

# **A Strategy to Promote Research and Consultancy Assignments in the Faculty**

## ***A Case Study of the Faculty of Science and Technology – Mzumbe University, Tanzania***

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### **Abstract**

The research and consultancy services profile of the Faculty of Science and Technology of Mzumbe University has been of concern. The profile has been of concern due to the poor performance the faculty has in researches and consultancy assignments. In that regard, the faculty found it is necessary to improve the faculty performance in terms of researches and consultancy assignments for the health of the faculty. Following that need, the process to intervene and redress this situation started after the Dean of the Faculty attended International Deans' Course (IDC) - Africa phase I, which was conducted in Germany. This course exposed the Dean to faculty management approaches that can be used to manage the faculty performance. Following this training, the Dean found that it is important to identify strategies that can be used by the faculty to improve her performance in terms of researches and consultancy assignments. In this assignment of the redressing faculty performance in terms of researches and consultancy assignments, the Dean adapted the Project Action Plan approach to identify the strategies that could be used to improve faculty performance in terms of researches and consultancy assignments. In this approach, the Dean mobilized the faculty members to develop the strategy. In carrying this assignment, the Dean was assigned a mentor who is an IDC – Africa resource person. The mentor gained the Dean in this process of developing the strategy. The developed strategy was presented to the faculty meeting, IDC Africa phase II and III in order to get comments for improvement. Thereafter, the suggested comments were addressed accordingly. Therefore, this chapter presents a proposed strategy that can be used to redress faculty performance in terms researches and consultancy assignments. Specifically, the chapter presents objectives, strategic objectives, strategies, targets and measurable indicators that a faculty may concentrate with to improve her performance in terms of researches and consultancy assignments.

## 1 Introduction and Background

Mzumbe University is a public university of the United Republic of Tanzania, located in the Morogoro region which is about 250 km from the capital city of Tanzania (Dodoma) and 200 km from the major commercial city of Tanzania (Dar es Salaam). Mzumbe University has two campus colleges, two schools, three faculties and nine directorates. The Faculty of Science and Technology is one of the founding faculties of the Mzumbe University. The faculty was established in August 2002, in accordance with section 20(2) (a) of Act No 21 of 2001, which established Mzumbe University.

The faculty has about 1200 students distributed across three departments, namely, Computing Science Studies (CSS), Engineering Management Studies (EMS), and Mathematics and Statistics Studies (MSS). The faculty also has 32 staff members, both academic and administrative staff. Table 1 presents programmes which are offered in the Faculty as well as the staff complement and student numbers per department.

**Table 1:** Programmes offered in the Faculty of Science and Technology

S/N	Department	Staff	Programmes	Students
1	Computing Science Studies:	Academic Professor: 0 Senior Lecturer: 1 Lecturer: 5 Assistant Lecturer: 5 Assistant Tutorial: 3 Administrative: 1 Student: Teacher Ratio – 45:1	Master of Science in Information Technology and Systems (M.Sc. ITS)	9
			Bachelor of Science in ICT with Business (B.Sc. ICT-B)	160
			Bachelor of Science in ICT with Management (B.Sc. ICT-M)	111
			Bachelor of Science in Information Technology and Systems (B.Sc. ITS)	149
			Bachelor of Science in Library and Information Management (B.Sc. LIM)	132
			Diploma in Information Technology (DIT)	39
			Certificate in Information Technology (CIT)	9
			Certificate in Library and Information Management (CLIM)	17
			Total Students	626
2	Engineering Management Studies	Academic Professor: 0 Senior Lecturer: 0 Lecturer: 3 Assistant Lecturer: 2 Assistant Tutorial: 2 Administrative: 1 Student: Teacher Ratio – 71:1	Bachelor of Science in Production and Operations Management Degree (B.Sc. POM)	105
			Bachelor Science in Industrial Engineering Management Degree (B. Sc. IEM)	246
			Total Students	351

(Continuing table 1)

S/N	Department	Staff	Programmes	Students
3	Mathematics and Statistics Studies	Academic Professor: 1	Bachelor of Science in Applied Statistics (B. Sc. AS)	116
		Senior Lecturer: 0 Lecturer: 3	Bachelor of Science with Education (Mathematics & ICT) - (B. Sc. Ed. MICT)	285
		Assistant Lecturer: 6	Diploma in Applied Statistics (DAS)	16
		Assistant Tutorial: 1	Certificate in Applied Statistics (CAS)	8
		Administrative: 1	Master of Science in Applied Statistics	3
		Student: Teacher Ratio -39:1	Total Students	428

Mzumbe University works in accomplishing three core functions; teaching, researching and consulting. These functions are guided by policies and guidelines of the university. Among the core functions it works with, the university concentrates mostly in teaching as her primary function. On the other hand, other functions of the university (researches and consultancy assignments) are accomplished too at relative lower pace.

