

**INTERNAL MANAGERIAL PRACTICES OF SELECTED PUBLIC UNIVERSITIES  
IN PROMOTING KNOWLEDGE ECONOMY INITIATIVES IN TANZANIA**

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CHRISTIAN UNIVERSITY**

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**UGANDA CHRISTIAN  
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## DECLARATION

### DECLARATION OF AUTHORSHIP:

I, **Martha Mkasafari Shio**, hereby affirm that this dissertation is my original work and that any form of assistance I received during its preparation has been fully acknowledged and appropriately documented in the text. I have duly cited all academic sources from which I derived data, ideas, or quotations, whether directly or indirectly. Accordingly, I confirm that this dissertation was independently developed and submitted in partial fulfillment of the requirements for the award of the **Doctor of Philosophy (PhD) in Education Administration and Management** at **Uganda Christian University (UCU)**.

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This is to certify that this Dissertation has been compiled under our supervision and that it is now ready for submission to the Directorate of Postgraduate Studies for examination.

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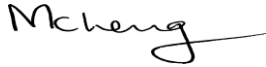
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A handwritten signature in black ink, appearing to read 'Mcheng', written in a cursive style.

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Date: 6<sup>th</sup> October, 2025

## **DEDICATION**

This research work is dedicated to God Almighty, my light and my fortress who guided me through my PhD studies. In addition, this research is also dedicated to my parents; my late father Joseph, my mother Florence Shio, my dearest husband Samwel and my son Brice.

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## ABBREVIATIONS AND ACRONYMS

CPD	Continuous Professional Development
HEI	Higher Education Institution
ICT	Information and Communication Technology
IT	Information Technology
KBET	Knowledge-Based Economy Technology
KE	Knowledge Economy
KM	Knowledge Management
OECD	Organization for Economic Cooperation and Development
R, D&I	Research, Development and Innovation
RIS	Research Information Systems
RIMS	Research Information Management Systems
TQM	Total Quality Management
UNESCO	United Nations Education Scientific and Cultural Organization
WBI	World Bank Institute

## ABSTRACT

This study explored the internal managerial practices of university institutions in promoting knowledge economy initiatives in Tanzania. It examined how university management applies the functions of planning, organizing, controlling, and leading to align operations within knowledge economy (KE) goals. In response to global demands for knowledge-based development, universities are shifting from traditional self-governing models to strategic institutions fostering knowledge creation, dissemination, and application. The study adopted a qualitative approach guided by interpretive philosophy, using document reviews and in-depth interviews with 30 purposefully selected university managers including Directors of Research and Publications, Deans, Heads of Departments, and Coordinators. Thematic analysis revealed that university planning integrates R&D and innovation, ICT, licensing, and industry partnerships, but lacks comprehensive situational analyses to inform KE policies. Organizing functions were found to support KE through consultancy bureaus, research dissemination platforms, startup incubation, and use of media, though interdisciplinary collaboration and works remains weak. Control mechanisms such as quality assurance and ethics committees are in place but often overlook qualitative research impact measures, including stakeholder feedback and societal relevance. Leadership practices promoting vision, flexibility, and empowerment were evident, yet often constrained by institutional pressures favoring rapid publication for promotion over research quality and commercialization. The study concludes that while Tanzanian universities exhibit some alignment with KE initiatives, gaps remain in qualitative focus, interdisciplinary research, bureaucracy tendencies and leadership motivation. It recommends strengthening qualitative dimensions of research, interdisciplinary collaboration, flexible leadership, and provision of resources like grants and training. Future research is needed on the role of academic leadership personality traits in fostering research commercialization and on models for integrating KE indicators in Tanzanian university performance frameworks.

