendations.

1.6 Summary

It has become necessary for higher educational institutions all over the world to re-evaluate, transform and amend their operations, objectives and even their priorities. Until recently, tertiary institutions had primarily two sources of income, namely: government subsidies and class fees. As a result of a decline in these

income sources, it has become necessary for tertiary institutions to incorporate other income streams in the form of entrepreneurial ventures and initiatives.

Since tertiary institutions are currently finding themselves in new territory, it is necessary to identify the critical success factors necessary for successful third income stream initiatives. This writing is aimed at identifying these critical success factors from a literature study, after which the presence of these success factors were evaluated at two commercial ventures of a higher educational institution. Before the existence of the success factors could be evaluated, it was necessary to determine whether or not the individual third income stream initiatives could be considered as being profitable and successful.

CHAPTER 2 - Identifying Success Factors

2.1 Introduction

The transformational processes that higher educational institutions are currently undergoing has made it necessary for these institutions to make adjustments in operations and strategies in order to survive these organisational changes. Certain factors, attributes, competencies, skills and approaches are necessary for the success of any business. In order to achieve the objectives of this study, the necessary factors for the success of a third income stream initiative were identified.

After the identification of these success factors, the prevalence of the identified factors at the tertiary institutions will be evaluated, after which recommendations will be made and possible adjustments to the identified factors.

2.2 Organisational Change

Since this writing elaborates on the effects of the transformation that tertiary institutions are undergoing, it seemed necessary to include a discussion on organisational change.

Every manager knows that change is inevitable in each and every organisation across the world. Kreitner and Knicki ascribed this need for change to increased competition and startling breakthroughs in information technology (2001:658). Bendix explained that due to the complexity of the change process, little change actually occurs (2003:691).

According to Arunachalam and Subramaniam, change in an organisation has often been described as business re-engineering, which involves four major stages, namely: i) an environmental review and assessment of the business, ii) identification of core processes, iii) benchmarking with performance target setting

and iv) redesigning the processes and implementation (Arunachalam & Subramaniam, 1997). Nickols stated that the change problem lies at the heart of change management and described the change problem as some future state to be realised, some current state to be left behind, and some structured, organised process for getting from the one to the other (Nickols, 2004). Change management is therefore managing the process of getting from one point to the next with the most possible success. The current situation has to be considered very carefully before the planning of the change process can start and the desirable objectives can be set.

Organisational diagnosis (OD) is a process of understanding how the organisation is currently functioning and it provides the information necessary to design the change interventions (Cummings and Worley, 2001:82). After considering the importance of knowing exactly what the current situation in the organisation is, it is very important to understand what OD is all about. According to Kreitner and Knicki (2001:669), OD constitutes a set of techniques or interventions that are used to implement organisational change. The values and beliefs that underlie OD suggest that both organisation members and change agents should be involved in discovering the determinants of current organisational effectiveness (Cummings and Worley, 2001:82). According to Kreitner and Knicki (2001:669), one of the characteristics of OD is that it is a diagnostic-prescription cycle.

According to Gregory, the subject of organisational change is one that has been debated constantly throughout the last century in the academic management literature and in companies worldwide (Gregory, 2003). Many approaches and methods have been developed during the last few years which were supposed to improve the success rate of a transformational change process. Handford and Smit (2003) have identified three critical leadership skills that should be present to ensure the success of a change process:

- Establishing direction and purpose by means of the creation and communication of a realistic new vision strategy
- Creating aligned commitment among organisational members
- Creating a motivating climate

This discussion of change management only introduces the subject in order to better understand and comprehend the procedures and processes necessary to transform universities and other tertiary institutions from where they are today to where they have to be and what they have to accomplish.

Nine factors were identified as being necessary to ensure success to third income stream initiatives, specifically in a South African context. These factors are discussed accordingly.

2.3 Success factor 1: Sound Administration

Timons and Spinelli (2004:283) found that sound administration is an important management competency that no profit orientated business can afford to ignore. According to them, problem solving administrative skills form part of sound administration and include the ability to anticipate potential problems, to gather facts and to be thorough in dealing with details and to follow through. Not only Timons and Spinelli considered administration as crucial, even Henry Fayol, a French industrialist, who is recognized as the greatest European management pioneer, was mainly concerned with the administration side of management (Smit & Cronje, 1999:40).

Many organisations find themselves constantly following procedure. Although procedures form part of a sound administrative structure, organisations should be careful not to lose perspective and time by being overly particular about enforcing procedure. According to Clark (1996:20), a relatively centralised administrative core was the most important of all the pathways taken to transform the University of Warwick in the United Kingdom. Two primary factors, namely the speed of decision making and the information on which the decisions are based, emerged as being important. These factors are duly discussed.

2.3.1 Speed of decision making

An important success factor in any organisation is the speed with which decisions

can be made and new ventures and opportunities can be approached. A potential problem in tertiary institutions, and other businesses alike, as Edwards pointed out (1997:229), is that there might be so many channels to follow and so many committees to pass the decision, that it can potentially harm the success of the venture. Apart from the fact that employees can get demotivated and discouraged, the institution may miss out on very valuable opportunities. According to Edwards, the committee system does have the benefit of ensuring the involvement of a large number of individuals, creating a culture of participation and thorough consideration (1997:229). On the down side, these committees are very slow to make decisions and Edwards emphasised that the communication between these bodies will be determined by the speed at which these meetings can be arranged (1997:229). A system needs to be implemented to encourage the speed of decision-making in entrepreneurial activities and other profit orientated organisations alike.

Warwick University makes use of central committees (Clark, 1996:20) to enable the institution to make centralised decisions on a timely basis. Clark points out that with will and a sharpened administrative capacity, universities can move very fast across the board if they have to do so (1996:32). A strengthened administrative core will therefore enable any university and its third income stream initiative to react quickly on decision-making.

2.3.2 Reliable source of information

Another important aspect of administration is the fact that it is constantly necessary for any commercial business to have access to timely and accurate information. Thompson and Strickland stated that it is necessary for managers to develop a broad network of contacts and sources of information to stay on top of how well the strategy execution is going (Thompson & Strickland, 2004:441).

There exist many different methods to ensure timely and accurate information. One of these methods is a Customer Relationship Management system (CRM) as Zikmund and Gilbert (2003:3) recommended. A Customer Relationship Management system is a business strategy that uses information technology to

provide an enterprise with a comprehensive, reliable and integrated view of its customer base. The implementation of a CRM system will enable a third income stream initiative to have healthy, profitable and long-term relationships with its clients. CRM strategy can help a tertiary institution and its entrepreneurial activities to improve the profitability of their interactions with current and potential customers.

After the discussion on a strengthened administration system, it is clear that the speed with which decisions can be made as well as the availability of reliable and timely information can be regarded as an important component of a third income stream initiative's quest to generate income.

2.4 Success factor 2: A Strategic Vision, Goals and Objectives

Objectives and goals provide businesses with a direction. Olenick (1989:5) stated that clear goals plus good planning plus teamwork could be considered as a recipe for business success. Working towards objectives enables organisations to have a goal and a destination. The discussion that follows aims to provide a better understanding of strategies, objectives and goals and how to differentiate between them.

2.4.1 Objectives vs goals

At this stage it is necessary to distinguish between goals and objectives. A goal is something that the entrepreneurial venture wants and expects to accomplish in the future (Olenick, 1989:6). These goals should be directed toward a vision and be consistent with the mission. Olenick defined a goal as a more generalised and longer-term sought-after result and an objective as a more specific, often shorter term target (1989:6). An objective can therefore be defined as a specific measurable performance results expected within a particular time period, consistent with a goal and strategy (Thompson and Strickland, 2004: 6). It is therefore safe to say that both goals and objectives are desirable future results. On the other hand, Thompson and Strickland described a *strategy* as the methods,

procedures and resources the business will use to realise its goals and objectives (2004: 6). We can therefore say that goals and objectives are the destination and the strategy is the road map describing how to get there (Thompson and Strickland, 2004: 6). To achieve objectives and goals, a business can use certain tactics. Table 2.1 (page 17) refers to the differences between tactics, objectives and a strategy. The table illustrates that tactics are of a temporary nature, aimed at the shorter term, while objectives are long/medium term destinations that might change and that a business' strategy is focused exclusively on the long term and should rarely change.

Table 2.1 Difference between tactics, objectives and strategy. (Adapted from Sewell, 1996:72)

Tactics	Objectives	Strategy
Immediate activities	Business destination	Method of achievement
Short term only	Long/medium term	Long term only
Can change often	May change	Should rarely change
Temporary	Invisible	Highly visible, strong, consistent customer perceptions by correct positioning

2.4.2 Objective setting and monitoring

Olenick considered objectives and goals as crucial and stated that "*without management by objectives (MBO) you have just a bunch of individuals, each doing his or her own thing*" (1989:111). The statement propagates that all of the role players should be informed and involved in the objective setting. Sewell (1996:176) confirmed this statement by explaining that it is the feeling of being powerless, of not being informed, of not being aware of what is expected, which is a prevalent source of stress in most organisations. Cummings and Worley (2001:386) stated that research results on MBO are generally positive and that a properly designed MBO program can have positive organisational results (2001: 388). Sewell confirmed by stating that goal setting can be a way in which the stress of the workforce can be reduced, and their motivation increased (1996:176). As Kreitner and Knicki stated that the motivational impact of performance goals and goal-based reward plans has been recognised for a long time (2000:253). According to them, objective and goal-setting has four motivational mechanisms, namely:

- Goals direct attention

- Goals regulate effort
- Goals increase persistence
- Goals foster strategies and action plans

Certain conditions need to be present to ensure and promote the success of a MBO project. Cummings and Worley identified these conditions as follows (2001:388):

- Installation of the program must be preceded by adequate diagnosis.
- The program must take the entire organisation into account.
- Managers must be willing to participate.
- The program must be tailored to the specific organisation.
- Other interventions, such as team building or changes in organisational structure, may need to take place before the installation of an MBO program.

In all of this, it is important to recognise that decision making is only one element of control (Allen,1996:109). It is, according to Allen, equally important to have monitoring systems. Goals and objectives should therefore be set, but success should also be measured against the goals and objectives. Goals and objectives in itself will not enable the business to achieve its potential profitability. It is therefore important that the achievement of the goals should be measured and the goals and objectives should be adjusted on a regular basis.

2.4.3 Strategic vision

Apart from goals and objectives, a third income stream initiative needs a clear strategic vision. According to Thompson and Strickland (1998:29), the whole idea behind developing a strategic vision is to set the organisation apart from others in its industry and give it its own special identity, business emphasis and a path towards future development. To emphasise the importance of strategic vision, Cummings and Worley (2001:509) stated that the effective change should start from a clear vision of the firm's new strategy and of the shared values and behaviours to make it work. Cummings and Worley specifically referred to an organisation that needs to undergo cultural change. However, tertiary institutions

are also undergoing transformational change and therefore Cummings and Worley's writing on organisational change is applicable on the situation that South African universities are currently facing.

2.4.4 Communication of goals

Handford and Coetsee stressed the importance of the strategic vision being communicated to the employees (2003:28). They discussed that employees' attitudes will be more positive towards change efforts if they feel less intimidated and more involved. According to Handford and Coetsee, feelings of involvement can be accomplished through timely, accurate and detailed information on changes in the institution.

Sharing the vision, however, can pose challenges. Sandelands (1999:176) stated that the vision needs not just to be shared, but to be believed, if the learning organisation is to be successful. Communication of the new strategy is therefore one of the most important tools to manage resistance to change. According to Cummings and Worley (2001:157), change can generate deep resistance in people and organisations, thus making it very difficult to implement organisational improvements.

After considering the literature, it can be concluded that strategic vision, goals and objectives play a crucial role in determining the likely success of a third income stream initiative. It is however important to note that a vision, goals and objectives also need to be communicated to employees and other role players in order to enable all of the parties that are involved with the venture to work collectively toward achieving the same desired end results. Management of the entrepreneurial venture should prevent the organisation's goals, objectives and the strategic vision from being locked up inside the boardroom.

2.5 Success factor 3: An innovative and creative entrepreneurial approach

Technological entrepreneurship refers to activities that create new resource combinations, bringing together the technical and commercial worlds in a profitable way (Burgelman et al., 2001:4). Therefore an innovative and entrepreneurial approach to the venture is imperative to its success and should be found at virtually every department (Clark, 1996:55). The University of Twente in the Netherlands developed a major (and unusual) type of outreach in the form of an entrepreneurial university. The concept and formation of the entrepreneurial university was developed in the mid-1980's (Clark, 1996:51). At this entrepreneurial university, the initiative-taking central board found that the public law, under which the university operated, stood in the way of exploring and developing new activities. It became necessary to have an entrepreneurial approach and to motivate and encourage innovation and idea generation on an ongoing basis.

2.5.1 Entrepreneurial approach

In the ever-changing business environment in which we are functioning, it has become increasingly important to have an entrepreneurial approach to everything that is done. Robinson and Stern stated that the tangible results of corporate creativity, so vital for long term survival and success, are improvements (changes to what is already done) and innovations (1997:11). It is new activities, new products, new markets and new clients that enable some businesses to keep one step ahead of competitors. Robinson and Stern also remarked that most creative acts are improvements.

Lashley explained (2001:132) that the removal of layers of middle management is motivated by a desire to encourage unit and junior managers to be more "intrapreneurial" or entrepreneurial. Furthermore, he explained that managers closest to their markets are best able to develop those markets and run the business in a flexible way to meet business demands. An entrepreneurial activity at a tertiary institution should therefore consistently attempt to enable not only managers but employees to identify opportunities in the business and the

environment in which they operate. Robinson and Stern found that creativity depends far more on intrinsic motivation, which can be explained as the desire to work on something for its own sake (1997:53). Intrinsic motivation should therefore be encouraged in each and every stakeholder of the third income stream on an ongoing basis.

2.5.2 Motivate innovation and creativity

Bisio and Gastwirt viewed innovation as having three phases, namely: Idea generation; problem solving and implementation of the ideas generated during the process (1979:8). The most important phase of innovation can therefore be considered to be the first phase namely idea generation. Without the idea there will be no innovation. Businesses should therefore constantly encourage employees to have innovative, entrepreneurial and creative ideas. Robinson and Stern identified four strategies a company can use to promote diverse stimuli (1997:210):

- Identify stimuli and provide them to employees.
- Rotate employees into every job they are capable of doing.
- Arrange for employees to interact with those outside the company who are likely to be the source of stimuli.
- Create opportunities for employees to bring into the organisation stimuli they get on their own.

Not only can innovativeness and creativity lead to increased sales figures, but it can also lead to cost savings. According to Robinson and Stern (1997:120) costs can be saved by performing existing activities in a better way. He also gave three approaches a company can take to promote creativity and innovation, namely:

- Increase the frequency of employee experimentation because some of them can turn out to be fortunate;
- Increase awareness of these experiments incidents that do occur and
- Increase the company's domain sagacity to turn more experimentations into fortunate ones.

From the above mentioned, it is apparent that the most important aspect is to create the opportunities to expose employees to new ideas.

2.5.3 Create opportunities

As already emphasised, creativity plays an extremely important role in the entrepreneurial approach to a new or existing venture. De Bono (1992:30) stated that the idea that creativity is a talent, is a misperception. Creativity can be taught and is a state of mind. Robinson and Stern stated that real leverage for corporate creativity does not lie in strategies based on identifying creative people, but in promoting creativity from all employees (1997:20). Businesses should therefore enable and encourage all employees to think and act creative instead of encouraging a few individuals. Robinson and Stern further stated that up to a point, it does not seem that the more intelligent a person is, the more creative he/she will be (1997:20). It is therefore a preconception that more intelligent people are more creative.

As with any idea, it has to be influenced by something. Robinson and Stern referred to this spark as the stimuli. They identified some elements that promote consistent corporate creativity (1997:12). Five of these elements are:

- Alignment
- Self-initiated activity
- Unofficial activity
- Serendipity
- Diverse stimuli

As universities in South Africa find themselves in relatively unknown territory, it is even more important for them to approach this new era with attitudes of innovativeness and creativity. Third income stream initiatives need to be equipped with an entrepreneurial, creative and innovative approach to operations. Creativity and innovation need to be constantly encouraged among employees and management should have a policy of 'consider everything'. Employees should feel motivated and encouraged to create and consider new ideas.