In order to accomplish researches and consultancy assignments, the university has in place two directorates responsible for researches and consultancy assignments. These directorates have, in place, guidelines and policies which govern the conduct of researches and consultancy assignments. The two directorates work together with the postgraduate and research section of the faculty. The main task of the two directorates is to promote research and consultancy assignments in the university. For instance, the directorate responsible for research assignments has been training staff on research matters, promoting researches in the university by setting aside about 50 million Tanzanian Shillings (about 20, 000 Euro) for funding junior staff's research proposals in a year. Not only that but also the directorate has a policy that promotes mentoring of junior staff in research assignments; in this case senior and junior staff write and submit joint proposals for research assignments. Also, the directorate assists staff in publishing their research works. The published research works are awarded during convocation days and used by staff in applying promotions.

On the other hand, the directorate responsible for consultancy assignments has been training staff at the university and mentor junior staff as well. Also, the directorate has guidelines and policies that govern its operations and promote staff to carry out consultancy assignments. The policy aims at facilitating and attracting staff to carry consultancy assignments. For instance, in attracting staff to carry more assignments, the consultancy policy presents that the earned consultancy value is shared as follows, whoever wins a consultancy assignment, 80% of the assignment value is given to him/her, and 20% is retained by the university. Furthermore, in order to encourage consultancy assignments in the University, during convocation day,

the university recognizes all those who carried out consultancy assignments by awarding them.

In assisting the university accomplishes her core functions, the faculty has the main roles of teaching, researching and consulting in the discipline of science and technology, although research and consultancy assignments are done in relative poor pace. The specific areas in which the faculty plays her main roles are: -

- Computer Science, Information & Communication Technologies;
- Industrial Engineering, Production & Operations Management and
- Mathematical Modelling, Statistics, Applied Mathematics & Statistics.

The operations of the faculty has been shaped by institutional policies and frameworks. At the faculty and university at large, researches and consultancy assignments are very important as they increase university visibility as well as income generation. In that regard, the faculty has been striving to conduct researches and consultancy assignment. To improve her performance in research and consultancy assignments, the faculty has put in place several measures in ensuring that it wins a good number of researches and consultancy assignments. Particularly, the faculty has established the section responsible for researches and consultancy assignments. The main responsibility of the section is to identify different calls and opportunities in researches and consultancy assignments and forms teams to respond to such calls and opportunities.

### **The Problem**

The research and consultancy services in the country are of paramount important. This follows the argument that “no research no right to speak”. This arguments necessitate the need for researches in the country, mainly to the policy makers. Currently, the government of united Republic of Tanzania has seen the importance of researches to polocy makers. The government has been working hard to link the polcy makers at all levels with academic institutions. In this linkage, academic institutions entail to presents research based findings whereby the policy makers uses the findings for decisions and policy making. In this ground, there are many opportunities in the country on researches and consultancy assignments (Nzuki, Hassan & Mbilinyi, 2013). Despite of these opportunities, the university is disadvantage since it is located relatively far from both the capital and commecial cities of United Republic of Tanzania. Being far from these cities, it poses challenges in grabing the existing opportunities from the government side.

Based on these opportunities and the disadvantage, the faculty and the university had done a lot to promote reseaches and consultancy assignments as presented in the background of the problem. Despite the initiations done by both the faculty and the university in promoting researches and consultancy assignments, the faculty performance remains poor in terms of researches and consultancy assignments. This is evidenced by Figures 1 and 2 below.

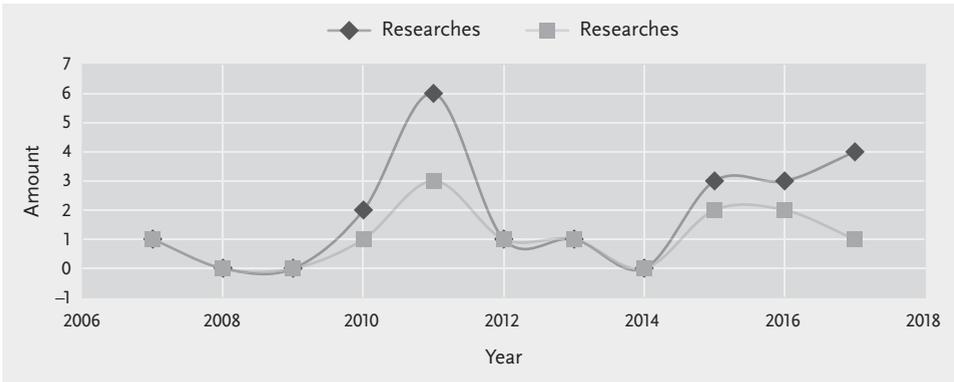


Figure 1: The Faculty Research Trend

As the evidence of poor performance, from Figure 1 it can be deduced that the performance of the faculty in terms of research is not promising. For instance, between 2007 and 2009, the performance of the faculty in terms of research assignments was decreasing. Thereafter the performance increased for a period between 2009 and 2011. But the higher level of research proposals and research proposals granted was temporary. In the period between 2011 and 2014 the performance decreased again. After a dismal performance in 2014, the performance increased somehow, but to a low level, and with a rather dissatisfactory trend in terms of proposals won. A further observation indicates that the faculty has recently submitted more research proposals but with a lower percentage of proposals being successful.