**Keywords:** Knowledge Economy, University Management, Internal Managerial Practices.

## CHAPTER ONE

### INTRODUCTION

#### 1.0 Overview

This study explored the internal managerial practices of university institutions in promoting knowledge economy (KE) in Tanzania. This section grants the background to the problem, statement of the problem, the purpose of the study, objectives of the study, research questions, importance of the study, and conceptual framework as explained under the subsequent subheadings:

#### 1.1 Background to the Study

Universities are pivotal institutions in fostering the development of knowledge economies. Universities play a crucial part in generating and sharing knowledge, which serves as a foundation for innovation and economic growth. As nations across the globe increasingly shift toward knowledge-driven economies, higher education institutions must continuously adapt, embrace change, and evolve to address the rising demand for knowledge production and dissemination. In Tanzania—an emerging economy within East Africa—the contribution of universities to fostering a knowledge-based economy is especially significant. The rapid transformation of economic and business environments has forced organizations of all scales to re-evaluate their resources and capabilities in order to sustain a competitive edge (OECD, 2003). Within such a dynamic context, the pace of change is swift, and institutions or individuals that fail to learn, adapt, and evolve risk being left behind (Laal, 2010). This reality stems from the complex, volatile, and highly competitive conditions characteristic of a knowledge-driven economy.

In the 1960s, economists Gary Becker and Theodore Schultz highlighted the significance of human wealth, encompassing educational attainment, knowledge, experience, and skills, as a key driver of productivity. This concept later evolved into the broader concept of intellectual capital, which denotes the financial value derived from an individual's education, training, skills, and other experiences (Chen, 2021; Ross, 2021). Schultz further emphasized the role of human capital in the modernizing economy, characterized by widespread specialization, increased value of human time, and advancements in useful knowledge (Schultz, 2005). This viewpoint emphasizes the critical need to invest in education, training, and skill

enhancement to build a knowledgeable workforce that can drive research, innovation, and ultimately, economic progress. The concept of the information economy can be traced back to Fritz Machlup (1962), who explored the meaning and value of knowledge, particularly highlighting its role in the rise of the knowledge industry. Expanding on Machlup's foundation, Peter Drucker (1969, 1973) introduced the notion of the knowledge society and underscored the growing significance of knowledge management as a key component of the modern economy. From the mid-1990s onward, scholarly discussions on the knowledge economy deepened, examining its multiple dimensions and implications. This intellectual evolution has been enriched by the works of scholars such as von Krogh, Davenport, Prusak, Volpel, Van Dijk, and Castells (2010), along with the contributions of global institutions and forums, including the United Nations (UN), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the Organization for Economic Cooperation and Development (OECD).

The pressure exerted by the emergence of the knowledge economy has not spared Higher Education Institutions (HEIs), therefore, aligning with the demands of the evolving landscape shaped by globalization and market dynamics they have become integral participants in advancing and enhancing the knowledge economy. In response to this HEIs have strengthened their institutional frameworks. This strengthening involves refining the methods of teaching, research, and overall management, positioning HEIs to respond to the energetic conditions of the knowledge economy. Hence, contribute to creating a skilled and knowledgeable workforce, driving innovation and productivity within the broader economy. It is further been established that knowledge-based economy (KBE) relies on a well-functioning innovation system and a highly qualified workforce, both of which may be generated through higher education, and that universities must play a critical role in achieving a KE (Hadad, 2017; Choong & Leung, 2021). In response to the shift towards prioritizing knowledge exchange (KE), the university's governance has undergone various changes. These include reorganizing internal management and enhancing capabilities, implementing internal and quasi-markets, introducing quality assurance mechanisms, establishing different career paths, and creating new intermediary bodies to facilitate the internal and external transfer of knowledge (Jessop, 2017).

Within higher education institutions, knowledge takes on diverse forms and is generated throughout academic and administrative processes, manifesting as documents, procedures, and tacit knowledge residing within individuals as experiences, judgment, views, and perceptions. This knowledge creation occurs across various levels and through different processes, including education, inspection, assessment, admissions, analysis, exercise, placement, research, and consultancy. Despite the paramount importance of knowledge, Stankosky (2005) contends that many organizations struggle to effectively leverage their organizational knowledge. He attributes this challenge to the intangible nature of knowledge, which resists easy estimate or assessment. Stewart (2001) concurs with this perspective, highlighting that information assets are critical determinants of success or failure for companies, yet often remain unaccounted for in the financial books of the organization. This underscores the inherent difficulty in recognizing and calculating the value of information within the organizational context.