2.6 Success factor 4: Aligned Commitment

This factor narrowly corresponds with the above mentioned factor. Corporate

creativity is more sensitive to alignment than any other aspect of business or management (Robinson & Stern, 1997:89). A company has to be strongly aligned in order to be consistently creative. Cummings and Worley considered aligned commitment as so important that they believe a system's overall effectiveness is determined by the extent to which the different parts are aligned with each other (2001:87). To establish and encourage aligned commitment, employees need to be committed and involved and there need to be sufficient communication throughout the organisation. These sub-factors are discussed in more detail.

2.6.1 Commitment and Involvement

Goals and objectives (as identified as the second success factor above) are not in itself a winning recipe. Third income stream initiatives need to establish commitment to the goals and objectives from all employees and management. A very successful way to improve organisation-wide commitment to the objectives and goals, is to involve employees on all levels of the organisation. The overall success for the organisation is dependent on the total commitment of all role players. Sewell discussed that the aligned commitment is the extent to which each member of the team is fully committed to achieving the goals needed for the overall success of their organisations (1996:14). Robinson and Stern identified three requirements of alignment that confirm the link between alignment and goals (1997:123):

- Clarity about what the key goals of the organisation are.
- Commitment to initiatives that promote the key goals.
- Accountability for actions that affect the key goals.

The degree to which the personnel commit themselves emotionally to the new vision and how they attempt to realise the new vision of the organisation in a sustainable manner, form the difference between winners and losers in an entrepreneurial venture (Lascaris & Lipkin, 1993:30). The majority of personnel at tertiary institutions have probably had little exposure in the commercial environment. It can and will therefore pose a problem when these personnel have to function in an environment where profitability is the ultimate aim. It is therefore imperative that universities commit aligned employees to their new objectives and goals. The active involvement of all the departments and units of the

transformation process is therefore of critical importance (Jordaan:1999:12). The degree of involvement refers to the extent that employees are able to influence decisions made within the organisation (Lashley, 2001:49). The trick to success is to have people gain an increasing understanding of each other's mental models, what they deem to be important in change, and why that is the case (Gregory, 2003).

2.6.2 Communication

Timmons and Spinelli (2004:247), considers commitment and determination as more important than any other factor. According to them incredible obstacles can be overcome with commitment and determination. They furthermore considered an important requirement of commitment as communication. It is obvious that it is impossible to be committed to something without being aware thereof. Robinson and Stern identified three ways to promote within company communication (1997:234):

- Provide and encourage interaction between employees who do not normally interact with each other.
- Ensure that every employee has a sufficient understanding of the organisation's activities.
- Ensure that all employees know the importance of being responsive to requests for information or help from other employees.

2.6.3 Promoting aligned commitment

After establishing and determining the importance of aligned commitment it is necessary to consider how it can be achieved. There are more than one way to establish and encourage aligned commitment among employees. Smit and Handford stated that one way is to inform employees (2003:28), while Kreitner and Knicki advised managers to increase job satisfaction in order to increase the employees' commitment levels. Another way to improve commitment from employees is the collaborative approach (Thompson and Strickland, 1998:64). According to them this is a middle approach whereby the manager enlists the help of key peers and subordinates in hammering out a consensus strategy. Apart from aligned commitment this strategy has certain other advantages, namely: group

wisdom, synergy and enthusiasm (Johnson, 1996:184).

According to Lashley (2001:11), employee empowerment is said to offer greater employee commitment to the organisation's goals. The benefits for employers result in improved organisational performance, more satisfied customers and improved competitiveness. Lashley further gave seven forms of employee empowerment in service organisations (2001:55):

- Quality circles
- Total Quality Management (TQM)
- Suggestion schemes
- Autonomous work groups
- Whatever it takes training
- Team briefings
- Delayering

The important thing to note here is *involvement*. All seven above mentioned forms of empowerment in service organisations is based on employee involvement. The conclusion can therefore be drawn that a more involved employee should be more committed to the organisation's goals and objectives.

After considering the literature it can be concluded that aligned commitment is a very important factor to the success of a third income stream initiative and can be improved through the involvement of employees, encouragement of teamwork, the establishing of shared goals and values and open communication channels.

2.7 Success factor 5: Motivated Employees

There is no doubt that motivated and satisfied employees can contribute significantly to a more sustainable and more profitable entrepreneurial venture. Smit outlined the advantages of a motivating climate as (2001:24):

- Aligned commitment of all manager-leaders and employees
- Effectiveness and efficiency
- Job satisfaction

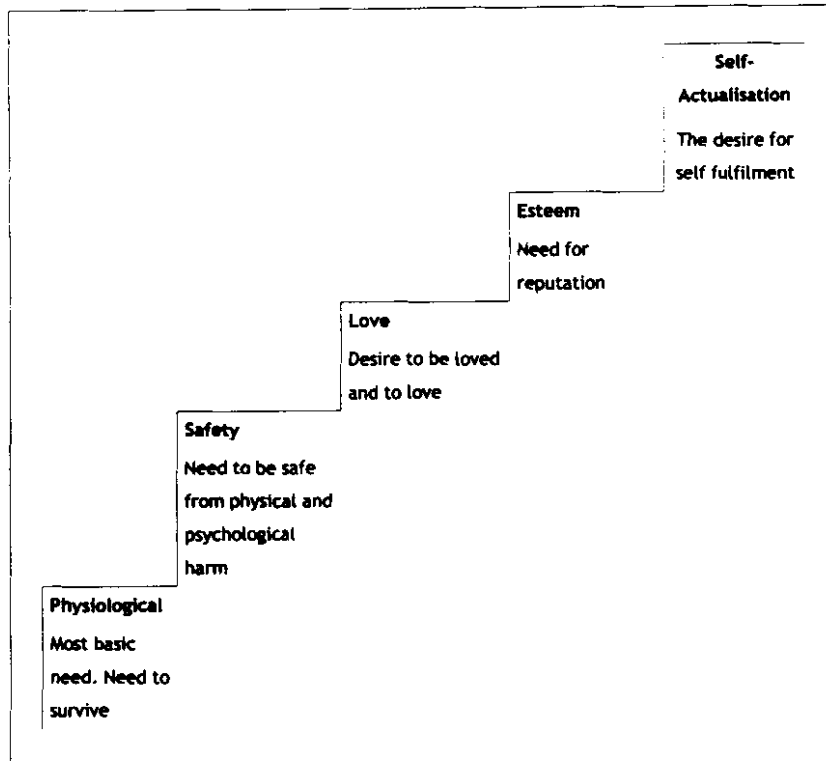
On the other hand Jackson stated that demotivated or unmotivated employees can lead to worker alienation, underproduction, poor quality, sabotage, turnover, absenteeism and alcoholism (1995:97). Therefore capital investment alone will not make the difference, since in any country, the quality of products and the productivity of workers depend on management (Peters, 1983:34).

Motivation is described by Kreitner and Knicki (2001:205) as a psychological process that arouse and direct goal-directed behaviour. From this definition of motivation, it is understandable that motivated employees are an important resource to any entrepreneurial venture. The question that has to be asked now is: 'How are employees motivated?'. To answer this question, motivators need to be considered first.

2.7.1 Motivators

Abraham Maslow's theory on the *hierarchy of needs* provide an explanation of what can be considered as motivating (Kreitner & Knicki, 2001:209). Maslow identified five different categories of needs, namely: physiological, safety, love, esteem, and self-actualisation (Refer figure 2.1, page 27). He proposed that an individual would first attempt to satisfy the lower needs before moving up on the 'ladder of needs'. The implication is that a person without a place to sleep would not feel in the least bit motivated by the possibility of being promoted to Managing Director. That person would first want to satisfy his/her physiological needs before thinking about a different type of need.

Figure 2.1 Maslow's Need Hierarchy. (Adapted from Kreitner & Knicki, 2001:109)



Another motivational theory is David McClelland's need for achievement and need for affiliation (Kreitner & Knicki, 2001:211). McClelland's research revealed that a country's level of economic development was positively related to its overall achievement motivation. In other words, a person's achievement is directly related to his/her motivation to achieve. He also described the need for affiliation as an important motivational tool. A need for affiliation can be described as the desire to spend time in social relationships and activities (Kreitner & Knicki, 2001:213). In the work environment this implies that a person who feels part of a group with social attachments within the work environment will be more motivated to perform at a higher standard, than those who feel psychologically unattached to the social circles within the work environment.

McClelland and Maslow focused on motivating the individual whereas Smit focused more on the creation of a *motivating climate* (2001:24). Smit defined a motivating climate as an inspirational environment in which people align themselves with and make a commitment to achieve the vision of the company (2001:24).

To achieve a motivating climate, Smit identified the prerequisites as (2001:24):

- Effective management-leadership
- A shared value system – commitment to a set of principles
- Sound work ethics – enthusiasm and commitment to work effectively and with honesty and integrity

2.7.2 Motivation and job satisfaction

Recent studies revealed a significant positive relationship between motivation and job satisfaction (Kreitner & Knicki, 2001:226). Managers can potentially enhance employees' motivation through various attempts to increase job satisfaction. Lashley stated that organisational effectiveness and improved employee satisfaction can be achieved by giving employees more authority to make decisions about their immediate tasks (2001:8). This statement agrees with Mol's statement that one of the myths of management is that an employee's attitude is determined largely by inherent factors like his upbringing, race and culture (1995:1). He concluded that an employee's attitude is influenced by the way he/she is managed.

Research evidence from companies in both the US and Germany showed people-centred practices strongly associated with much higher profits and lower employee turnover (Kreitner & Knicki, 2001:4). They identified the following seven practices for increased motivation and satisfaction:

- Job security
- Careful hiring
- Power to the people (decentralisation)
- Generous pay for performance
- Lots of training
- Less emphasis on status
- Trust building

The above mentioned practises emphasise the fact that more focus should be put on the person than the job, resulting in increased job satisfaction and motivation. Every individual wants to feel involved and appreciated. These practises can increase employee involvement and motivation, which will ultimately lead to increased profitability.

Kreitner and Knicki agreed and stated that individual inputs and job context are two key categories of factors that influence motivation (2001:206). Job context consists of the physical environment and the tasks that have to be completed. The job itself therefore forms an important stimuli of motivation. The individual inputs that Kreitner and Knicki refers to include the employee's ability, job knowledge, disposition and traits, emotions, moods, beliefs and values to the work setting (2001:206). From the above mentioned, the conclusion can be made that an employee's motivation towards his/her job are born internally as well as from the external environment in which he/she has to perform the day-to-day tasks. As figure 2.2, page 29 shows, the motivation of employees can easily spill over from one management level to the next thereby influencing employees' external environment.

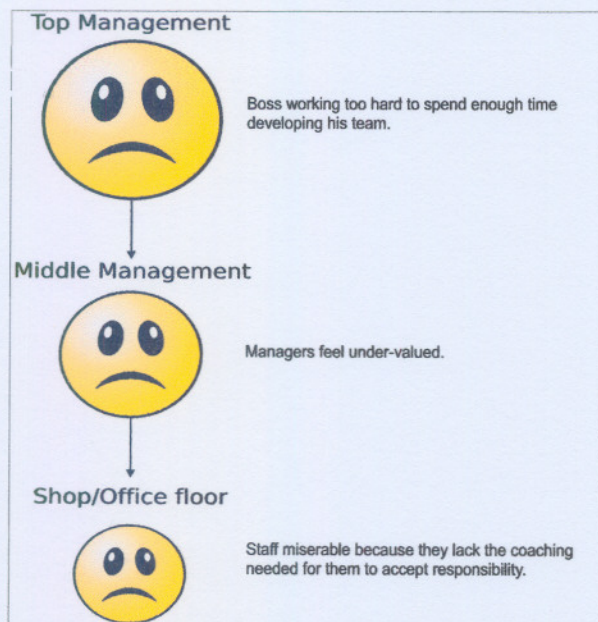


Figure 2.2 De-motivated personnel. (Adapted from Sewell, 1996:16)

As discussed above, many theories exist as to what motivate individuals and what the outcomes and results of a better motivated workforce can be. The third income stream initiative should consider motivation of employees as imperative. Since employees can be considered as the most important resource of the higher educational institution and its entrepreneurial venture, the profitability of the entrepreneurial venture can largely be influenced by the employees.

2.8 Success factor 6: Partnership with the Community

2.8.1 Community service

Community services are increasingly considered as an important and fundamental responsibility of South African educational institutions (Jordaan, 2003:30). This is not only the case in South Africa, as Guinta explained that one of the most important trends in entrepreneurial university parks and centres all over the world, is the shift in perspective from the park as a stand-alone entity to one that is integrated with the community (1998:463). In these parks and centres, universities, municipalities, economic development entities and in some cases corporations form part of strategic alliances. Similarly, tertiary institutions and other entities operating in South Africa should focus on communities and involve themselves in the development of South Africa. Co-operation and aligned commitment in this regard will speed up the developing process and result in positive outcomes for all role players involved.

2.8.2 Stakeholders in the business

To explain the important role that the community is playing in the existence and sustainability of the third income stream initiative, Lashley stated that emotional capital has two core elements (2001:174), namely: 1) External emotional capital and 2) Internal emotional capital. He explained external emotional capital as the way that external stakeholders, such as investors, suppliers and communities feel about the organization whereas internal emotional capital is how everybody in the business feels about the entity. External emotional capital and therefore external stakeholders should play an equally important role in the existence and success of the third income stream initiative as internal emotional capital or internal stakeholders. Communities, investors and suppliers should therefore be more involved in the operation of the entrepreneurial activity. Every individual who has an interest in the performance of the business can be considered a stakeholder of that particular business (Futrell, 2003:23). These stakeholders include customers, creditors, competitors, government, owners, management, employees and suppliers.

Sewell elaborated on Lashley's statement and identified seven role-players that businesses need to focus on (1996:59), namely:

- Suppliers
- Dealers/Distributors
- Customers
- Financiers and shareholders
- The community
- Competitors and
- Colleagues (employees)

In the case of tertiary institutions, it is common knowledge that registered *students* form the primary client base and should therefore be added to the above list as a partner of a third income stream initiative. Higher educational institutions should therefore consider the student's roles in the success of the institution as well as their roles in the community as a whole. The institution as well as society can only benefit from students that are better trained.

Apart from the students, the different stakeholders need to be constantly considered by the third income stream initiative to ensure business success, since these stakeholders form part of the external emotional capital according to Lashley (2001:174). One way of involving stakeholders in the operations of the business would be to involve suppliers, the community, employees and management in the production or service delivering process. By using opinions and ideas of customers, for example, the business would be able to increase service delivery, sales and ultimately profitability. However, it happens very often that businesses do not consider the community to be of the same importance as suppliers and customers. The above mentioned discussion emphasises the importance of the community as a role player in the achievement of business success.

2.9 Success factor 7: Globalisation

One of the most powerful mega-trends affecting enterprises of all kinds in recent years, has been globalisation, which also brought about increased uncertainty (Allen, 1996:88). Globalisation and internationalisation can take up several different forms, including strategic alliances and cooperative agreements. Without a doubt, universities across the world can only learn from each other. These factors are discussed accordingly.

2.9.1 Strategic alliances and cooperative agreements

Thompson and Strickland stated that strategic alliances and cooperative agreements are a potentially fruitful means for firms in the same industry to compete on a more global scale while still preserving their independence (1998:194). It can enable two smaller businesses to compete on larger scale with bigger companies and competitors. Thompson and Strickland further explained that these arrangements include joint research ventures, technology sharing, joint use of production facilities, marketing one another's products or joining forces in any other way. Not only can third income stream initiatives benefit from such alliances with other universities' initiatives, but they might even perform better as a collective force.

2.9.2 Learning from international universities

The term *globalisation* with regard to higher education institutions and their third income stream initiatives refers primarily to *learning from international businesses and international universities*. Commercial entities at tertiary institutions have been springing up all over the world and South African universities can learn from tertiary institutions overseas. By exchanging knowledge, a system can be created whereby value is added to all parties involved.

Much can and should be learned from international universities. The *Fundación Universidad Empresa* (University Foundation for Business) in Spain, for example, has launched a number of entrepreneurial training schemes like the *Lider*

Fellowship, which is a practical training programme; the CITIUS fellowships, which focuses specifically on foreign trade and the Chamber of commerce prize for young university entrepreneurs (Fundacion Universidad Empresa, 2004:Online). These training schemes are also evidence of how a tertiary institution should be involved in the community. Such initiatives can illustrate to South African higher educational institutions how to be involved in the community and how to enhance students experience of the education process.