In terms of consultancy assignments, again the faculty is performing poorly. This is evidenced by the trend as presented in Figure 2. The faculty is not stable in carrying consultancy assignments. There has been up and down in not a relatively promising way.

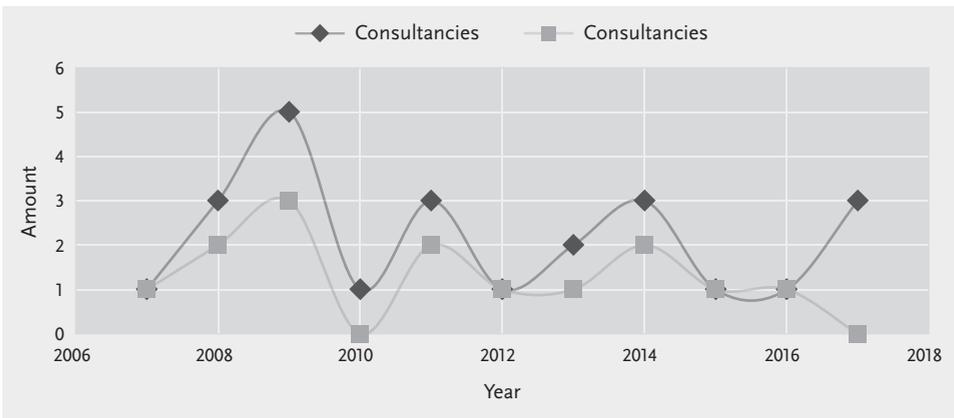


Figure 2: Consultancy trend in the Faculty of Science and Technology

In this regard, as per scenarios in Figure 1 and 2, the performance of the faculty is still poor despite the financial investments done by both the faculty and university at large. Furthermore, based on the faculty performance, it is clear that a well thought-through and best practices-informed process of creating a sustainable culture of research and consultancy has not yet received attention in the faculty. In this regard, there is a need to change the culture of the staff in terms of research and consultancy. Therefore, this case aims at identifying strategies that the faculty can use to promote researches and consultancy assignments at the faculty level.

## 2 Literature Review

### 2.1 Research

Research is a process of searching for facts or answers to questions and/or finding solutions to problems. Research is a purposive investigation of phenomena done by a qualified entity. Research is a systematic way of investigating a phenomenon through a scientific way. Usually, research is based on empirical and/or observable evidences that is aiming at developing a theory, testing theory and/or explaining a phenomenon (Ndunguru 2007).

Research is a major and important factor in economic development of a country and it has become increasingly important in the university context (Zhang 2014). Researches have several importance in the society as presented here below:

- Enable building of knowledge and facilitates learning

Researches are importance to students, academics and professionals in different fields. Researches enables to determine what the general public want to know about or what a researcher want the general public understand about a given fact. In other words, researches enables the determination of facts/truth about an idea in order to become knowledge about a given phenomenon. Not only that, but also the researches enable one to determine the validity and reliability of a given information.

- Enable the public to understand and increase awareness of various matters

Researches enable people to inquiry more about a phenomenon and share with the public about what has been gathered in order to increase understanding and awareness on a matter. This is achieved by conducting an interview with people who are knowledgeable about a phenomenon.

- Facilitates business success

Most mass producing companies need to research on what a market needs, wants and desires before starting of the actual production. In this case, researches enable companies to identify what is needed, wanted and desired in a market. Failure to use research in determine the requirement of a market, it may lead to a company pro-

ducing what is not for a given market. Not only that, companies conduct researches for product innovation and/service improvement.

- Enables finding and gauging opportunities

In day to day operations there are opportunities which they need to be determined for one to take advantage. In order to determine the opportunities, one need to research on them and determine their sizes. In this regard, researches are enabler of determining the existing opportunities and their size,

In order to achieve such importance, researches are inevitable. In many countries, universities have been good players of research works as they conduct researches and share the knowledge obtained with the public. Based on this role, universities and governments invest a lot on research activities for significant conduct of research and publication of research findings for academics and public consumption (Zhang 2014; Erero 1994). In this ground, research activities are very important to universities, academic staff and public at large (Zhang 2014). Furthermore, research activities are very important to universities as they publicize the universities and enable them to produce wealth as well (Geuna 1999).

However, universities have been facing challenges in carrying researches which have significantly affected number and quality of researches produced. Among the challenges, treating researches as a means of attaining qualification for academic promotion has been reported to affect researches in academic institution. In this challenge, academics in different academic institutions put more efforts in conducting researches when they inspire to be promoted in next levels of their academic ranks, once they are promoted, they reduce the effort and publish less. This behaviour affects the number of researches and publications made. Not only that but also, the quality of researches are affected since most researches conducted are conducted in rush and are more theoretical, which do not focus for solving societal problems (Kırkılıç, Sevim & Söylemez 2015; Sawyerr 2004).