Another example of a university initiative abroad, is CINECA. This is a consortium of 13 Italian universities which originated in 1969 with the objective of supplying both universities and companies with advanced electronic information skills, as well as access to the most powerful computing systems (Rinaldi, 1998:90). This initiative, which is still in operation today, is a prime example of how a higher education institution with its entrepreneurial activities in South Africa can learn from a tertiary institution abroad on how to collaborate with the community.

2.10 Success factor 8: An Academic Heartland

Clark considers the ongoing stimulation of the academic heartland as an extremely important factor for universities which have to undergo a transformational process (1996:52). An example of such a university is the University of Twente. Clark explained that this university built on its core competencies as a response to its marginality and questionable viability. They developed new faculties, fields of study and programs out of existing units.

2.10.1 Knowledge

Knowledge is considered to be powerful in today's ever-changing market environment. The OECD confirmed this statement by stating that the primary determinants of success of businesses and economies as a whole is a factor of the effectiveness in gathering and utilising knowledge (OECD, 1996:15). They furthermore wrote about the knowledge-based economy and stated that apart from knowledge investments, knowledge distribution through formal and informal

networks is essential to economic performance (1996:7). They had the following opinion with regard to a science system:

The science system, essentially public research laboratories and institutes of higher education, carries out key functions in the knowledge-based economy, including knowledge production, transmission and transfer. But the OECD science system is facing the challenge of reconciling its traditional functions of producing new knowledge through basic research and educating new generations of scientists and engineers with its newer role of collaborating with industry in the transfer of knowledge and technology. Research institutes and academia increasingly have industrial partners for financial as well as innovative purposes, but must combine this with their essential role in more generic research and education (1996:7).

Research, as a form of acquiring knowledge, and researchers are an extremely important advantage that third income stream initiatives have in relation to other commercial ventures which are not part of tertiary institutions. Third income stream initiatives can use the academic background and build on this knowledge to obtain the necessary competitive advantage against competitors.

Another aspect with regard to knowledge and tertiary institutions is patents and licensing. The licensing activities and patents of US universities have increased drastically (Mowery, Nelson, Sampat & Ziedonis, 1999:100) over the last few years. Although some individuals and groups may not be too enthusiastic about universities' response towards the creation of knowledge (Mowery et al., 1999:00), it does nevertheless contribute towards the industry in which the university and third income stream initiative function and to the overall welfare of the economy as a whole.

The knowledge, patents and licensing can provide the third income stream initiative with a competitive advantage with regard to industry standards and products. It is therefore important that universities and third income stream initiatives do not underestimate the importance of academic education, expertise and knowledge.

2.10.2 Academic proficiency of lecturers

It can be generally assumed that any academic institution is established with the primary goal of being a provider of academic education. Should the institution embark on an entrepreneurial activity, this primary goal should therefore stay a focal point in the institution's mission and strategy. The academic proficiency of the lecturers, staff and the institution as a whole remains imperative. In many third income stream initiatives, personnel get the opportunity to earn an extra income by involving themselves in the activities of the commercial venture (Beath, Owen, Theotoky & Ulph, 2000:3). However, academic proficiency should remain the primary objective of any higher education institution. Beath et al. stated that there are some factors that affect the optimal incentives for income-generation (2000:25):

- The productivity of researchers in both applied and fundamental research.
- The intrinsic desirability of fundamental research to academics.
- The relative amount of time that needs to be spent in keeping up with one's subject in both fundamental and applied research.

The OECD emphasised the importance of education by stating that the science system is a crucial element in knowledge transmission, particularly the education and training of scientists and engineers (1996:23). They furthermore stated that learning is extremely important in the knowledge-based economy.

From this reasoning it can be assumed that the objective of an academic educational institution should be to transform the risk of losing focus of the primary objective of the university when taking on third income stream projects. These institutions should use their projects to increase the academic proficiency of the lecturers and students and to acquire funds for improved infrastructure. In the process of transformation and change, many stakeholders may lose focus of the most important actions of tertiary institutions, including their educational function. A student who enrolls at a university is not concerned with how the institution can afford to pay salaries to personnel or even how funding was required, but rather how the university will educate him/her. Furthermore, besides from the fact that universities still remain educational institutions, the knowledge and expertise can

contribute significantly to the success of any third income stream initiative. The knowledgeable staff of the university can contribute towards a reputation of knowledge and expertise by being involved in the activities of ventures of the institution. It is therefore important for the university to remain focused on academic education as an enabling factor. To enable universities to remain focused on education and thereby maintain an academic heartland, lecturers and students alike need exposure to practice and industry.

2.11 Success factor 9: Service Delivery

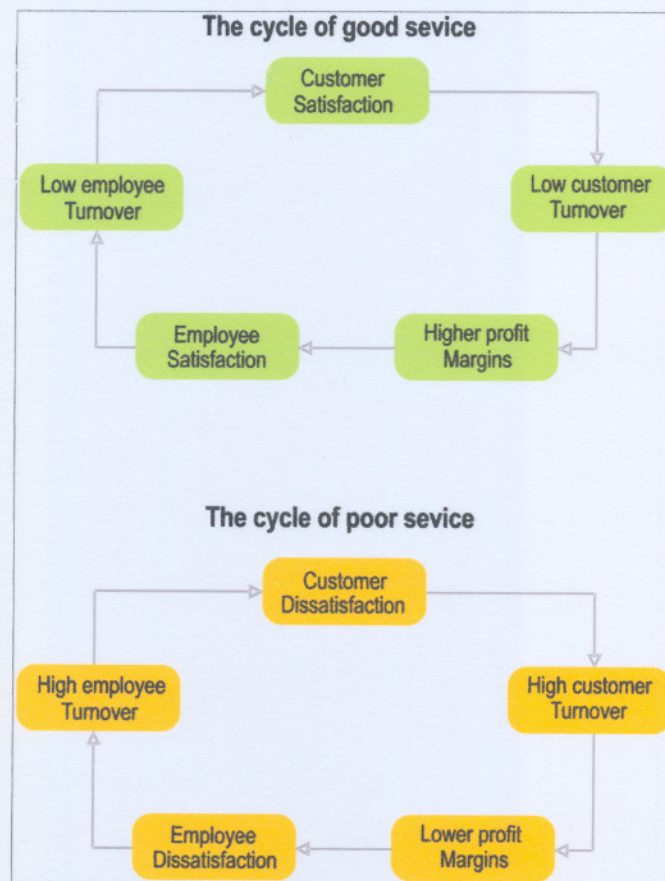
Schneider and Bowen stated that organisations can outperform the competition if they master what they refer to as the '*service game*' (1995:1). It can be assumed that good service delivery is a very important determinant of success of organisations all over the world. Tertiary institutions in general have had it relatively easy in the past, since the focus on choosing or staying on at a university did not necessarily depend on the level of service delivery. If a second-year student experienced endless problems due to her registration form being misfiled by administrative personnel, it would not really be viable for her to enrol at a different university at that particular stage of her academic involvement. However, with the new initiatives that universities have to attempt, a total change in the attitudes of all personnel and especially personnel involved in the entrepreneurial venture itself, will be necessary to achieve sustainability and success. Olenick stated that: '*Inertia and habit are your worst enemies*' (1989:109). He furthermore stated that in today's commercial environment it became necessary to do things better and faster, but that the standard complaint from employees have forever been that they used to do something a certain way which implies that they are not willing to change. The ultimate benefit of service delivery is satisfied customers. This benefit is discussed below.

2.11.1 Satisfied customers

All employees, including lecturers, secretaries, administrative personnel and telephone operators should consistently attempt to satisfy the needs of all their

customers (commercial customers and students alike). Schneider and Bowen stated that customers are the foundation of any service organisation (1995:2). They consider customers to be the scorekeepers in the service game. The focus should therefore change from merely doing the job to doing the job to satisfy customers. As Lashley described it: "Employees have to exercise emotional management in their interactions with customers, e.g. Smile when they don't want to."(2001:178). He furthermore stated that the nature of service requires that employees are committed to delighting the customer and this requires the display of the appropriate emotions of welcome, care and concern for customer needs. Figure 2.2, page 29 shows how more satisfied customers lead to low customer turnover and higher profit margins. In return, the higher profit margins lead to increased employee satisfaction since employees feel more successful in their jobs. Increased employee satisfaction leads to lower employee turnover which, in turn, results in increased customer satisfaction.

Figure 2.3 Customer satisfaction and employee satisfaction. (Adapted from Lashley, 2001:225)



2.11.2 Measuring performance

Sewell and Brown stated that the seventh rule of customer care is to measure everything regarding customer care and satisfaction (1991:xvi). They explained that everything should be measured to identify elements of the business or service that can be improved (1991:81). Any organisation that aims at maximising profitability has to constantly adapt and amend procedures and systems to be able to successfully compete in the market environment. Therefore, an organisation also has to do a constant evaluation of its service delivery, to determine whether the organisation is performing optimally in that regard.

2.11.3 Competence of employees

One of the factors influencing service delivery in any organisation is the employees' competence. Mitrani, Dalziel and Fitt stated that the organisation of the future will be built around the employees (1996:18). They considered employees' competence as crucial to any business' success. Competence in this regard does not only focus on employee capabilities but also training and willingness to do the job well. Better motivated employees will therefore be more willing to do the job well and can be considered as more competent. Coetsee confirmed by stating that one of the outputs of a motivating climate is effective and efficient employees (2002:42). Furthermore, he described *efficiency* as '*to do things*' and *effectiveness* as '*to do the right things right*'. Since effectiveness and efficiency will lead to a higher level of service delivery, any organisation would want its employees to be effective and efficient and therefore more profitable. One way in which an organisation can increase the competence of the personnel is through training as Smit and Cronjé explained that training will help the employees to better understand the responsibilities delegated to them as well as their authority and accountability (1999: 251).

2.11.4 Performance management

One way of improving service delivery in an organisation is through Performance Management. Mitrani, Dalziel and Fitt described performance management as a process or set of processes for establishing shared understanding about what is to

be achieved and how it is to be achieved as well as of managing people in a way that increases the probability that it will be achieved (1996:96). Again the importance of goal-setting and aligned commitment is emphasised. Goals should be set and all employees should be aligned to collectively achieve the desired goals and objectives. This is also the case for goals with regard to service delivery. All employees should work collectively towards achieving the desired outcomes. Jordaan stated that collective entrepreneurial orientated actions on all levels are necessary to accomplish the desired changes in orientation and structure (1999:12).

2.12 Conclusion

After the literature was conducted, certain key factors were identified as being crucial to the success of an entrepreneurial venture of a tertiary institution. Factors were identified which can be considered as imperative to the success of any venture, but since this writing focuses on the success factors of an entrepreneurial activity at a tertiary institution, the relevant factors in this regard were identified and discussed. These key success factors were identified as:

- A strengthened administrative core
- Goals and objectives
- An innovative and creative entrepreneurial approach
- Aligned commitment
- Motivated employees
- Partnership with the community
- Globalisation
- An academic heartland
- Service delivery

Apart from these factors, certain sub factors were identified which make up the nine primary factors. These identified sub factors and primary factors are used in the empirical research to determine whether or not these factors are implemented at third income stream initiatives and if so, how they influence the success and profitability of such a venture. In the following chapters it will be attempted to answer these questions.

CHAPTER 3 - Methodology

3.1 Introduction

After the identification of the nine critical success factors necessary for the success of an entrepreneurial venture of a higher education institution, it is now possible to evaluate the existence of these success factors at the third income stream initiatives of a tertiary institution. A measuring instrument has been developed to measure the existence of the identified success factors as well as the relative profitability of two third income stream initiatives at the CUT. It is very important to note that these initiatives were not compared with each other, but rather against themselves. The profitability or success of each was determined after which the existence of the success factors at those specific entrepreneurial ventures were tested.

In this section the measuring instrument, the research sample as well as the research process will be discussed.

3.2 Qualitative vs quantitative research

The quantitative approach to research is more objective in nature and involves the collection and analysis of numerical data and the application of statistical tests (Hussey & Hussey, 1997:12). On the other hand, Hussey and Hussey described a qualitative approach to research as more subjective and involves the examination and reflection on perceptions to gain an understanding of social and human activities (1997:12).

The measuring instrument used in the research consisted of both a quantitative and qualitative component. The quantitative component consisted of numerical data which were collected on the existence of the success factors at the third income stream initiatives. On the other hand, the data collected to determine the relative

success of the initiatives, called for qualitative research methods. Since only one researcher conducted the research, the subjective qualities of qualitative research did not play a significant role with regard to this research study.

According to Hussey and Hussey (1997:13) deductive research is a study in which a conceptual and theoretical structure is developed and then tested by empirical observation. The research conducted in this project can, to an extent, be classified as deductive. In chapter 2 a literature study was conducted to identify and evaluate certain factors necessary to ensure success of a third income stream initiative. In this chapter qualitative as well as quantitative research methods were used to evaluate the existence of these factors at two identified entrepreneurial activities after the relative success of these initiatives were investigated. The research therefore involved a relatively subjective investigation into the presence of the identified success factors (from the literature study) as well as the examination of the profitability and success of the chosen third income stream initiatives. Interviews were conducted to perform the qualitative research while questionnaires were used to obtain information on the existence of the factors.

3.3 Interviews

According to Huysamen (1993:149), interviews (as methods for data collection) can range from unstructured interviews to completely standardised, structured interviews which are used in survey research. He describes a structured interview as an interview where the interviewer asks a number of questions from a pre-compiled list of questions, known as an interview schedule. These questions are asked face to face and the answers are recorded by the interviewer. He furthermore explained that an unstructured interview is usually conducted in exploring research to identify important variables in a specified field. Cooper and Schindler (1998:338) stated that free-response questions are open-ended questions when a respondent is asked a question and the interviewer records the response. Closed-ended questions, on the other hand, are questions with pre-determined answers. The respondent can choose between a number of options for the response that best describes his/her opinion. The interviews used during this research

consisted of open-ended questions.

A semi-structured interview is a type of interview between a structured and an unstructured interview (Huysamen, 1993:149). In these interviews the interviewer uses an interview guide rather than an interview schedule. This type of interview provides a versatile way to gather information which is relevant to the situation.

Although a semi-structured interview was chosen as the type of interview used during this research, an interview schedule was used instead of an interview guide, which provided the interview with a more structured approach. The reason for the more structured approach is to ensure that the respondents are asked the same questions by the interviewer while the open-ended questions provided the respondents with the opportunity to answer the questions in as much detail as possible.

3.4 Questionnaires

Hussey and Hussey described a questionnaire as a list of carefully structured questions, chosen after considerable testing with a view to obtain reliable responses from a chosen sample (1997: 161). The aim is to find out what a group of individuals feel, think or believe. There are a number of considerations that need to be taken into account when a questionnaire is compiled, as table 3.1 (below) shows.

Table 3.1 Main decisions when using questionnaires (Adapted from Hussey & Hussey, 1997:162)

Sample size
Type of questions
Wording of the questions and how to ensure that they are intelligible and unambiguous
Design of the questionnaire, including any instructions
Wording of any accompanying letter
Method of distribution and return of completed questionnaires
Tests for validity and reliability and when they should be applied
Methods for collating and analysing the data thus collected
Any action to be taken if questionnaires are not returned

The main decisions when using questionnaires as summarised in table 3.1 (above)

were considered when the questionnaires were compiled as could be seen from the discussion of the measuring tool in part 3.5.3.2 on page 48.

According to Welman and Kruger, a summated attitude scale consists of a collection of statements to test the respondents attitudes to a particular attitudinal object (2001:150). According to Huysamen, there are four different types of attitude scales that are all compiled from a collection of items that are supposed to reflect on an attitudinal object (1993:129). These attitude scales are:

- Summated or Likert scales
- Semantic Differential scales
- Guttman scales
- Thurstone scales.

The Likert scale (1931) is at present the most popular attitude scale (Welman & Kruger, 2001: 150). McIver and Carmines (1981:21-22) described the Likert scale as follows:

A set of items, composed of approximately an equal number of favourable and unfavourable statements concerning the attitude object, is given to a group of subjects. They are asked to respond to each statement in terms of their own degree of agreement or disagreement. Typically, they are instructed to select one of five responses: strongly agree, agree, undecided, disagree, or strongly disagree. The specific responses to the items are combined so that individuals with the most favourable attitudes will have the highest scores while individuals with the least favourable (or unfavourable) attitudes will have the lowest scores. While not all summated scales are created according to Likert's specific procedures, all such scales share the basic logic associated with Likert scaling.