Also, unavailability of time to conduct researches has been a challenge that faces academic staff to produce more and quality researches. These has been a result of heavy teaching workloads to teaching staff in academic institutions as most universities are giving more priorities in teaching and produce graduates since they are teaching university rather research university. The heavy workloads make them concentrate in teaching while less time is given on researches. Not only that but also inability to mentor junior staff, lack of enough motivation and poor infrastructures are challenges that affect academic staff to accomplish their researches on time and build researching culture (Yalcin & Yalcin, 2017; Sawyerr 2004).

## 2.2 Consultancy

A consultancy is an advisory service which is contracted for or provided by an expert (known as consultant) of given field on a given specific problems. Consultancy is a process of interaction where the consultant in an objective and independent manner diagnoses, investigates problems and issues concerned with management practices,

analyses them, recommends appropriate action and provides assistance when requested in implementation of recommended solutions (Vukotić et al. 2017).

Consulting is knowledge, additional value and program that support for products and solutions that increase the value of the resources and assets of the client. Consulting companies provide consulting services or give more precise advice, suggestions and expert opinions in the area that organizations have just determined and for which they have expertise. The term consulting services by default, is a special and comprehensive approach to solving business problems of clients (Vukotić et al. 2017).

Universities, as an organization, have been offering consulting service to many clients. Consulting, in university context, is the provision of a service by academics to external organizations on commercial terms. It involves providing advice, resolving problems as well as generating or testing new ideas. Base on this role, universities have been encouraging staff to carry out consultancy assignments (Schmoch 1999).

Consulting has fundamental features, according to Kubr (1976) some of the fundamental features are as follows:

1. Consulting is an independent service. This independence is limited by consultants enter into a very complex relationship with their client organisations and people who work in them. Basically, the consultant is added to an existing team organization requesting assistance, where his property updates at the same time, and its main role. The consultant has no direct authority to decide about changes and apply them-but this must not be considered as defects. The consultant needs to perfect the skills of deep consideration change without giving up their independence. Therefore, first, provides the highest degree of customer involvement in the work, so that the final success is shared success.
2. Consulting is essentially advisory services, meaning that you don't hire consultants to manage organizations or to make delicate decisions for managers who need this service. They are consultants (advisers) and their responsibility regarding the quality and validity of the advice that they give. It's not just about giving the right advice, but also about giving advice at the right time and in the right way-these are basic skills of consultants. The client in turn has to be very active in the process of receiving tips that originate from a consultants, trust them, and adopted as its application in your organization, because, ultimately, they bear full responsibility for the consequences of which continue to occur. Open style of governance would advocate consulting and consulting as a normal form of business conduct, and not as a sign of ignorance or weakness (Young 1992).
3. Consulting is a service that provides professional knowledge and skills which are essential for effectively addressing the problem of management (administration). What is special about consultants is that over the years through a number of organizations and learn how to use their collected experience from previous assignments in new conditions. In addition to this, professional consultants are constantly improving the methods and management techniques, including those used in universities and research institutions; transfer this experience to

clients and assisting them in the implementation. They work as a link between theory and practice in management. However, by default, and managers must also possess certain types of skills, particularly in the implementation of new ideas. Fourth, consulting is not a service that provides an easy and simple solution too difficult managerial problem. Consulting is hard, systematic and disciplined work based on analysis of solid facts and researches all possible solutions. Strong management commitment to solving problems of organization and cooperation between client and consultant alike are crucial for the quality of advice is received, as well as to the end result. Most consulting services applies to: Communications Management, Business plan, Feasibility study, Investment study, Cost-benefit analysis, Marketing plan, Management plan, Study of property management, Restructuring plan, Business Process Reengineering etc.

4. Beside the fundamental features of consulting, organizations/individuals need consultants for various reasons. Among the reasons, firstly, organizations need a second eye to their problem in order to know what they see/understand is understood the same as what they understand. Secondly, organizations/individuals do not have always enough manpower to solve their problems, therefore, they need to hire the missing manpower for solving a problem that they are experiencing.

In that regard, universities have been playing a great role in consulting as they have a good number of experts in different fields. They use their expertise to advice the public on a given issue or problem. In carrying out consultancy assignments, universities generate additional income and get engaged with new or existing partners for different academic activities. Due to that, universities can derive valuable benefits by offering consultancy services. The first benefits obtained are generation of external income given limited funding to pay high salaries to academic staff. Therefore, allowing outside consulting can keep key faculty members from leaving.

The second benefit is that, consulting enriching experience of staff, contributing to teaching and research assignments. In this regard, consulting enable lecturers to generate field based case studies that are used in teaching and increases teaching experience among academic staff (Whitford 2000; Flynn 2000). The other benefits are getting awareness of contemporary problems, knowing business institutions, getting access to data for research, enabling decision-making contexts, obtaining supportive material for teaching and research, developing new skills and experience, and identifying issues for future researches. Last, it enable academic staff to generate research ideas (Bost & Haddad 1996).