A Likert scale was used in the questionnaire in this research. The measuring instrument, respondents and research process is discussed in more detail.

3.5 Measuring instrument

3.5.1 Choosing a measuring instrument

After investigation it was discovered that there is no measuring instrument that could be used to perform this specific research on third income stream initiatives. It was deemed necessary to design a measuring instrument especially for this study. The measuring instrument was not designed with a specific group in mind and can thus be applied to any third income stream initiative of a tertiary institution.

3.5.2 Development of the measuring instrument

3.5.2.1 Why an interview was chosen

The measuring instrument consists of an interview schedule and questionnaire. An interview was chosen as the qualitative research method used to collect information on the relative success of the third income stream initiatives.

A semi-structured interview with open-ended questions were chosen due to the following reasons:

- An interview as method of qualitative research ensures that sensitive information can be handled with the necessary confidentiality.
- The interviewees might prefer an interview to supply the necessary information in a truthful manner.
- The interviewee's independent situation and view on his initiative had to be obtained and a semi-structured interview with open-ended questions provided the respondent with the opportunity to answer the questions in his own words.

3.5.2.2 Objectives of the measuring instrument

The measuring instrument which consists of an interview schedule and a questionnaire was developed to achieve the following objectives:

Objective 1:

To determine the relative profitability and success of the third income stream

initiative.

Objective 2:

To measure and evaluate the existence of the nine critical success factors as identified in chapter 2.

The interview was conducted to achieve the first objective while the questionnaire was compiled to achieve the second objective. The measuring instrument and its development are discussed accordingly.

3.5.3 Format of the measuring instrument

The measuring instrument consisted of two main parts to achieve the two research objectives:

Part 1: Interview schedule

The interview part of the measuring instrument was developed to achieve the first objective, namely to determine the relative profitability and success of the third income stream initiative. The interview consisted of open-ended questions on the profitability and success of the venture as well as additional information on the initiative. The interviews were conducted with representatives of the initiatives. Only one interview was therefore conducted per initiative.

Part 2: Questionnaire

The second part of the measuring instrument consisted of a questionnaire to achieve the second research objective, namely to measure and evaluate the existence of the nine critical success factors as identified in chapter 2. The questionnaire consisted of closed-ended statements on which the respondents had to reply on the current situation in the organisation in order to establish the existence of the factors. The full-time personnel of the initiative, as well as the lecturers of the institution, who were involved in the activities of the initiative during the previous six months, were used as respondents of the questionnaire.

3.5.3.1 The interview

This part of the measuring instrument consisted of twelve open-ended questions to achieve the first research objective. These questions aim at determining the profitability and success of the third income stream initiative and also to provide

more detailed information on the operations, goals and objectives of the initiative.

As already discussed in paragraph 1.2.3 on page 5 for the purposes of this research three aspects can be considered as being symptomatic of a profitable third income stream initiative, namely:

1. Positive cash flow

The initiative should be self-sufficient with regard to cash flow. It should be able to pay for its own expenses without putting an additional burden on the financial situation of the tertiary institution of which it forms a part. Since the initiative is classified as a third income stream, the assumption can be made that one of its goals would be to compliment the first and second income streams with regard to financial benefit. Should this not be the case, the initiative should at least be self-sufficient with regard to funding.

2. Growth of income and assets

A growth in the net income and assets of the third income stream initiative will definitely imply that the initiative was successful. This combined with the previous aspect suggests the initiative's ability not only to realise a profit but also to transform the profit into cash.

3. Contribution to academic education of students

The third aspect which implies success is the contribution that the institution makes towards the academic education of the students. This is not a financial aspect which results in monetary profitability, but rather an aspect which adds value to the education of the students. The exposure of students and lecturers to industry and other opportunities outside the borders of the academic institution is considered as an aspect that contributes towards the success of the third income stream initiative.

The above mentioned aspects were identified to provide guidelines to determine the profitability or success of the third income stream initiative. The interview part of the measuring instrument therefore provides answers to the following questions

in order to determine whether or not the commercial venture can be considered to be profitable and successful:

1. Does the third income stream sustain itself with regard to cash flow?
2. Did the assets and income grow since the inception of the venture?
3. Does the commercial venture contribute towards the academic education of students?

Apart from determining the profitability and the value which is added by the third income stream initiative to the overall functioning of the higher education institution, the interview questions will provide more depth and detail on the third income stream initiative as a whole. The interview questions were chosen and designed using general rules of Hussey and Hussey as guidelines, as can be seen in table 3.2 (below).

Table 3.2 General rules for designing questions (Adapted from Hussey & Hussey, 1997:165)

1. Explain the purpose of the interview or questionnaire to all participants
2. Keep your questions as simple as possible
3. Do not use jargon or specialist language
4. Phrase each question so that only one meaning is possible
5. Avoid vague, descriptive words such as 'large' and 'small'
6. Avoid asking negative questions as these are easy to misinterpret
7. Only ask one question at a time
8. Include relevant questions only (do not be tempted to include every question you can think of)
9. Include questions which serve as cross-checks on the answers to other questions
10. Avoid questions which require the participant to perform calculations
11. Avoid leading or value-laden questions which imply what the required answer might be
12. Avoid offensive questions or insensitive questions which could cause embarrassment
13. Avoid questions which are nothing more than a memory test
14. Keep your interview schedule or questionnaire as short as possible, but include all the questions required to cover your purposes

The interview questions as explained in paragraph 3.5.4.1 on page 50, were structured according to the above rules, in such a way as to provide the respondent with the opportunity to answer the particular question in as much detail as possible to obtain enough information to achieve the two research objectives.

3.5.3.2 The questionnaire

Nine main decisions (as summarised in table 3.1, page 42), should be considered when a questionnaire is developed. These aspects were considered in the following manners:

- The biggest possible sample were chosen.
- The questions were worded in such a way as to prevent any misunderstandings or misinterpretations.
- Detailed instructions were given on the first page of the questionnaire.
- Instead of supplying an accompanying letter, the researcher explained verbally what the purpose and objectives of the questionnaires were.
- The researcher distributed and collected the questionnaires herself.
- The internal consistency was tested by making use of Cronbach's Alpha, as discussed in paragraph 3.9.2, page 96.
- The data were analysed by using an *OpenOffice.org Calc* spreadsheet.
- All questionnaires were returned.

The questionnaire was compiled in accordance with a summed attitude scale (Likert scale) as described by Huysamen (1993:129), to achieve the second research objective, which is to measure and evaluate the existence of the nine critical success factors as identified in chapter 2.

The statements were based on the nine success factors identified and explained in the previous chapter. Positive and negative statements were identified for the different success factors as can be seen in Table 3.3, page 49. The objective of this was to avoid consecutive responses from the respondents since the respondents had to think more carefully before giving a statement response.

Every response to a specific statement was given a value ranging from '1' to '5'. For a positive statement, a value of '5' was given if the answer was '*definitely*', and '1' if the answer was '*not at all*'. For a negative statement on the other hand, a value of

'1' was given if the answer was 'definitely', and '5' if the answer was 'not at all'. A 'neutral' response was given a value of '3'.

Table 3.3 Positive and negative statements to test for success factors

Success Factor	Statement	Positive / Negative
Strengthened Administration	Decisions are made quickly and timely.	Positive
	There is no reliable source of information as basis for decision-making.	Negative
Goals and Objectives	The direction of the business is determined by goals and objectives.	Positive
	The personnel never know exactly what the goals and objectives of the business are.	Negative
An innovative and creative entrepreneurial approach	The venture has an entrepreneurial approach towards the day-to-day activities.	Positive
	Innovation is not particularly motivated.	Negative
	Idea generation is constantly encouraged.	Positive
Aligned commitment	Not many opportunities are created that enable employees to be more creative.	Negative
	Everybody in the business is aligned and committed towards the same goals.	Positive
	There is not enough communication between personnel and management.	Negative
	Involvement of employees is encouraged.	Positive
Motivated employees	Nobody considers teamwork to be very important.	Negative
	All the employees are inspired and motivated by the environment.	Positive
	The level of job satisfaction is very low.	Negative
	Everybody is motivated to do their jobs well.	Positive
Partnership with the community	Everybody is just doing their jobs to receive a salary each month.	Negative
	All members in the initiative are committed to community service.	Positive
	The community is not considered as an important role player in the success of the venture.	Negative
Globalisation	The initiative has strategic alliances and partnerships with international universities.	Positive
	There is not much to learn from international universities.	Negative
Academic heartland	The initiative apply the knowledge and research acquired by the university.	Positive
	The proficiency of the lecturers is not the main concern of the university anymore.	Negative
Service delivery	Satisfied customers is a very important goal.	Positive
	The centre's performance with regard to customer service is never measured.	Negative
	All the employees are very competent to do their jobs.	Positive
	The centre's performance is not managed to improve service delivery.	Negative

3.5.4 Discussing the measuring instrument

3.5.4.1 The interview

The interview aims at measuring the profitability of the venture and the value it adds to the higher education institution. In other words it determines whether or not the venture can be considered as successful.

As already discussed in section 1.2.3 on page 5, the three aspects which imply the profitability of a venture are:

- Positive cash flow
- Growth of income and assets
- Contribution to academic education of students

There were twelve questions in the interview part of the measuring instrument. Apart from measuring the relative profitability of the third income stream initiative (determining the existence of the three profitability aspects), the interview also aims at providing more information on the initiative as part of the tertiary institution. The interview therefore provides the reader with background information on the venture as well as more information to determine the success thereof. Since the different respondents were chosen and all background information, such as their names, job titles and authority was already known, no questions were included in the interview to acquire this information.

The interview questions are specifically compiled to provide the respondent with the opportunity to interpret and answer the questions according to his/her specific situation with regard to the relevant third income stream initiative. The different questions as well as the reasons for asking them are discussed in more detail.

QUESTIONS TO PROVIDE BACKGROUND INFORMATION ON THE VENTURE

Question 1: What type of third income stream initiative are you involved in?

This question was asked to determine whether the third income stream initiative is involved in service delivery, manufacturing or any other industry. The industry in

which the third income stream initiative functions has to be determined in order to be able to successfully measure the success and profitability of the venture. If an aspect like total assets is considered, for example, a service organisation can be profitable with less assets than a manufacturing organisation. If total assets of the service organisation is considered as a measure of success in relation to the manufacturing organisation, the service organisation might seem to be less successful, since less assets are necessary to operate a service organisation than a manufacturing organisation.

Question 2: Why was the third income stream initiative established?

Although it is already established that the primary reason for the existence of a third income stream initiative, as the name suggests, is to provide the tertiary institution with an additional source of income, this may not be the only reason for the establishment of the venture. Another reason may be the fact that the tertiary institution discovered a opportunity in the market and decided to start the venture to attempt to satisfy the demand. It could have also became apparent that there is a need for students to get more exposure to the industry.

Question 3: What are the goals and objectives of the venture?

As with any commercial venture, the third income stream needs goals and objectives in order to successfully compete nationally and internationally (Refer paragraph 2.4, page 16). Different third income stream initiatives will have different goals and objectives. These goals and objectives might have changed from the inception of the business. It is therefore important to consider the goals and objectives as they are formulated at present. Hence this question as a follow-up on the previous question.

It is very important to consider the goals and objectives of the third income stream initiative before the profitability or success of the venture is considered. The reason being that the profit margin of an initiative with the goal to be self-sufficient and not focused on making large amounts of profits, should not be compared with the profit margin of a third income stream initiative which is primarily focused on making substantial, above-average profits. The success of a commercial venture is relative

to its purpose and should be considered as such. This question is therefore asked to consider the ultimate aims of the venture and to be able to successfully interpret the results.

QUESTIONS ON THE CONTRIBUTION THAT THE VENTURE ADDS TO THE ACADEMIC EDUCATION OF STUDENTS, THE UNIVERSITY AND ITS STAKEHOLDERS

Question 4: Do all students have access to the facilities and/or the activities of the third income stream initiative?

As already discussed, access of students to the facilities of the third income stream initiative may substantially improve their exposure to the subject field and industry for which they are preparing themselves through their studies. This question is therefore asked to determine whether or not the students do have access to the facilities and therefore to determine whether or not the third income stream initiative is contributing towards student education in this regard. If one of the goals and objectives (see question 3) of the third income stream initiative is to provide students with practical exposure, the venture can be considered as successful, should this be the case in question 4.

Many third income stream initiatives do not have any facilities in the form of laboratories or manufacturing equipment. A service orientated third income stream initiative, for example, would not have any facilities to expose students to. The activities of service orientated third income stream initiatives will have to be investigated by means of a site visit by the researcher. Should this be the case, the respondent will answer this question accordingly.

Question 5: Does the initiative contribute towards the academic education of students?

This question closely corresponds with question 4, since the value that the initiative is adding towards the education of the students is also considered. However, this question can purposely be interpreted in two different ways. Firstly the respondent can interpret 'students' as existing students of the tertiary institution and secondly, the question can be interpreted that 'new' or 'other' students are benefiting from the initiative. An example of the second interpretation is a business school that presents short courses to external students to generate a third income stream. The respondent involved in such an initiative will interpret the question as such and answer accordingly. This question is therefore specifically asked in such a way as to

allow the respondent to interpret the question according to his/her individual situation.

Question 6: Who participates in the operations of the venture/initiative?

Many different participants of third income stream initiatives may exist. Among others, these participants may include the following:

- Lecturers,
- Students,
- Administrative personnel,
- Industry professionals
- Community members

It is important to consider who are involved in the third income stream initiative to fully comprehend and understand the operations and functioning of the initiative as well as to identify any additional beneficiaries. This question is therefore asked to provide more background information on the venture.

QUESTIONS ON THE CASH FLOW OF THE VENTURE

Question 7: How does it compliment the first and second income stream responsibilities?

The objective with this question was to determine in which other ways the third income stream initiative is adding value towards the tertiary institution. This question follows on the previous one, since everything other than student benefits from the initiative needs to be considered here.

The primary purpose of a third income stream initiative is to complement or benefit the first and second income streams. Should this not be the case, the tertiary institution needs to consider the third income stream's merits and act accordingly. A third income stream initiative which has a negative impact on the other income streams, is surely not beneficial to the university as a whole. This question is therefore asked to consider to what degree it contributes towards the other goals and objectives of the higher education institution as a whole.

Question 8: Is the entrepreneurial activity self-sufficient with regard to funding?

This question is the first question which refers to the monetary contribution of the third income stream initiative. A third income stream initiative should, as the name suggests, provide the tertiary institution with a means of acquiring more funds. It is therefore imperative that the initiative, at the very least, be self sufficient with regard to cash flow. The tertiary institution should not have to fund the activities of the venture and be an expense for the institution. Even though the initiative may only aim at funding its own operations, it should not result in costs to the tertiary institution. The important aspect to consider here with regard to the funding of the initiative is therefore not whether or not the initiative is making a profit but whether or not the initiative is costing the institution money. It would however be understandable if the initiative needed some initial funding from the institution to find its feet. Every initiative should be considered individually at the hand of its situation and circumstances.

QUESTIONS ON THE GROWTH OF THE ASSETS AND INCOME OF THE VENTURE

Question 9: How did the turnover grow since the start of the venture?

This question narrowly corresponds with the previous question since it is also based on the growth of the business and probably the customer base. An important benefit of this question is that the answer as a percentage, can be directly compared with the answer of another correspondent even though they might function in completely different industries. Again, the answer to this question should be considered in the totality of the interview.

Question 10: How did the assets grow since the start of the venture and who does it belong to?

The objective of this question was to determine whether or not the assets of the initiative experienced growth since the inception of the business. It is also important to note who the assets belong to. Since a third income stream initiative is not a judicial person which can own assets in its own name, the assets belong to the institution of which the initiative forms a part. It is therefore important to note who has management rights over the assets and who has ownership of the financial benefits that arise from the implementation of the assets. Should the initiative have

management rights over the assets and should the initiative have access to the financial benefits and have authority over the application thereof, the assets were considered to be part of the initiative's resources for the purposes of this study.

Differences in third income stream initiatives also need to be considered. Some initiatives might not have any tangible assets while others might have substantial amounts of resources invested in tangible assets. The openness of this question will again provide the respondent to interpret the question according to his/her individual situation.

Question 11: To what do you ascribe the growth in the budget, turnover and assets?

Following on questions 9, 10 and 11, this question is asked to determine the interviewee's opinion as to what the reason for growth of the business is. The answer to this question can provide useful information on the success and profitability of the venture. It is however, important to note that this question will be very subjective since the respondents opinion is asked. Nevertheless, it will provide useful information on the success and reasons for growth of the venture.

QUESTION ON THE GENERAL OUTCOMES OF THE INITIATIVE

Question 12: What are the outcomes of the third income stream initiative?

Whether or not the initiative can be considered to be successful, will depend entirely on the outcomes of the particular venture. These outcomes can include, among others, income generation, student development or community service. It is however, important to note that these outcomes can include both positive and negative outcomes and is not only attributes and advantages of the initiative but also disadvantages and shortcomings.

3.5.4.2 The questionnaire

The questionnaire was divided in nine different sub-scales. Every sub-scale represented and tested for a success factor as identified in the literature study in chapter 2.

Success factor 1: Strengthened Administration

A strengthened administration core was identified as the first success factor. This factor encompass the urgency with which decisions can be made and the effectiveness of the overall administration of the venture.

Statements 1 and 2 were used to test for the presence of this success factor:

Statement 1: Decisions are made quickly and timely.

Statement 2: There is no reliable source of information as basis for decision-making.

An organisation with a centralised decision structure which do not have to follow time consuming protocol before a decision needs to be made, would be able to react more easily to changes in the industry.

Success factor 2: Goals and Objectives

Any organisation needs to set goals and objectives, including what the aims and needs of the organisation are. These goals and objectives should also be communicated to the personnel, otherwise only management will be aware of what should be accomplished and when.

Statements 3 and 4 were used to test for the presence of this success factor:

Statement 3: The direction of the business is determined by goals and objectives.

Statement 4: The personnel never know exactly what the goals and objectives of the organisation are.

Success factor 3: An innovative and creative entrepreneurial approach

As is necessary in any organisation around the world the entrepreneurial activity should have an entrepreneurial approach to its operations. Furthermore, the venture needs to encourage innovation and creative thinking to enable successful competition with other role-players in the industry.

Statements 5, 6, 7 and 8 were used to test for the presence of this success factor:

Statement 5: The venture has an entrepreneurial approach towards its day-to-

day activities.

Statement 6: *Innovation is not particularly motivated.*

Statement 7: *Idea generation is constantly encouraged.*

Statement 8: *Not many opportunities are created that enable employees to be more creative.*

Success factor 4: Aligned commitment

All role-players, especially the employees of a commercial entity should be committed towards the same goals and objectives at all times. Since the ultimate goal of any entrepreneurial activity is to be profitable and sustainable, everybody in the organisation should be committed towards a more profitable organisation. This includes an entrepreneurial activity at a tertiary institution

Statements 9, 10, 11 and 12 were used to test for the presence of this success factor:

Statement 9: *Everybody in the business is aligned and committed towards the same goals.*

Statement 10: *There is not enough communication between personnel and management.*

Statement 11: *Involvement of employees is constantly encouraged.*

Statement 12: *Nobody considers teamwork to be very important.*

Success factor 5: Motivated employees

Employees should be motivated to not only do their jobs, but to do their jobs well. This important element can make or break any organisation. Employees can be considered as the most important resource in any organisation. To ensure the profitability of all the resources in the organisation, especially the employees, management should constantly ensure that everybody is motivated to perform optimally. There are different ways of motivating employees and a detailed discussion of these methods fall beyond the scope of this writing. For immediate purposes, motivated employees are identified as the fourth key success factor.

Statements 13, 14, 15 and 16 were used to test for the presence of this success factor:

Statement 13: All the employees are inspired and motivated by their environment.

Statement 14: The level of job satisfaction is very low.

Statement 15: Everybody is motivated to do their jobs well.

Statement 16: Everybody is just doing their jobs to receive a salary each month.

Success factor 6: Partnership with the community

As already discussed, in paragraph 2.8, page 30, it is extremely important for every organisation and especially an entrepreneurial venture like a third income stream initiative to consider the community as one of the most important stakeholders and role-players in the success of the venture. Not many organisation do consider the importance of the community as relevant.

Statements 17 and 18 were used to test for the presence of this success factor:

Statement 17: All members in the initiative are committed to community service.

Statement 18: The community is not considered as an important role player in the success of the venture.

Success factor 7: Globalisation

One of the most important global trends is globalisation as discussed in paragraph 2.9 on page 30. To be able to compete and learn globally can provide many organisations with a competitive advantage and also provide organisations all over the world with new markets for their existing goods and services. Globalisation in the sense of a tertiary institution is used to refer to the multitude of experience that can be used and applied in other situations. Since so many institutions abroad have implemented third income stream initiatives long before the first South African university even started to consider something entrepreneurial, it is obvious that there are much to learn from universities abroad.

Statements 19 and 20 were used to test for the presence of this success factor:

Statement 19: The initiative has strategic alliances and partnerships with international universities.

Statement 20: There is not much to learn from international universities.

Success factor 8: An academic heartland

A university, as such, is primarily responsible for delivering an educational service. With new phenomena, like third income stream initiatives, the priorities of tertiary institutions might get blurred. Although universities might consider income generation as an extremely important priority, academic education should still be the most important of all.

Statements 21 and 22 were used to test for the presence of this success factor:

Statement 21: The initiative apply the knowledge and research acquired by the university.

Statement 22: The proficiency of the lecturers is not the main concern of the university anymore.

Success factor 9: Service delivery

Universities have not been primarily concerned with delivering a high level of service, since the standard of service delivery has not been so important that a university's success was dependent upon it. When it comes to an entrepreneurial activity as part of a tertiary institution, service delivery will become extremely important to ensure commercial success.

Statements 23, 24, 25 and 26 were used to test for the presence of this success factor:

Statement 23: Satisfied customers is a very important goal.

Statement 24: The centre's performance with regard to customer service is never measured.

Statement 25: All the employees are very competent to do their jobs.

Statement 26: The centre's performance is not managed to improve service delivery.

Appendix 1 (page 111) shows the questionnaire statements with the possible responses. The scoring of the questionnaire was done as shown in appendix 2 (page 112).

3.5.4.3 Effectiveness of the measuring instrument

Although the interview and the questionnaire were compiled according to Huysamen's guidelines (1993:129), certain shortcomings are eminent:

- Firstly, Huysamen (1993:129) recommended that only standardised tests should be used in empirical research, as these tests provide more reliable results. As no standardised test existed to measure the relative success of a third income stream initiative and the existence of the nine critical success factors, a unique test was developed for this study. Since this test was not standardised, its results could be less reliable than those of a standardised test.
- Secondly, the interview questions were being subjectively answered by one individual. This can result in one subjective view of the third income stream initiative.
- Thirdly, although the interview questions are structured in such a way as to provide the interviewee with the opportunity to interpret the questions to fully comply to his/her individual situation and type of third income stream, it can result in answers that are difficult or even impossible to compare.
- The final shortcoming is the limited number of statements in the questionnaire. There are so many factors that influence the success of any commercial entity that the limited number of statements in this questionnaire can only indicate the *possible* existence or non-existence of the identified critical success factors.

The following were done to overcome these shortcomings:

- To improve the reliability of the measuring instrument, positive and negative statements were incorporated in the second part of the questionnaire. This was done to eliminate consecutive answers since it forced the respondents to think carefully before choosing a response.
- The interview was conducted by the same individual to ensure that the same interpretation of the two different third income stream initiatives is formed.
- The individuals chosen to conduct the interviews with, were, according to the researcher, representatives of the initiatives as a whole. Their

opinions can therefore be considered as the current situations at the two different third income stream initiatives. Similarly, the respondents of the questionnaires, which included the interviewees, represented all the involved staff members of the initiative during the previous six months who were available.

3.6 Research sample

The sample group used as subjects during this research, constitutes an availability sample rather than a random sample. Two third income stream initiatives which are part of the CUT, were chosen for the research, namely: The Centre for Rapid Prototyping and Manufacturing (CRPM) and the Centre for the Built Environment (CBE). Once again, it is worth pointing out that these initiatives were not compared with each other, but rather against themselves. The profitability of each was determined after which the existence and the importance of the success factors at that specific institution were tested.

The Centre for Rapid Prototyping and Manufacturing (CRPM) and the Centre for the Built Environment (CBE) at the CUT were chosen as third income stream initiatives for the following reasons:

- Both of these institutions seemed to be sustainable entrepreneurial centres and thus third income stream initiatives since they have been in operation for at least five years.
- One service orientated initiative and one manufacturing initiative provided the opportunity to make better conclusions with regard to the implementation and validity of the success factors.
- They were both relatively accessible to the researcher.
- The chosen ventures had to be part of the same tertiary institution to eliminate influencing factors such as different policies and procedures at different tertiary institutions.

For the first part of the measuring instrument, namely the interview, the managers of these initiatives were chosen. Therefore there were only one respondent at each initiative with whom the interview was conducted. The reason why these individuals

were chosen to interview instead of all the staff members is primarily because these individuals were representative of the research sample and they could provide detailed information on the operations and financial positions of the ventures. As Welman and Kruger stated, it often happens that key informants are chosen as respondents. According to them, these respondents can provide the researcher with more information than regular group members due to their positions (2001:189). This was indeed the case when the research samples were chosen for this study. Since these two respondents represented management of the third income stream initiative, the possibility of subjective answers could not be ignored. Interview questions 4 and 5 were identified as questions on which verification would be necessary. Ten random students were therefore asked to confirm the primary respondents' answers to questions 4 and 5. No interview was conducted with the students and no questionnaires were completed by them. Questions 4 and 5 were merely stated to them and their responses were compared with the responses of the primary respondents.

The questionnaire part of the measuring instrument was completed by the managing personnel interviewed in the first part of the research, the full-time personnel of the centre, as well as lecturers of the institution who were actively involved in activities of the centre within the previous six months. The respondents can therefore be considered as representative of the initiatives, since they constituted the total number of staff members involved in the initiative. A period of six months was decided upon, since it corresponds to the length of one semester at a tertiary institution.

The two initiatives, interviewees, as well as the respondents of the questionnaires are discussed further in more detail.

3.6.1 Description of the respondents

3.6.1.1 Centre for Rapid Prototyping and Manufacturing at the Central University of Technology, Free State (CRPM)

3.6.1.1.1 Background information (CUT, 2004: Online)

The CUT specialises in Rapid Prototyping (RP) technology, used to shorten time-to-

market in the development of new products. The development is done through a concurrent engineering approach, allowing changes at critical stages - not feasible using conventional techniques.

Technologies/expertise offered to industry, by members of the personnel as well as through a network of links with industry, include industrial design, CAD solid-modelling, centrifugal rubber mould castings, gravity casting in silicone moulds, as well as vacuum casting. Prototyping is done through stereolithography (SLA), selective laser sintering (SLS) or Sanders 3D printing. Through the production of STL geometry description (a faceted representation through a triangular mesh), CNC milling also can be done.

Expensive prototypes can be reproduced in thermoset plastics through spincasting or vacuum casting, using silicone moulds to produce functional prototypes.

Through the intervention of stereolithography or selective laser sintering, so-called "bridge-tooling" can be created and tested, to enable test runs with plastic injection moulding. This will result in limited numbers of the product (in the required material) within several days from the approval of the design. Tooling inserts can be grown in stereolithography, selective laser sintering, as well as Sanders 3D printing, and reproduced in aluminium epoxies. If the product passes this test, no further mould changes are required, and the production of the mould can begin immediately - resulting in major time and cost savings.

Using the CRPM as academic partner, many private companies already benefit from NRF/DTI initiatives, such as the THRI-programme, in their development work, which is done in collaboration with the CUT. Companies also benefit from the recent SA Government's Department of Arts, Culture, Science and Technology (DACST) initiative, which supports activities in metals value-adding. One of the exciting developments from this initiative is the involvement of high-tech manufacturing technology to support jewellery manufacturing in the region. CRPM will also play an important role as partner in future DACST innovation fund applications.

Many international OEMs already benefit by having their equipment installed in CRPM, which also acts as an industrial demonstration and benchmarking unit.

3.6.1.1.2 The interviewee

Prof GD Jordaan was chosen as representative of the CRPM. Prof Jordaan is the Executive Dean of the Faculty of Engineering, Information and Communication Technology at the CUT. Since this particular venture was started as a part of the Department of Mechanical Engineering, the centre falls under the management of Prof Jordaan. He was chosen as interviewee due to his extensive information on both the centre as well as the academic faculty in which it resides.

3.6.1.1.3 The questionnaire respondents

The centre had two full time staff members at the time when the research were conducted. The two members of staff together with six lecturers of the CUT who were actively involved in some of the activities of the centre during the previous six months, as well as the interviewee interviewed in the first part of the research process were chosen as respondents of the questionnaires. The total number of respondents were therefore equalled nine.

3.6.1.2 Centre for the Built Environment (CBE) at the School of Civil Engineering & Built Environment

3.6.1.2.1 Background information (Botha, 2004:124)

The Centre for the Built Environment, of which the Business Plan was officially approved by the Council of the Central University of Technology, Free State, is working in direct collaboration with the staff of the School of Civil Engineering and the Built Environment in regard to academic syllabi and the applicable fields of professional expertise for community work, research and training purposes. It is driven by quantity surveyors, professional engineers, engineering technologists/technicians and other contracted specialists.

The CBE is well poised to capitalise on developing opportunities and to turn them into a competitive advantage. The CBE is committed to:

- sustainable technology and research
- operational and management support and the monitoring of projects of industrial partners
- establish a network of partners to promote the communal interest of

the industry

- facilitate postgraduate study activities

A memorandum of understanding has been concluded with the Mangaung Local Municipality. Following this, the on-campus training of just over 300 ward committee members took place over a period of five weeks. Subjects/modules included local, regional and national vision, leadership and teamwork, creative thinking, conflict management and group dynamics, meetings and reports, project implementation and management, community development, environment, financial management and accounting, and life skills.

A memorandum of understanding was entered into with a local water board, resulting in a research project to the value of R1.25million, of which more than half the funds were obtained from the National Research Foundation. A proposal for a Research Niche Area to be funded by the NRF and the CUT, Free State has been submitted: 'Catchment Management Information Systems'. Individual research projects to the amount of R340,000 was approved. A further project proposal was submitted to the Competitive Research Grant of the Comprehensive Assessment of Water Management in Agriculture, an International program of the International Water Management Institute (IWMI) and an amount of US\$75,000 was approved.

On-site training of employees of a contractor, who was appointed by the CSIR monitored the training process.

In typical modern management style the CBE measures its performance against objective criteria. The areas in which performance is measured are as follows:

Education and training:

- Development of study material in accordance with SAQA and SETA guidelines, for training related activities on community projects
- Planning and organisation of personnel for entrepreneurial activities
- Active participation in construction-orientated adult education and study guidance.

3.6.1.2.3 The questionnaire respondents

The centre had one full time staff member at the time when the research was conducted. Apart from this member of staff, two lecturers were actively involved in the activities of the centre during the six month period that preceded the research. These three members of staff as well as the interviewee interviewed in the first part of the research were asked to complete the questionnaires in order to achieve the second research objective. A total of four respondents were therefore asked to complete the questionnaires as respondents.

3.7 How the interviews were conducted

The researcher interviewed both respondents face to face. Appointments were made to conduct the different interviews at the offices of the respondents. This was done to minimise the inconvenience for the respondents and also to ensure that they would be able to supply all necessary information. The interviews took between 45 minutes and one hour to complete. The respondents were provided with information on the research being conducted to enable them to feel part of the research process instead of feeling like subjects. After a short discussion the interview was conducted. The respondents were asked to explain their answers and to provide examples where necessary. The first twelve questions were completely treated as open questions and follow-up questions could be asked when necessary to ensure complete understanding of the answers and concepts involved. All the answers were jotted down in as much detail as possible to ensure that no information got lost in the process. Each respondent was asked whether he had any additional comments, after which the respondent was thanked and the interview concluded. The researcher made sure that she would be welcome to contact the respondent again should any additional information be necessary. As soon as possible after the interviews the researcher summarised the results of the interview.