Despite the benefit obtained, universities have been facing challenges in carrying consultancy assignments. Among the challenges faced, universities fail to build stable and reliable customer portfolio that can provide new projects all year around. This has resulted to emerging several firms/individual to carry consultancy assignments. The emergence of firms/individual to offer consultancy service, has resulted to stiff competition in the market. In this regard, universities have been facing high

market competitions on consultancy assignments due to emerging of many new firms/individuals in the industry. The high market competitions has resulted in lowering consulting services prices.

The other challenge is that some university Chief Executive Officers consider consulting to be a distracting activity that divert faculty from the primary mission of the university (teaching and scholarly research) as it is used solely to enrich individual faculty members at the expense of the university (Sennetti 1981). In that regard, some universities Chief Executive Officers impose time limits and other restrictive conditions on outside consulting assignments. This restriction affect the performance of the faculties in terms of consultancy assignments.

Based on the literature review done, it should be understood that researches and consultancy assignments form a collaborative platform between universities and industry (Perkmann and Walsh 2007). This plat form, results to close linkage between universities and the industry. In this linkage, usually universities carry out researches in industry from which the findings are used to solve organizational problems in consultative way. In most cases, research assignments results to consultancy assignments which as a result, lead to strong relationships between universities and industry (Mansfield 1995). Often, the relationship results to knowledge mediation due to interactive learning and knowledge co-production between universities and organizations (Rosenberg 1994). Therefore, the linkage brings benefits to both universities and organizations.

Based on the previous IDC cases on research and consultancy, Kibrai (2015) presented a case on Strategic Faculty Management Plan for Teaching and Research at the Faculty of Business Administration and Management – Uganda Martyrs University. The case aimed at improving teaching and conduction of researches and publication at the Faculty of Business Administration and Management. Base on the impact of IDC African 2013/2014. The case reports that research activities in the faculty increased. This led to increased publications in the Faculty. This case focused on improving teaching and researches in the Faculty, the main difference between the case by Kibrai and the current case is that the Kibrai case was done in Uganda and focused on teaching and researching as the core functions of university while the current case is based in Tanzania and is focusing on researching and consulting as the core functions of a university.

### **3 Methodology**

In order to stimulate research and consultancy culture in the faculty, the IDC Project Action Plan (PAP) template was adapted to develop a strategic plan for stimulating researches and consultancy assignments within the faculty. The carrying out of the PAP started by attending phase I training of the IDC - Africa in Osnabruck – Germany. Where a training on how to manage faculties and other units was facilitated. As an outcome of the training, each participant was required to identify a manage-

ment problem in his/her unit and establish a solution to a problem through use of a PAP. After the first meeting of IDC Africa, participants continued to work on their PAP in different stages of IDC Africa under the guidance of the assigned IDC mentors.

In order to establish and implement the developed PAP, creating a common understanding among key stakeholders was very necessary. Therefore, the establishment and implementation of the PAP started by assigning mentors to participants who assisted in shaping identified problems. After shaping of the PAP, presentations of PAP were done to top management of the university, faculty management, and faculty members. The presentations were done in order to create common understanding, seek consent and support about the PAP from top university management to members of the faculty. Thereafter, the team at faculty level was formed to assist the implementation of established PAP. The formulated team was trained on the assignment and later on it was involved in accomplishing the PAP.

The team developed a data collection instrument, identified sections for data collection, and later on analysed the collected data to establish the current faculty status on researches and consultancy assignments. The team carried SWOT analysis of the faculty to establish SWOT and strategies matrices. Later on, the team established main and specific activities to achieve each strategic objective. In order to assess whether a given strategic objective has been attained, the team developed indicators in which assessment will be entered at. Finally, the team developed the strategy and shared it to different stakeholders for improvement before implementation of it.

## **4 A Strategic Plan for Enhancing Research and Consultancy in a Faculty**

### **4.1 Faculty SWOT Analysis**

SWOT analysis was conducted to determine the Strengths, Weaknesses, Opportunities and Threats/Challenges in the Faculty. The analysis enabled the faculty to determine where is strong and weak, what are available opportunities and challenges in research and consultancy activities. In carrying this assignment, faculty members and other university staff were involved. The process involved identification of internal and external issues that affect faculty operations in terms of research and consultancy activities. Furthermore, issues with positive and negative impacts to the faculty performance in terms of research and consultancy activities were identified and thereafter, strategies were developed to the faculty use the strength it has, to overcome the weaknesses facing it, to grasp the existing opportunities and to overcome the existing challenges as presented in the following sections.