As already discussed in paragraph 3.6, ten students were randomly chosen to verify the respondents' answers to questions 4 and 5. Questions 4 and 5 were stated to them in an informal manner and their responses to these two questions were

compared with the responses of the primary respondents.

3.8 Completing the questionnaires

The questionnaire part of the measuring instrument was completed by the different respondents at the two initiatives. It was explained to them that they had to choose a response for each statement that best described the his/her opinion. The questionnaires were given to the respondents and they completed the questionnaires in their own time. The researcher remain in the same room in order to handle any potential uncertainties. If necessary, the different statements were better explained to ensure the correct understanding thereof. Any questions that the respondents might have had were better explained. A questionnaire was considered as being completed as soon as a clear response was given for all the statements.

3.9 Data analysis

3.9.1 Interviews

After the successful completion of the interviews, notes were taken by the researcher to compile more detailed summaries of the different interviews. Since the interview was a form of descriptive research, the results of the interviews were considered in order to make conclusions on the relative profitability or success of the individual third income stream initiative. In order to determine whether or not the initiative could indeed be considered as being successful and profitable, the following questions needed to be considered during the evaluation of the interview answers:

1. Did the third income stream sustain itself with regard to cash flow?
2. Did the assets and income grow since the inception of the venture?
3. Did the commercial venture contribute towards the academic education of students?

If the answers to all three these questions were positive, the initiative could indeed

be considered as being profitable and successful. The results of the interviews are discussed in chapter 4.

3.9.2 Questionnaires

The questionnaires provided the researcher with quantitative data which could be statistically analysed in order to evaluate and analyse the existence of the identified success factors at the two third income stream initiatives. The following tests were done to analyse the data:

Mean

According to Hussey and Hussey, a measure of location or central tendency is a convenient way of describing a large frequency distribution by means of a single value (1997:202). The main measure of location in common use are the median, mean and mode. Even though the data collected in the research were relatively small, the mean, median and the mode were calculated for each sub-scale.

The mean is the arithmetic average of a set of scores and it is calculated by using the following formula (Welman & Kruger, 2001:208):

$$\bar{x} = \frac{\sum x}{n}$$

Where:

- x = each observation
- n = the total number of observations
- Σ = the sum of

It was decided to include the mean in the calculations, in order to determine what the average response was per sub-scale.

Median

One of the disadvantages of the mean as measure of locality is that it is greatly affected by outliers (Hussey & Hussey, 1997:206). It was therefore decided to include the calculation of the median since it represents the mid-value in a frequency distribution which has been arranged in size order (Hussey & Hussey,

1997:205). The following formula can be used to calculate the median:

$$M = \frac{n+1}{2}$$

Where:

n = the total number of observations

Mode

The third measure of locality that was calculated, was the mode. The mode represents the most frequently occurring value in a frequency distribution, according to Hussey and Hussey (1997: 207). The mode therefore represents the most popular response to each statement.

Standard deviation

The standard deviation is a measure of variability around the average (Wisniewski, 2002:96). It was therefore decided to calculate the standard deviation for each sub-scale in order to determine the difference between the data set and the mean value. According to Wisniewski, the first step in determining the standard deviation of a population would be to calculate the individual differences between the actual data and the mean (2002:96). The following formula can be used to calculate standard deviation:

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{n-1}}$$

Another way to calculate the standard deviation would be to determine the square root of the variance (Huysamen, 1991: 64).

Variance

According to Huysamen (1991:60), the variance of a collection of scores is defined as the average of the squared deviations from the averages. The variance is therefore the square of the standard deviation. The variance was calculated to determine the variability of the results in order to determine with how much the responses differed from each other.

Internal consistency

Reliability is a measure of squared correlation between observed scores and true scores (Huysamen, 1996:28), while internal consistency (often referred to as reliability) is the extent to which tests or procedures assess the same construct. It is a measure of the precision between the observers or of the measuring instruments used in a study. Cronbach's Alpha (Cronbach, 1951) measures how well a set of items (or variables) measure a single latent construct, and can thus be used as a measure of internal consistency.

The internal consistency of the items of which each sub-scale is comprised was calculated as expressed by the following formula (Cronbach, 1951):

$$\alpha_k = \frac{k^2 S_p^2}{k^2 S_p^2 + k S_{res}^2}$$

Where:

- k = number of items in the group
 S_{res}^2 = the variance of the residual components
 S_p^2 = the variance component for each person.

The formula yields a correlation coefficient, which serves as an indication of the internal consistency of a test. Possible values range from 0 to 1, and the reliability of the test increases as the coefficient's value approaches 1.0 (as a rule of thumb, a test is generally thought to be reliable when the value exceeds 0.65) (Mueller, 1986:54).

The above mentioned statistics were calculated for each sub-scale to determine whether or not the different identified success factors were indeed present at the third income stream initiatives. The results and conclusions are discussed in the following chapter.

3.10 Conclusion

Nine success factors were identified as being crucial in the success of an entrepreneurial venture of a higher education institution. These factors were discussed in more detail in chapter 2. To determine the existence and relevance of these identified success factors, a measuring instrument was compiled in the form of an interview schedule and questionnaire which included an attitude scale. The measuring instrument was developed to achieve the following objectives:

Objective 1:

To determine the relative profitability of the third income stream initiatives.

Objective 2:

To measure and evaluate the existence of the nine critical success factors as identified in chapter 2.

An interview was conducted to achieve the first objective while a questionnaire was developed to achieve the second objective.

Two third income stream initiatives were chosen for this study, namely The Centre for Rapid Prototyping and Manufacturing (CRPM) at the CUT and the Centre for the Built Environment (CPRM) at the school of Civil Engineering and Built Environment at the same higher education institution.

The interviews were conducted with a member of management of both these institutions to enable the researcher to obtain information on the individual third income stream initiatives. The questionnaire, on the other hand, was completed by all the actively involved lecturers during the previous six months as well as the full time staff of the individual centres.

The results of the research will be discussed in the following chapter, and conclusions and recommendations will be made regarding the current and potential

future state of the individual third income stream initiatives in chapter 5.

CHAPTER 4 - Results

4.1 Introduction

From an extensive literature study in chapter 2, nine critical success factors were identified as being imperative to the success of any third income stream initiative. A measuring instrument has been developed to determine the relative profitability or success and to evaluate the existence of the identified success factors at two third income stream initiatives at the CUT. The development of the measuring instrument was discussed in chapter 3 together with the respondents and the research process.

In this section, the results of the research process will be discussed, conclusions will be made and recommendations will be discussed in detail. Since the two third income stream initiatives were not compared with each other, but rather with themselves, the results of the interviews with the two initiatives are discussed separately. On the other hand, the results for both third income stream initiatives of the quantitative part of the research process, namely the results of the questionnaire will be discussed simultaneously.

4.2 Interview results

As already discussed in paragraph 1.2.3 on page 5, the three aspects which imply the profitability of a venture are:

- Positive cash flow
- Growth of income and assets
- Contribution to academic education of students

The interviews with the two respective third income stream initiatives aimed to determine whether or not the above mentioned criteria were met and to acquire background information on the operations and management of the two ventures.

QUESTIONS ON THE CONTRIBUTION THAT THE VENTURE ADDS TO THE ACADEMIC EDUCATION OF STUDENTS, THE UNIVERSITY AND ITS STAKEHOLDERS

Question 4: Do all students have access to the facilities?

All students have controlled access to the facilities, especially post graduate students. Approximately 87% of post graduate projects in the mechanical engineering department are performed in the centre.

Question 5: Does the initiative contribute towards the academic education of students?

Since all lecturers can gain experience in the industry, the knowledge gained in such a way can only contribute towards the ultimate academic education of the students. The exposure of lecturers as well as the exposure of students can only contribute towards the academic education of the students.

Question 6: Who participates in the operations of the venture/initiative?

Students and lecturers of the university, as well as personnel who are exclusively employed by the Centre participates in the operations of the venture.

QUESTIONS ON THE CASH FLOW OF THE VENTURE

Question 7: How does it compliment the first and second income stream responsibilities?

The CRPM contributes to the first and second income streams of the university. Apart from funding its own operations and in the process acquiring resources in the form of machinery and equipment for the Faculty, it contributes to the total income of the university as an institution.

It also provides previously disadvantaged students with the opportunity to work part-time at the centre. More than R140,000 are paid annually to students who work at the centre. These funds can be used by students to complete and further their studies.

Question 8: Is the entrepreneurial activity self-sufficient with regard to funding?

Yes, completely self-sufficient.

QUESTIONS ON THE GROWTH OF THE ASSETS AND INCOME OF THE VENTURE

Question 9: How did the turnover grow since the start of the venture?

The turnover grew from R175,000 in 1999 to approximately R2,4 million in 2004. Indicating a phenomenal growth over the period of 5 years.

Question 10: How did the assets grow since the start of the venture and who does it belong to?

A number of assets in the form of primarily manufacturing equipment and machinery were acquired by the centre in the time-frame since incorporation. These assets belong ultimately to the CUT, but the centre has full management rights on these resources and any funds arising thereof. The total assets at incorporation in 1999 was approximately R2,5 million and it grew to approximately R25 million in 2004. These assets were all funded by the Centre as a stand-alone entity and no additional funds were acquired from the university to fund these assets. The centre did, however, receive grants from institutions like the NRF as well as industrial partners. The NRF funds research done by the centre to enable research in new technologies and the implementation of new technology and products in the industry. Research funding by institutions such as the NRF as well as the partnerships with industrial partners, therefore contributes to the industry in which the centre functions. Industrial partnerships are therefore considered as being beneficial to all parties involved.

Question 11: To what do you ascribe the growth in the turnover and assets?

There are four primary reasons which contributed or resulted in the growth of the turnover and assets, namely:

- extension and enhancements of technology,
- acceptance of technology by industry,
- marketing of the centre,
- and technology transfer initiatives of the Department of Trade and Industry.

QUESTION ON THE GENERAL OUTCOMES OF THE INITIATIVE

Question 12: What are the outcomes of the third income stream initiative?

- .. increased use of specialised technology in the industry,
- .. better relationship between the university and the industry,
- .. exposure of students and lecturers to industry,
- .. marketing the Faculty of Engineering and
- research expertise are encouraged and accomplished in the country.

4.2.1.2 Conclusion

The interview provided a substantial amount of information on the background of the Centre of Rapid Prototyping and Manufacturing at the CUT. The second objective of these questions was to determine whether or not the initiative could indeed be described as being successful and profitable. As already discussed in paragraph 1.2.3 on page 5, the following aspects can be considered as being present at a successful and profitable third income stream initiative:

1. Positive cash flow
2. Growth of income and assets
3. Contribution to academic education of students

It was concluded that all three aspects were present. This third income stream did not only sustain itself with regard to cash flow, but contributed to the first and second income streams of the university. Furthermore, the assets and income of this venture grew over the course of its existence which showed that the centre was not only sustainable but showed significant growth as a commercial entity over the last few years. As discussed in paragraph 3.6 and 3.7, questions 4 and 5 were randomly asked to ten students in order to verify the responses of the primary respondents. The primary respondent replied to question 4 and 5 that all students have controlled access and lecturers and students alike can gain valuable industry experience through the facilities of the initiative. All ten students verified this response. They considered the initiative to be advantageous to their education by providing them with an idea of what the realities of industry are.

The CRPM could therefore be considered as being profitable and successful

according to the requirements and aspects identified in this research.

In the following section the existence of the identified success factors in this commercial entity will be evaluated and furthermore the relative importance of the success factors, according to the respondent will be evaluated.

4.2.2 Centre for the Built Environment (CBE) at the School of Civil Engineering & Built Environment

4.2.2.1 Discussion of interview answers

QUESTIONS TO PROVIDE BACKGROUND INFORMATION ON THE VENTURE

Question 1: What type of third income stream initiative are you involved in?

The Centre for Built Environment (CBE) is a service orientated organisation, contracting expertise of academics and contractors to industry participants.

Question 2: Why was the third income stream initiative established?

The CBE was established primarily to provide the department, faculty and university as a whole with a third income stream which compliments the traditional first and second income streams. Secondly, the benefits of lecturers who gained experience in the industry were identified and the centre provided the opportunity for lecturers and students alike to gain exposure to the industry.

Question 3: What are the goals and objectives of the venture?

The primary goals and objectives can be summarised as follows:

- The first goal is to provide the university with a third income stream opportunity.
- Secondly, a goal of the centre is to provide lecturers with exposure to the industry, since many lecturers start lecturing without ever being exposed to practice.

QUESTIONS ON THE CONTRIBUTION THAT THE VENTURE ADDS TO THE ACADEMIC EDUCATION OF STUDENTS, THE UNIVERSITY AND ITS STAKEHOLDERS

Question 4: Do all students have access to the facilities?

Although the CBE is not a manufacturing organisation with machinery and technology to which students could have access, the centre does provide students with opportunities to gain access to knowledge and technology in industry. Among other projects, the centre has a program (CHESP) which forms part of the student's academic course. The students get the opportunity to visit building and construction sites to interact with engineers and builders. It provides them with the opportunity to compare what they have learned in theory with reality in practice. All parties involved can exchange knowledge and build their expertise. Students get credit from their courses once they attended these excursions.

Question 5: Does the initiative contribute towards the academic education of students?

Definitely. As explained in the previous answers, the CBE provides opportunities for lecturers and students to gain exposure to industry which can only contribute to the academic education of students. Furthermore, the centre provides research opportunities for the institution as well as external parties.

Question 6: Who participates in the operations of the venture/initiative?

The following role players participate in the operations of the venture:

- students,
- lecturers,
- external institutions and
- external consultants.

QUESTIONS ON THE CASH FLOW OF THE VENTURE

Question 7: How does it compliment the first and second income stream responsibilities?

The CBE provides a third income stream to the Central University of Technology Free State since it provides the institution with additional income, which compliments the first and second income streams.

Question 8: Is the entrepreneurial activity self-sufficient with regard to funding?

The centre is completely self-sufficient with regard to funding, since it funds its own expenses from income gained and does not have to acquire any additional funds from the institution in order to be sustainable.

QUESTIONS ON THE GROWTH OF THE ASSETS AND INCOME OF THE VENTURE

Question 9: How did the turnover grow since the start of the venture?

The turnover grew from approximately R300,000 to R3 million per year from 2001 to 2005. These figures indicate a remarkable growth rate over the period of 5 years. A profit of R400,000 is projected for the 2005 financial year.

Question 10: How did the assets grow since the start of the venture and who does it belong to?

A number of assets were acquired in the time-frame since incorporation. The growth in assets is estimated to be approximately 30% from start-up. These assets were all funded by the centre as a stand-alone entity and no additional funds were acquired from the university to fund these assets. All the assets are the property of the CUT, while the centre has full management function thereof.

Question 11: To what do you ascribe the growth in the budget, turnover and assets?

The most important reason why the assets and income showed such phenomenal growth must be the fact that the CBE markets and advertise itself. Through word of mouth more and more role players are getting familiar with the services that the centre renders.

QUESTION ON THE GENERAL OUTCOMES OF THE INITIATIVE

Question 12: What are the outcomes of the third income stream initiative?

The current outcomes of the CBE can be summarised as follows:

- lecturers and students gain exposure to industry,
- the centre provides a marketing tool for the university, since more external people are getting familiar with the courses and even the services that the centre has to offer,

- more research is being done,
- the community benefits from courses and training initiatives. These courses range from basic literacy courses to more advanced skills courses in the form of, for example, basic accountancy courses and
- the centre provides a third income stream which compliments the first and second income streams of the institution as a whole.

4.2.2.2 Conclusion

The interview provided a substantial amount of information on the background of the Centre for Build Environment at the CUT. The second objective of these questions was to determine whether or not the initiative could indeed be described as being successful and profitable. As already discussed in paragraph 1.2.3 on page 5, the following aspects can be considered as being present at a successful and profitable third income stream initiative:

1. Positive cash flow
2. Growth of income and assets
3. Contribution to academic education of students

It was concluded that all three the aspects were present. This third income stream did not only sustain itself with regard to cash flow, but contributed to the first and second income streams of the university. Furthermore. the assets and income of this venture grew over the course of its existence which showed that the centre was not only sustainable but showed significant growth as a commercial entity over the last few years. When the answers to questions 4 and 5 were verified by asking ten random students, it was obvious that this venture did indeed contribute towards the academic education of the students. The students verified the CHESP program which formed part of their studies and explained that they considered the centre as an advantage since they could experience industry while studying, which enabled them to ensure that they were indeed studying the right course and better equipped them for when they completed their studies.

The CBE could therefore be considered as being profitable and successful according to the requirements and aspects identified in this research.

4.2.3 Chapter conclusions

As already discussed in paragraph 1.2.3 on page 5, the following aspects can be considered as being present at a successful and profitable third income stream initiative:

- Positive cash flow
- Growth of income and assets
- Contribution to academic education of students

The CRP as well as the CBE could be considered as being profitable and successful according to the requirements and aspects identified in this research. Apart from being profitable and successful as measured against the set benchmarks, these initiatives have some additional advantages that they contribute towards the university, such as:

- Promotion of the Central University of Technology and the courses offered.
- Promotion of research.
- Acquiring of skills and knowledge.
- Increased personnel involvement.
- Additional income opportunities for students and lecturers.
- Enhancement of the community due to partnerships with external role-players.
- Enhancement of industry through better educated students.

In the following section the existence of the identified success factors at these commercial entities will be evaluated.

4.3 Questionnaire results

4.3.1 Discussion of results

Success factor 1: Strengthened administration

Table 4.1 Values of responses: Sound administration

Respondents	Centre for Rapid Prototyping and Manufacturing									Centre for Built Environment			
	R 1	R 2	R 3	R 4	R 5	R 6	R 7	R 8	R 9	R 1	R 2	R 3	R 4
Statement 1	3	4	4	4	3	5	4	4	4	4	5	4	5
Statement 2	3	4	4	4	4	5	4	3	4	4	4	3	4

Table 4.2 Scale statistics: Sound administration

Groups	n	Mean	Median	Mode	s	s ²	α_k
(N=13)							
CRPM	9	3,94	4,00	4	0,620	0,390	0,735
CBE	4	4,13	4,00	4	0,600	0,360	0,727

To test for the sound administration sub-scale, the following statements were used:

Statement 1: Decisions are made quickly and timely.

Statement 2: There is no reliable source of information as basis for decision-making.

Table 4.1 (above) shows the values of the respondents' responses to statements 1 and 2, while the summary statistics for the sound administration sub-scale is reported in table 4.2 (above). Judging by the mean of the scores (with a maximum possible value of 5), both groups agreed that sound administration practices were present in their respective third income stream initiatives. The mode for both groups equalled 4, implying that the most common responses were 'agree' for items stated positively and 'disagree' for negatively stated items. Item variance was very similar between both of the respondent groups. The internal consistency of the sub-scale remained satisfactory between the two groups, ranging from 0.735 to 0.727.

Success factor 2: Goals and Objectives

Table 4.3 Values of responses: Goals and objectives

Respondents	Centre for Rapid Prototyping and Manufacturing									Centre for Built Environment			
	R 1	R 2	R 3	R 4	R 5	R 6	R 7	R 8	R 9	R 1	R 2	R 3	R 4
Statement 3	4	4	4	4	4	4	5	4	4	5	4	5	4
Statement 4	4	4	5	4	4	4	5	4	4	4	3	4	4

Table 4.4 Scale statistics: Goals and Objectives

Groups (N=13)	n	Mean	Median	Mode	s	s ²	α_k
CRPM	9	4,17	4,00	4	0,370	0,140	0,778
CBE	4	4,13	4,00	4	0,600	0,360	0,727

In order to test whether or not the initiatives have set goals and objectives the following statements were used:

Statement 3: The direction of the business is determined by goals and objectives.

Statement 4: The personnel never know exactly what the goals and objectives of the business are.

Table 4.4 (above) represents the summary statistics for the goals and objectives sub-scale. When the mean (with a maximum possible value of 5), is considered it is eminent that both groups agreed that goals and objectives are indeed implemented at the respective third income stream initiatives. The mode for both groups equalled 4, implying that the most common responses were 'agree' for statement 3 and 'disagree' for statement 4. The individual difference between the actual data and the mean was 0.370 for CRP and 0.600 for CBE. This implies that the CBE responses for the same sub-scale varied more than the CRP responses. The internal consistency of the sub-scale remained satisfactory between the two groups, ranging from 0.778 to 0.727.

Success factor 3: An innovative and creative entrepreneurial approach**Table 4.5 Values of responses: Innovative and creative entrepreneurial approach**

Respondents	Centre for Rapid Prototyping and Manufacturing									Centre for Built Environment			
	R 1	R 2	R 3	R 4	R 5	R 6	R 7	R 8	R 9	R 1	R 2	R 3	R 4
Statement 5	4	4	4	4	3	4	4	3	4	4	4	5	5
Statement 6	4	4	3	3	3	4	3	4	4	5	4	4	5
Statement 7	5	5	4	4	4	5	4	4	5	5	4	4	5
Statement 8	4	5	4	4	4	5	4	4	4	5	4	4	5

Table 4.6 Scale statistics: Innovative and creative entrepreneurial approach

Groups (N=13)	n	Mean	Median	Mode	s	s ²	α_k
CRPM	9	4,00	4,00	4	0,580	0,330	0,774
CBE	4	4,50	4,50	4	0,500	0,250	0,800

In order to test whether or not the initiatives had an innovative and entrepreneurial approach, statements 5, 6, 7 and 8 were used to test for this sub-scale.

Statement 5: *The venture has an entrepreneurial approach towards its day-to-day activities.*

Statement 6: *Innovation is not particularly motivated*

Statement 7: *Idea generation is constantly encouraged*

Statement 8: *Not many opportunities are created that enable employees to be more creative.*

This sub-scale comprised of 4 statements and the summary statistics is given in table 4.6 (above). The mean of the scores (with a maximum possible value of 5), implied that both groups agreed that the individual initiatives considered innovation and a creative entrepreneurial approach to be present in their respective third income stream initiatives. The CRP group had a mean of 4.00 while the CBE's mean was 4.50. This implied that, according to the CBE population, this success factor was implemented to a greater extend at their initiative than at the CRP. The mode for both groups equalled 4, implying that the most common responses were 'agree' for items stated positively and 'disagree' for negatively stated items. Item variance for CRP was higher (0.330) than the item variance for CBE (0.250). The internal

consistency of the sub-scale was relatively high at 0.800 for CRP and 0.774 for CBE.

Success factor 4: Aligned commitment

Table 4.7 Values of responses: Aligned commitment

Respondents	Centre for Rapid Prototyping and Manufacturing									Centre for Built Environment			
	R 1	R2	R3	R4	R5	R6	R7	R8	R9	R1	R2	R3	R4
Statement 9	4	4	4	3	4	4	4	5	5	5	4	5	4
Statement 10	4	4	3	4	3	4	3	4	4	5	4	4	4
Statement 11	5	5	4	4	4	5	4	4	5	5	5	5	5
Statement 12	4	5	3	4	3	4	4	4	5	5	4	5	4

Table 4.8 Scale statistics: Aligned commitment

Groups (N=13)	n	Mean	Median	Mode	s	s ²	α_k
CRPM	9	4,06	4,00	4	0,620	0,390	0,754
CBE	4	4,56	5,00	5	0,500	0,250	0,790

Statements 9, 10, 11 and 12 were used to test for the presence of this success factor:

Statement 9: Everybody in the business is aligned and committed towards the same goals.

Statement 10: There is not enough communication between personnel and management.

Statement 11: Involvement of employees is encouraged.

Statement 12: Nobody considers teamwork to be very important.

Table 4.8 (above) shows the summary statistics for the aligned commitment sub-scale. Judging by the mean of the scores (with a maximum possible value of 5), the CBE group considered the employees and role-players of their initiative to be more aligned towards their initiative's goals and objectives than the CRP group. The mode for the CRP was 4 while it was 5 for CBE, implying that the majority of CRP responses were 'agree' for positive statements and 'disagree' for negative statements while the majority of CBE responses were 'definitely' for the positive items and 'not at all' for the negative items. Item variance was very similar

between both of the respondent groups. The internal consistency of the sub-scale remained satisfactory between the two groups, ranging from 0.754 to 0.790.

Success factor 5: Motivated employees

Table 4.9 Values of responses: motivated employees

Respondents	Centre for Rapid Prototyping and Manufacturing									Centre for Built Environment			
	R 1	R2	R3	R4	R5	R6	R7	R8	R9	R1	R2	R3	R4
Statement 13	3	4	3	2	2	4	2	2	4	4	3	4	5
Statement 14	4	4	3	3	4	4	3	4	4	5	4	4	5
Statement 15	3	4	4	2	2	5	2	4	5	5	5	4	5
Statement 16	3	4	4	3	3	4	3	3	4	4	5	4	5

Table 4.10 Scale statistics: Motivated employees

Groups (N=13)	n	Mean	Median	Mode	s	s ²	α_k
CRPM	9	3,36	3,50	4	0,850	0,730	0,833
CBE	4	4,56	5,00	5	0,500	0,250	0,762

Statements 13, 14, 15 and 16 were used to test for the presence of this success factor:

Statement 13: All the employees are inspired and motivated by the environment.

Statement 14: The level of job satisfaction is very low.

Statement 15: Everybody is motivated to do their jobs well.

Statement 16: Everybody is just doing their jobs to receive a salary each month.

The summary statistics for the motivated employees sub-scale is reported in table 4.10 (above). When the mean of the scores (with a maximum possible value of 5), was considered, it was eminent that both groups agreed that the personnel were motivated at the respective third income stream initiatives. The mode for the groups equalled 4 and 5, implying that the majority of the CRP respondents responded with an 'agree' to statements 13 and 15 and a 'disagree' to statements 14 and 16, while the majority of the CBE respondents replied with a 'definitely' to

statements 13 and 15 and a 'not at all' response to statements 14 and 16. Item variance was very similar between both of the respondent groups. The internal consistency of the sub-scale ranged between 0.833 and 0.722. This could be considered as a satisfactory consistency.

Success factor 6: Partnership with the community

Table 4.11 Values of responses: Partnership with the community

Respondents	Centre for Rapid Prototyping and Manufacturing									Centre for Built Environment			
	R 1	R 2	R 3	R 4	R 5	R 6	R 7	R 8	R 9	R1	R2	R3	R4
Statement 17	3	4	3	4	3	3	4	4	5	5	4	4	4
Statement 18	3	5	3	5	4	4	5	4	5	5	3	4	4

Table 4.12 Scale statistics: Partnership with the community

Groups (N=13)	n	Mean	Median	Mode	s	s ²	α_k
CRPM	9	3,94	4,00	4	0,780	0,610	0,868
CBE	4	4,13	4,00	4	0,600	0,360	0,842

The scale statistics of the partnership with the community sub-scale is represented in table 4.12 (above). This sub-scale comprised of the following 2 statements:

Statement 17: All members in the initiative are committed to community service.

Statement 18: The community is not considered as an important role player in the success of the venture.

When the mean (with a maximum possible value of 5), is considered it is eminent that both groups agreed that the individual initiatives had partnerships with the community. The mode for both groups equalled 4, implying that the most common responses were 'agree' for statement 17 and 'disagree' for statement 18. The individual difference between the actual data and the mean was 0.780 for CRP and 0.600 for CBE. This implies that the CRP responses for the same sub-scale varied more than the CBE responses. The similar internal consistency scores of this sub-scale remained satisfactory between the two groups, ranging from 0.868 to 0.842.

Success factor 7: Globalisation

Table 4.13 Values of responses: Globalisation

Respondents	Centre for Rapid Prototyping and Manufacturing									Centre for Built Environment			
	R 1	R 2	R 3	R 4	R 5	R 6	R 7	R 8	R 9	R 1	R 2	R 3	R 4
Statement 19	5	4	5	5	5	5	5	4	5	4	5	4	5
Statement 20	5	4	5	5	5	5	5	5	5	5	5	4	5

Table 4.14 Scale statistics: Globalisation

Groups (N=13)	n	Mean	Median	Mode	s	s ²	α_k
CRPM	9	4,83	5,00	5	0,370	0,140	0,778
CBE	4	4,63	5,00	5	0,480	0,230	0,727

Table 4.14 (above) shows the scale statistics for the globalisation sub-scale. In order to test for the presence of this success factor the following statements were used:

Statement 19: The initiative has strategic alliances and partnerships with international universities.

Statement 20: There is not much to learn from international universities.

When the mean of the scores (with a maximum possible value of 5), was considered, it was eminent that both groups agreed that the initiatives had partnerships with international universities and that they agreed that there is much to learn from international universities. The mode for the groups equalled 5. This implied that the majority responses for both groups were 'definitely' on statement 19 and 'not at all' on statement 20. Item variance was relatively low with a variance of 0.140 for CRP and 0.230 for CBE. The internal consistency of the sub-scale was very similar at 0.833 and 0.722.

Success factor 8: An academic heartland**Table 4.15 Values of responses: An academic heartland**

Respondents	Centre for Rapid Prototyping and Manufacturing									Centre for Built Environment			
	R 1	R 2	R 3	R 4	R 5	R 6	R 7	R 8	R 9	R 1	R 2	R 3	R 4
Statement 21	5	5	5	5	4	5	4	5	5	4	4	3	4
Statement 22	5	5	4	5	4	5	4	5	5	5	4	3	4

Table 4.16 Scale statistics: An academic heartland

Groups (N=13)	n	Mean	Median	Mode	s	s ²	α_k
CRPM	9	4,72	5,00	5	0,450	0,200	0,857
CBE	4	3,88	4,00	4	0,600	0,360	0,842

The scale statistics for this success factor are given in table 4.16 (above). Statements 21 and 22 were used to test for the presence of this success factor:

Statement 21: The initiative apply the knowledge and research acquired by the university.

Statement 22: The proficiency of the lecturers is not the main concern of the university anymore.

Both groups agreed that the individual initiatives still considered academic education as a very important function of the university at which they operated. The CRP group did, however, consider this success factor to be present at their initiative to a greater extend than the CBE group considered it to be implemented at their initiative. This is eminent when the means of the scores (4.72 and 3.88) are considered. The mode for the CRP group was 5 while the same score for the CBE was 4. This implied that the majority of the CRP responses were 'definitely' on statement 21 and 'not at all' to statement 22, while the majority of CBE responses were 'agree' to statement 21 and 'disagree' to statement 22. The individual difference between the actual data and the mean was 0.450 for CRP and 0.600 for CBE. This implies that the CBE responses for the same sub-scale varied more than the CRP responses. The similar internal consistency scores of this sub-scale remained satisfactory between the two groups, ranging from 0.857 to 0.842.

Success factor 9: Service delivery**Table 4.17 Values of responses: Service delivery**

Respondents	Centre for Rapid Prototyping and Manufacturing									Centre for Built Environment			
	R 1	R 2	R 3	R 4	R 5	R 6	R 7	R 8	R 9	R 1	R 2	R 3	R 4
Statement 23	4	4	4	4	4	4	4	4	4	5	4	4	4
Statement 24	2	3	2	2	3	4	3	3	4	4	4	3	4
Statement 25	4	5	4	4	5	5	4	5	5	5	4	4	4
Statement 26	3	4	3	3	4	4	4	4	4	4	4	4	4

Table 4.18 Scale statistics: Service delivery

Groups (N=13)	n	Mean	Median	Mode	s	s ²	α_k
CRPM	9	3,78	4,00	4	0,790	0,620	0,803
CBE	4	4,06	4,00	4	0,430	0,180	0,702

Statements 23, 24, 25 and 26 were used to test for the presence of this success factor:

Statement 23: Satisfied customers is a very important goal.

Statement 24: The centre's performance with regard to customer service is never measured.

Statement 25: All the employees are very competent to do their jobs.

Statement 26: The centre's performance is not managed to improve service delivery.

The scale statistics for the service delivery sub-scale are given in table 4.18 (above). Both groups agreed that service delivery was a very important success factor at their individual initiatives. The CBE had a mean score of 4.06, while the CRP had a lower mean score of 3.78. The mode for both initiatives was 4. This implied that the majority of the responses were 'agree' on statements 23 and 25 and 'disagree' to statements 24 and 26. The individual difference between the actual data and the mean was 0.790 for CRP and a lower 0.430 for CBE. This implies that the CRP responses for the same sub-scale varied more than the CBE responses. The internal consistency of the sub-scale remained satisfactory between the two groups, ranging from 0.803 to 0.702.