### 4.1.1 External Analysis

Currently, Tanzania experiences an acute shortage of scientists and technologists. The few scientists and technologists that are trained in the country are normally not enough to cater for the country's needs. Not only that, but also the country is now focusing on developing the industrial sector and move Tanzania towards being an middle level industrialized country. This requires academic institutions to produce more graduates in the area of science and technology. Not only that but also, the country need to be informed through researching and consulting activities on how the country will achieve her vision. To accomplish this, there is a move in the country to link academic institutions and policy makers to work together and enable policy makers to make their decisions based on researched evidences and advises provided by academia. In this regard, there are opportunities on industrial development matters, ICT for development of a country and management of industrial data for proper industrial decision making. Following this needs, there are opportunities in science and technology discipline in terms of research and consultancy assignments.

In Tanzania, there are academic institutions which have good reputation in carrying out research and consultancy assignments in the area of science and technology. The majority of clients, stakeholders and/or donors prefer to work with these academic institutions. These institutions include the University of Dar es Salaam, Dar es Salaam Institute of Technology, Arusha Institute of Technology and Nelson Mandela African Institute of Science and Technology, to mention but a few. These institutions are located in the commercial city of Tanzania. While other university are advantaged by being at the main commercial city of Tanzania, Mzumbe University is disadvantaged since is located about 200 km from the commercial city.

### 4.1.2 Internal Analysis

#### 4.1.2.1 Staffing in the Faculty

Based on the auditing by the team, it was revealed that the faculty has a total of twenty-seven (27) permanent teaching staff and five (4) permanent administration staff. One teaching staff is on contract. Out of the academic staff, 1 (3%) is Associate Professor with PhD, 8 (29%) are PhD holders, 4 (14%) are on PhD studies, 10 (36%) are master holders, and 4 (14%) are on master studies. About fifty per cent of those who are on PhD studies are expected to complete their studies by July 2018. In this regard, the distribution of staff is not healthy to the faculty because there are fewer staff with a capacity of conducting researches and consultancies who will mentor junior staff in research and consultancy activities. The detail of academic staff and administration staff with their area of specialization is presented in the following Table 2.

**Table 2:** Current Status of the Faculty Staff and their Competencies

Category	Highest Qualification	Computing Sciences	Engineering Management	Mathematics and Statistics	Dean's office	Sub Total
Academic Staff	Professor	0	0	1 (On contract)	NA	1
	PhD	4	2	2	NA	8
	Master	2	2	6	NA	10
	Bachelor	0	0	0	NA	1
	On PhD studies	2	1	1	NA	4
	On master studies	4	0	0	NA	4
Non-academic Staff	Office Secretaries	1	0	0	1	2
	Office Messenger	0	0	0	1	1
	Driver	0	0	0	0	0
Total		16	5	13	2	31

#### 4.1.2.2 Faculty Leadership

The faculty is led by the Faculty Dean, under the Faculty Dean there is the Associate Dean. The faculty has three (3) academic departments; department of Computing Science Studies (CSS), department of Engineering Management Studies (EMS) and department of Mathematics and Statistics Studies (MSS), and two (2) sections; research and postgraduate section and examinations section. Departments are led by the Heads of Departments and the sections are led by Research and Postgraduate Coordinator, and Faculty Examination Officer respectively, who report directly to the Faculty Dean.

Under the Head of Departments, there are Programmes Coordinators who report to the Head of Departments; and under Programme Coordinators there are Class Supervisors who report to the Programme Coordinators; and lastly, there are lecturers who reports to Head of Departments as well.

#### 4.1.2.3 Resources

The desire of the faculty to increase enrolment necessitates the need to expand resources and the infrastructure. The faculty needs staff office building, research centre, qualified academic staff in different ranks, scientific and specialized computer laboratories, and workshops. Not only that, but also the faculty needs lecture theatres and seminar rooms as currently it is using university general lecture theatres and seminar rooms. In order for the students to demonstrate their innovation ability and apply what they learnt, the faculty lacks Incubation Centre too. The lack of all these necessary resources affects research and consultancy activities in the faculty too.

### 4.1.3 SWOT Matrix

After synthesis of the collected information on external and internal matters to the faculty, strengths and weaknesses of the faculty were identified and opportunities and threats to the faculty were identified as presented in table 3.

**Table 3:** SWOT Matrix

	Issues from <i>internal</i> faculty environment	Issues from <i>external</i> faculty environment
Issues having <b>positive</b> impact on the faculty ability to conduct research and consultancy	<p><b>Strength</b></p> <ol style="list-style-type: none"> <li>1. 8 members are PhD holders</li> <li>2. The faculty has its own management</li> <li>3. The faculty has undergraduate programmes</li> <li>4. The faculty has postgraduate programmes</li> <li>5. For three past years, the faculty enrolment was increasing by 33 % (following the introduction of 4 new programmes)</li> </ol>	<p><b>Opportunity</b></p> <ol style="list-style-type: none"> <li>1. There are many calls for proposals in the science researches</li> <li>2. There are many calls for proposals in science consultancies</li> <li>3. The faculty is in good relationship with the Ministry of Education, Science and Technology.</li> <li>4. The country has a vision of becoming an industrialized country</li> <li>5. The faculty has good relationships with some university locally and internationally.</li> <li>6. Good number of faculty graduates employed in different organizations</li> <li>7. The Government encourage students to study science programmes</li> </ol>
Issues having <b>negative</b> impact to the faculty ability to conduct research and consultancy	<p><b>Weaknesses</b></p> <ol style="list-style-type: none"> <li>1. The faculty has many junior academic staff</li> <li>2. The faculty has inactive research &amp; consultancy coordinator</li> <li>3. The faculty does not have full autonomy</li> <li>4. The faculty depends on the University infrastructure and financial resources</li> <li>5. The faculty is not generating any income (Depends only on tuition fees which are under the University)</li> <li>6. The faculty has very limited budget for research and consultancy activities</li> <li>7. The faculty is about 200 km away from the capital and commercial cities</li> <li>8. The faculty is trending poorly in research activities</li> <li>9. The faculty is performing poorly in consultancy assignment</li> <li>10. The faculty is trending poorly in innovation</li> <li>11. Poor linkage with faculty alumni</li> <li>12. Few academic staff in the faculty</li> </ol>	<p><b>Threat</b></p> <ol style="list-style-type: none"> <li>1. There many giant and experienced science faculties in the Country</li> <li>2. The faculty is less engaged with other stakeholders</li> <li>3. The faculty is less engaged to the Public</li> <li>4. Giant Universities are located in capacity and business cities of Tanzania</li> </ol>

## 4.2 Strategies

After identification of strengths, weaknesses, opportunities and threats, it was necessary to establish the strategies that exploit the strengths and opportunities (SO-strategies), strategies that make use of strengths in order to minimise threats (ST-strategies), strategies that minimise weaknesses by taking advantage of opportunities, and strategies which help to minimise the weaknesses and help avoiding threats (see Table 4).

**Table 4:** An analysis of strategies for the Faculty based on threats, opportunities, weaknesses and strengths

	Opportunity	Threat
<b>Strength</b>	SO-strategies 1. Respond to research calls locally and internationally 2. Respond to consultancy calls locally and internationally 3. Collaborate with local and international universities in researches 4. Establish an incubation centre to establish society and industrial science solutions 5. Introduce more science based programmes	ST-strategies 1. Collaborate with giant Faculties 2. Establish relationship with different stakeholders 3. Establish outreach programmes to the community around the University
<b>Weakness</b>	WO-strategies 1. Train staff in different level to build faculty capacity 2. Motivate a research and consultancy coordinator in the faculty 3. Solicit fund and construct the faculty Block 4. Establish faculty own sources of fund 5. Motivate members of the faculty to respond to different opportunities 6. Reward innovative ideas 7. Establish a good relationship with Faculty Alumni	WT-strategies 1. Collaborate with Giant Faculties in submitting proposals. 2. Establish MoU with Giant universities in capital and business cities.

## 4.3 Strategic Plan

Based on the strategies which were identified in exploiting the strengths and opportunities, the strengths and threats, the weaknesses and opportunities, and weaknesses and threats, then the faculty vision, mission, core values, objectives, strategic objectives, strategies, targets and performance indicators were formulated as follows.

### 4.3.1 Faculty Vision

The vision of the faculty is to “Be a centre of excellence in research and consultancy assignments in the areas of computing science, engineering management, mathematics and statistics in the country and beyond”.

### 4.3.2 Faculty Mission

In order to achieve the vision, the faculty has a mission of “To provide opportunities for development, dissemination and acquisition of knowledge and skills in computing sciences, engineering management, mathematics and statistics through research and outreach services”.

### 4.3.3 Faculty Core Values

The faculty is committed to provide high quality services through exercising accountability, transparency, creativity and innovativeness, dignity and team work in delivering its services to its clients.

### 4.3.4 Faculty Objectives

From the SWOT and Strategy matrices, several faculty objectives were developed which were transformed to strategic objectives. For the achievement of the strategic objectives, several strategies were developed with their targets. In order to evaluate the achievement level of objectives, indicators for several targets were developed as present in the following tables.

**Table 5:** Enhance research and consultancy capacity in the faculty

<b>Strategic Objective A: To improve research and consultancy capability in the faculty</b>		
<b>Strategy</b>	<b>Targets</b>	<b>Performance Indicators</b>
A1.1: Train staff in different levels.	A1.1.1: 3 staff trained to PhD level by 2020.	A1.1.1.1: Number of staff trained to PhD level.
A1.2: Establish partnership with organizations/universities which provide volunteers.	A1.1.2 Staff capacity building trainings in research and consultancy assignments conducted annually.	A1.1.2.1: Number of trainings in research and consultancy assignments conducted annually.
	A1.2.1: Partnerships with organizations and universities which provide volunteers established by 2020.	A1.2.1.1: Number of MoU signed.
A1.3: Use postgraduate students in research and consultancy.	A1.3.1: Postgraduate students registered in the faculty and be used in research and consultancy assignments by 2019.	A1.3.1.1 Number of postgraduate student in the faculty registered and engaged in research and consultancy assignments.