4.3.1.1 Conclusion

Figure 4.1, page 94, showed the mean scores for all nine success factors of both groups. This graph confirmed that all nine success factors were indeed implemented to a greater or lesser extent at both initiatives, since all the scores were above '3'. Figure 4.2, page 94, confirmed by showing that the majority of the responses at both the CBE and CRP obtained a score of either 4 or 5.

Globalisation was, however, the success factor with the highest mean score at both initiatives. Figure 4.3 on page 95 confirmed the presence of this success factor, since it showed the relatively low variance. Globalisation can therefore be considered as the success factor which is implemented at both these initiatives to the greatest extent.

The other eight success factors, though present at both initiatives, differ in degree of implementation, for example: Vision goals and objectives is the third highest success factor at CRP while it is the seventh highest implemented factor at CBE. The extent of the presence of service delivery is also noteworthy. This very important critical success factor was the second lowest implemented factor at both initiatives. As profit orientated entities, it would be necessary for these institutions to re-evaluate the importance of this success factor. An academic heartland, although lowest at CBE was the second highest implemented success factor at CRP. The lowest mean score was obtained by the motivated employees success factor. This success factor did however, obtain the second place at the CBE.

FACTORS DETERMINING THE PROFITABILITY OF A COMMERCIAL ENTERPRISE AT A HIGHER EDUCATIONAL INSTITUTION

Figure 4.1 Mean scores



Figure 4.2 Mode scores

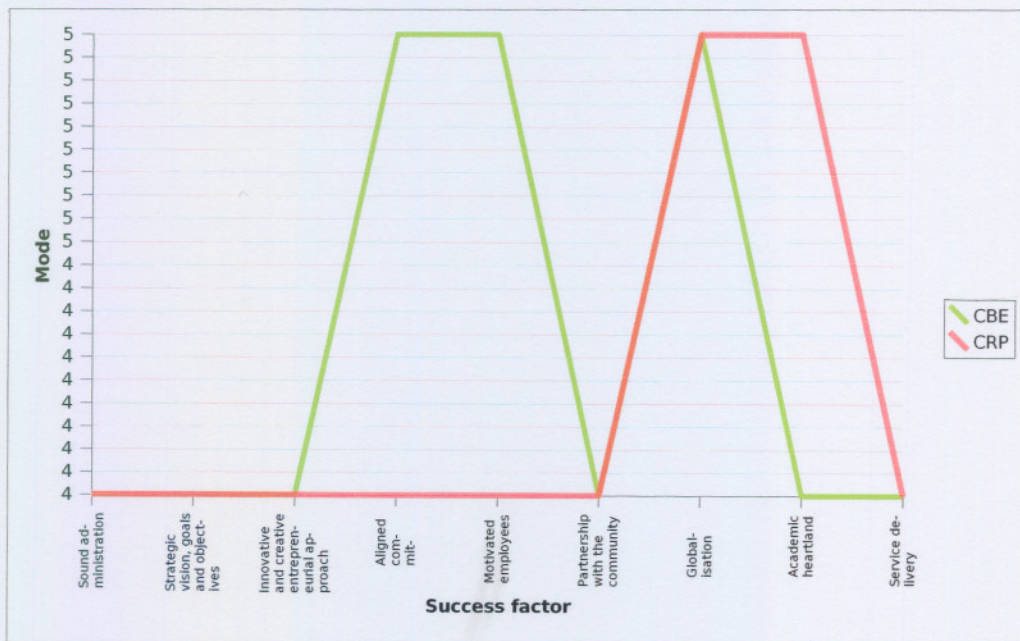


Figure 4.3 Variances



The success factors are listed below in order of their mean scores (See figure 4.1, page 94).

Centre for Rapid Prototyping and Manufacturing (CRPM)

1. Globalisation
2. Academic heartland
3. Strategic vision, goals and objectives
4. Aligned commitment
5. Innovative and entrepreneurial approach
6. Sound administration
7. Partnership with the community
8. Service delivery
9. Motivated employees

Centre for the Built Environment (CBE)

1. Globalisation
2. Motivated employees
3. Aligned commitment
4. Innovative and entrepreneurial approach

5. Partnership with the community
6. Sound administration
7. Strategic vision, goals and objectives
8. Service delivery
9. Academic heartland

4.3.2 Conclusions

This chapter was dedicated to the discussion of the research results. The results were discussed in the two parts in which it was undertaken, namely the interview with the interviewees and then the questionnaire results as completed by the respondents of the initiatives.

From data collected via the interviews it was eminent that both initiatives could be considered as being profitable and successful. The second part of the research showed that all nine success factors identified in chapter 2, were indeed implemented at these two initiatives.

The research process will be concluded in the following chapter and recommendations will be made.

CHAPTER 5 - Conclusions and Recommendations

5.1 Introduction

The existence of nine critical success factors, which were identified by means of an extensive literature study discussed in chapter 2, were investigated and evaluated at two third income stream initiatives at the CUT. Interviews were conducted with managing members of the initiatives in order to determine the relative profitability and success of the ventures and also to acquire background information on these two ventures. The identified success factors were evaluated by means of questionnaires which were completed by staff members of the university who were actively involved in the activities of the third income stream initiatives during the previous six months. The results of the research process were discussed in chapter 4. The aim of this chapter is to make conclusions and recommendations based on these results.

5.2 Objectives and conclusions

5.2.1 Research objectives

As stated in paragraph 1.2.4, page 7, the research objectives of this research were as follows:

Primary objective:

- The identification of specific success factors necessary to ensure the desirable implementation and operation of third income stream initiatives at higher education institutions in South Africa. In this regard a third income stream initiative can be considered as being successful or profitable if the initiative provides the institution with financial benefit and contributes

towards the prime objective of the tertiary institution by means of providing students and lecturers with practical exposure.

Secondary objective:

- The evaluation of two initiatives at a tertiary institution in South Africa, at the hand of the identified critical success factors, to determine the presence of the factors. In order to identify the presence of the factors, it is necessary to first evaluate the relative success of the two initiatives at the tertiary institution.

The result of the interviews was that both third income stream initiatives could be considered as being profitable. The profitability of the initiatives were measured against the benchmarks that were set for this specific study, and it was eminent that these commercial ventures provided the institution of which they are apart of, with an additional source of income. Apart from the income generation, they both showed substantial growth with regard to their assets and income. They could therefore, without a doubt, be considered as being sustainable. In addition to sustainability, both these initiatives contributed to the education of students since it provided both students and lecturers with the opportunities to gain experience and knowledge of industry and practice.

Apart from being profitable, the two initiatives manifested additional advantages as were identified during the interviews. These advantages include:

- Promotion of the Central University of Technology and the courses offered.
 - Promotion of research.
 - Acquiring of skills and knowledge.
 - More involved personnel.
 - Additional income opportunities for students and lecturers.
- Appendix 1
Questionnaire
- Enhancement of the community due to partnerships with external role-players.
 - Enhancement of industry through better educated students.

In the second part of the research process, namely the analysis of the questionnaire results, it was attempted to determine whether or not the factors that were identified from the literature study as being necessary to ensure success at a commercial venture, were indeed implemented at these two initiatives. As already discussed in paragraph 4.3.2, all nine success factors were indeed implemented at the two initiatives to a greater or lesser extend. Globalisation was the success factor with the highest mean score and a relatively low variance.

It is important to note again that the two initiatives were not compared with each other, but rather against the presence of the nine success factors within themselves. The following conclusions could be made:

- All nine success factors were indeed implemented at both initiatives.
- Globalisation was the success factor which was implemented to the greatest extend.
- Although service delivery was implemented, it was the success factor with the second lowest mean value at both initiatives. This implied that it was implemented to a lesser extend at both initiatives.
- It was impossible to rate the factors according to importance, due to the small research sample and the differences in the extend of implementation at the two initiatives .

When the results and conclusions of the research process were considered the conclusion could be made that it is indeed possible to identify certain critical enabling factors which contribute toward the success of a third income stream initiative as part of a tertiary institution (research objective 1). Chapter 2 was dedicated to identifying nine critical factors from an extensive literature study after which the existence of these critical factors were evaluated at two third income stream initiatives. The nine success factors were identified as:

- A strengthened administrative core
- Goals and objectives
- An innovative and creative entrepreneurial approach
- Aligned commitment
- Motivated employees
- Partnership with the community

- Globalisation
- An academic heartland
- Service delivery

The first objective of this research was therefore obtained by identifying these nine critical success factors.

The second objective of the research was to evaluate the identified success factors at the third income stream initiatives. The profitability and success of these ventures were first considered before the existence of the factors could be evaluated. Three characteristics were identified as being present at a successful third income stream initiative, namely:

- Positive cash flow
- Growth of income and assets
- Contribution to academic education of students

Both third income stream initiatives that participated in the research were identified as being profitable and successful since all three characteristics of a profitable venture were present at the initiatives.

After the conclusion that the third income stream initiatives were indeed profitable and successful, it was possible to evaluate the existence of the nine critical success factors (identified in chapter 2) at the two initiatives. This was done by means of a qualitative research process. The second objective was therefore achieved by determining the relative profitability of the venture and then by evaluating the presence of the identified success factors at the two third income stream initiatives. The two initiatives were found to be profitable and successful and the nine identified success factors were found to be implemented at both the initiatives, to a greater or a lesser extent.

The overall conclusion that could be made was that the nine critical success factors identified in the literature study, as being imperative to the success of a commercial venture, were indeed present at these two profitable and successful third income stream initiatives. It could therefore be concluded that the factors identified in the literature study were indeed critical factors, necessary to ensure success and profitability of a commercial venture which is part of a higher

education institution.

5.3 Recommendations

Certain aspects that needed extensive attention were identified at the two institutions that participated in the study.

5.3.1 Aspects that needed attention

The following aspects at the CRPM needed attention:

- Motivation of employees
- Job satisfaction
- Service delivery
- How to deliver better customer service
- Satisfaction of clients' and customers' needs and wants
- Measuring of performance with regard to customer service
- Management of performance

The following aspects were identified at the CBE:

- The centre should be considered and used as an important tool to improve the proficiency of the lecturers and personnel
- The university and centre should still consider the proficiency of the lecturers as the most important priority
- Service delivery
- How to deliver better customer service
- Satisfaction of clients' and customers' needs and wants
- Measuring of performance with regard to customer service
- Management of performance

5.3.2 Recommended actions

It is recommended that the following actions be taken by the individual initiatives in order to increase their profitability and success:

Centre for Rapid Prototyping and Manufacturing:

- Action should be taken to improve motivation among staff members. Firstly, the needs of the personnel should be evaluated to determine what could be done in order to increase their motivation and job satisfaction levels.
- Customer needs and wants should be evaluated in order to better satisfy existing shortcomings. Increased knowledge about the customers will dramatically improve the level of service delivery.
- Employees' level of customer service needs to be measured and managed in order to improve customer service and ultimately customer satisfaction.

Centre for the Built Environment:

- The priorities of the university and the centre should be reconsidered. The importance of the academic proficiency of the lecturers and the university as a whole should remain the first and foremost priority of the university.
- As with the CRPM, the CBE should take action to improve motivation among staff members. It can include a number of different elements, but to ensure success, it is necessary to establish the needs of the personnel before any attempts are made to motivate them.

5.3.3 Responsible parties

After evaluating the situation with regard to the identified success factors at the two third income stream initiatives, recommendations could be made. It is however important to know who is responsible for implementing these recommended action steps.

It is common knowledge that, as the word suggests, management of a business is

ultimately responsible for the operations and functioning of the business. This implies that management is therefore also responsible for ensuring the presence of the nine identified critical success factors. Not only should they ensure that these factors are implemented, but also that the success of the activities and therefore the success of these factors are monitored and evaluated on an ongoing basis. After establishing and acknowledging that management is ultimately responsible, it is necessary to differentiate between the role of management of the entrepreneurial activity and management of the tertiary institution.

Since the managers of the tertiary institution is responsible for the well-being of the university, they are also ultimately responsible for the well-being of any entrepreneurial activity which forms part of the institution. It is however, important to note that management of the commercial entity is primarily responsible for the success of the venture. Management of the university should therefore equip the responsible parties of the entrepreneurial activity with all the necessary authority and freedom to manage and direct the activities and operations of the venture and to ensure the implementation of the identified success factors.

5.4 Further research and concluding remarks

Tertiary institutions around the world have to implement strategies to improve sustainability and growth in order to survive the changing environment that they have to function in. Drastic changes and amendments need to be considered by all members of staff with regard to functioning and profitability of third income stream initiatives and tertiary institutions alike.

Not much research has been done on this particular topic and, as already discussed in the preceding chapters, role players are now finding themselves in new territories. Hopefully this research study can shed some light in the relative darkness in which entrepreneurial centres are currently finding themselves. It would however, be worthwhile to identify the relationship between the nine critical success factors identified in this study with the profitability and sustainability of third income stream initiatives at tertiary institutions on a national or even an

international level. A more detailed 'recipe' for success can be identified and customised for every type of third income stream initiative. Since every initiative is different in so many aspects, their differences and similarities should be considered to enable the role-players to implement and manage the most desired and profitable strategies.

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Appendices

Appendix 1 Questionnaire

- | | | | | | |
|--|-------------------------------------|-----------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| 1. Decisions are made quickly and timely. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 2. There is no reliable source of information as basis for decision-making | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 3. The direction of the business is determined by goals and objectives. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 4. The personnel never know exactly what the goals and objectives of the business are. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 5. The venture has an entrepreneurial approach towards the day-to-day activities | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 6. Innovation is not particularly motivated. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 7. Idea generation is constantly encouraged | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 8. Not many opportunities are created that enable employees to be more creative | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 9. Everybody in the business is aligned and committed towards the same goals. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 10. There is not enough communication between personnel and management. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 11. Involvement of employees is encouraged. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 12. Nobody considers teamwork to be very important. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 13. All the employees are inspired and motivated by the environment. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 14. The level of job satisfaction is very low. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 15. Everybody is motivated to do their jobs well. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 16. Everybody is just doing their jobs to receive a salary each month. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 17. All members in the initiative is committed to community service. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 18. The community is not considered as an important partner to our success. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 19. The initiative has strategic alliances and partnerships with international universities. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 20. There is not much to learn from international universities. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 21. The initiative apply the knowledge and research acquired by the university. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 22. The proficiency of the lecturers is not the main concern of the university anymore. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 23. Satisfied customers is a very important goal. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 24. The centre's performance with regard to customer service is never measured. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 25. All the employees are very competent to their jobs. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |
| 26. The centre's performance is not managed to improve service delivery. | <input type="checkbox"/> Not at all | <input type="checkbox"/> Disagree | <input type="checkbox"/> Not sure | <input type="checkbox"/> Agree | <input type="checkbox"/> Definitely |

Appendix 2 Scoring of the questionnaire

- | | | | | | |
|--|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 1. Decisions are made quickly and timely. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 2. There is no reliable source of information as basis for decision-making | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| 3. The direction of the business is determined by goals and objectives. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 4. The personnel never know exactly what the goals and objectives of the business are. | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| 5. The venture has an entrepreneurial approach towards the day-to-day activities | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 6. Innovation is not particularly motivated. | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| 7. Idea generation is constantly encouraged | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 8. Not many opportunities are created that enable employees to be more creative | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| 9. Everybody in the business is aligned and committed towards the same goals. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 10. There is not enough communication between personnel and management. | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| 11. Involvement of employees is encouraged. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 12. Nobody considers teamwork to be very important. | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| 13. All the employees are inspired and motivated by the environment. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 14. The level of job satisfaction is very low. | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| 15. Everybody is motivated to do their jobs well. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 16. Everybody is just doing their jobs to receive a salary each month. | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| 17. All members in the initiative is committed to community service. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 18. The community is not considered as an important partner to our success. | <input type="checkbox"/> 6 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| 19. The initiative has strategic alliances and partnerships with international universities. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 20. There is not much to learn from international universities. | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| 21. The initiative apply the knowledge and research acquired by the university. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 22. The proficiency of the lecturers is not the main concern of the university anymore. | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| 23. Satisfied customers is a very important goal. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 24. The centre's performance with regard to customer service is never measured. | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |
| 25. All the employees are very competent to their jobs. | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | <input type="checkbox"/> 5 |
| 26. The centre's performance is not managed to improve service delivery. | <input type="checkbox"/> 5 | <input type="checkbox"/> 4 | <input type="checkbox"/> 3 | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 |