**Table 6:** Enhance linkages and outreach services.

<b>Strategic objectives B: To enhance collaboration and partnership between the faculty and giant faculties, faculty alumni, community and others stakeholders.</b>		
<b>Strategy</b>	<b>Targets</b>	<b>Performance Indicators</b>
B1.1: Establish collaboration with giant faculties in science and technology.	B1.1.1: Collaborations with giant universities in science and technology established by 2020.	B1.1.1.1: Number of collaboration established.
B1.2: Link the Faculty with her Alumni.	B1.2.1: Faculty comprehensive alumni database developed by June 2018 and alumni in the database reached by June 2019.	B1.2.1.1: Data base of alumni and number of alumni reached.

(Continuing table 6)

<b>Strategic objectives B: To enhance collaboration and partnership between the faculty and giant faculties, faculty alumni, community and others stakeholders.</b>		
<b>Strategy</b>	<b>Targets</b>	<b>Performance Indicators</b>
B1.3: Establish and enhance partnership with private and public organizations.	B1.3.1: Organizations with potentials for partnership identified and partnership established by June 2020.	B1.3.1.1: Number of partnership established.
B1.4: Establish outreach programmes for the community.	B1.4.1: At least 2 outreach programmes established and provided to community by 2020.	B1.4.1.1: Number of outreach programme established.

**Table 7:** Improve research and consultancy winning rates

<b>Strategic Objective C1: To increase the number of research and consultancy assignments won.</b>		
<b>Strategy</b>	<b>Targets</b>	<b>Performance Indicators</b>
C1.1: Identify and respond to research and consultancy calls.	C1.1.1: Research and consultancy bids won by the faculty increased by 5% annually.	C1.1.1.1: Percentage increase in research and consultancy assignments.
C1.2: Motivate faculty members to respond to different opportunities.	C1.2.1: Establish incentive plans for motivating faculty staff who respond to different opportunities by 2020.	C1.2.1.1: Motivated staff.
C1.3: Award innovative ideas.	C1.3.1: Establish innovation awarding scheme for awarding innovative ideas by 2020.	C1.3.1.1: Awarding scheme and number of ideas awarded.

**Table 8:** Enhance government and administration in the faculty

<b>Strategic objectivesD1: To enhance financial mobilization ability of the faculty.</b>		
<b>Strategy</b>	<b>Targets</b>	<b>Performance Indicators</b>
D1.1: Solicit fund for faculty activities.	D1.1.1: Fund from different sources solicited for various faculty activities by 2020.	D1.1.1.1: Amount of fund solicited for various faculty activities.
D1.2: Establish faculty incubation Centre.	D1.2.1: The faculty incubation center established by December 2019.	D1.2.1.1: Number of incubation Centre.
D1.3: Enhance faculty management ability on resource mobilization.	D1.3.1: Capacity building training for enhanced financial resources mobilization to faculty management conducted by December 2019.	D1.3.1.1: Number of training in financial resources mobilization conducted to faculty management.

## 5 Conclusion

It should be understood that, faculties in university may perform poorly in terms of researches and consultancy assignments. The poor performance may emanate from some factors. Among the factors, prioritizing in teaching as primary function of the universities, poor morale of conduct research and consultancy assignment, lack of capacity to carry out researches and consultancy assignment, existing heavy teaching load among the staff, and top universities managements prohibiting faculty staff to carry consultancy are the major factors that affecting faculty performance in terms of researching and consulting. In this regard, it is very crucial for faculty to identify strategies that enable them to improve their performance in terms of research and consultancy. In order for a faculty to improve her performance, four results areas were identified where the faculty should improve them for improved faculty performance in terms of researches and consultancy assignment. The key result areas that were identified are enhanced research and consultancy capacity, enhanced linkages and outreach services, improved research and consultancy winning rates, and improved government and administration of the faculty. To achieve these key results areas, the following strategies were identified to be enablers of organizations to improve faculty performance in terms of research and consultancy assignments:

- A1.1: Train staff in different levels.
- A1.2: Establish partnership with organizations/universities which provide volunteers.
- A1.3: Use postgraduate students in research and consultancy.
- B1.1: Establish collaboration with giant faculties in science and technology.
- B1.2: Link the Faculty with her Alumni.
- B1.3: Establish and enhance partnership with private and public organizations.
- B1.4: Establish outreach programmes for the community.
- C1.1: Identify and respond to research and consultancy calls.
- C1.2: Motivate faculty members to respond to different opportunities.
- C1.3: Award innovative ideas.
- D1.1: Solicit fund for faculty activities.
- D1.2: Establish faculty incubation Centre.
- D1.3: Enhance faculty management ability on resource mobilization.

Therefore, it is expected that once a faculty adopt such strategies in addressing the identified 4 key result areas, the faculty performance in terms of research and consultancy will be improved.

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