The significance of prioritizing information economy initiatives cannot be overstated, as their absence can hinder economic productivity and impede crucial technological advancements necessary to effectively address global challenges. The United Nations Millennium Declaration of 2000 highlights this consequence, stressing the pivotal role of prioritizing such initiatives in tackling pressing global challenges. In environments characterized by substantial disparities in scientific and technical knowledge creation, universities should adapt by redirecting their research, innovation and development (R&D) efforts for scientific and social value. They are moving away from traditional focuses on industrialized nations towards addressing challenges in developing regions, thereby fostering economic value and stimulating innovation (Juma, Fang, Honca, Huete-Perez, , Konde, Lee, & Singh, 2001; Juma, & Yee-Cheong, 2005 Puukka, & Marmolejo, (2008). Therefore, the active promotion of knowledge economy initiatives by university academic leaders is crucial for driving innovation, economic growth, and social development in developing countries, ensuring they remain competitive and sustainable in today's rapidly evolving global landscape

Various governments globally acknowledge the pivotal role of advanced education in fostering economic growth. Within the agenda of a knowledge economy, the functions of educational institutions serve different roles important to the dynamics

of KE, such as, the training of the workforce and the provision of graduates equipped with technical skills, spanning fields like engineering, data analysis, and IT specialties; and the pivotal role in research, encompassing the generation of new knowledge, fostering invention, and the commercialization of research outcomes (Farazmand, 2018). In Finland, the response of higher education to the demands of knowledge economies has been notably direct, with a strategic emphasis on incorporating competitive logics into managing and policies. This includes initiatives such as pursuing economies of scale through the merger of universities, as highlighted by Poutanen (2022). Also, the United States, have been recognized to have some of the world's premier research universities, that play a significant role in reaffirming American global competitiveness within the framework of a knowledge-based economy, as emphasized by Farazmand (2018). The acknowledgment of higher education's economic significance has prompted a shift towards initiatives geared at instilling entrepreneurial skills, recognizing the crucial role of innovation in the knowledge-driven landscape. From a global perspective, the knowledge economy has gained significant importance in recent years. In a rapidly evolving world driven by technological advancements and globalization, countries and institutions are recognizing the value of knowledge as a key driver of economic growth and development. The information budget encompasses activities related to the creation, acquisition, dissemination, and application of knowledge, including research, innovation, technology transfer, and intellectual property. Universities play a crucial role in the knowledge budget ecosystem. They are not only responsible for generating new knowledge through research and innovation but also for nurturing human capital by providing education and training. Universities are increasingly seen as engines of financial development, as they produce highly skilled graduates, engage in cutting-edge research, and foster collaboration with industries and other stakeholders.

From a regional perspective, different regions have embraced the knowledge economy in varying degrees. Regions such as North America, Europe, and parts of Asia have made remarkable strides in embedding knowledge economy principles within their higher education systems. These areas have developed extensive networks that link research institutions, innovation hubs, and collaborations between academia and industry. They have also introduced supportive policies and

frameworks that promote knowledge generation, technology diffusion, and entrepreneurial growth.

However, the extent to which universities embrace and apply the knowledge economy varies across local contexts, including in Tanzania. Like many developing nations, Tanzania faces a set of distinct challenges and opportunities in advancing the information economy. Constraints such as limited funding for research and development, insufficient infrastructure, and a shortage of qualified personnel hinder universities' ability to fully engage in knowledge-based economic activities. Furthermore, cultural and social factors may affect how information economy practices are adopted and implemented at the institutional level.

Despite these constraints, Tanzania and other developing countries increasingly recognize the importance of adapting to and utilizing the knowledge economy to foster long-term economic sustainability. Ongoing efforts aim to enhance research and innovation capacity, develop effective technology transfer systems, encourage entrepreneurship and partnerships with industry, and raise educational quality to meet the demands of a knowledge-driven economy. These initiatives are designed to prepare graduates with the competencies required to succeed in the global knowledge landscape while promoting local innovation and economic advancement.

Examining the integration of the knowledge economy from global, regional, and local perspectives is crucial in identifying effective models, key challenges, and emerging opportunities. Such an analysis enables policymakers and university leaders to adopt contextually relevant strategies that can optimize the benefits of the knowledge economy within Tanzania, while drawing lessons from international experiences and regional best practices.

Tanzania is actively pursuing knowledge economy issues through its policy documents by emphasizing the identification and promotion of inventions, innovations, and traditional knowledge practices from various sources, including academia, public and private institutions, and individuals at all levels, including grassroots and non-grassroots innovations (URT national research and development policy, 2010). These policies focus on promoting biotechnology development and utilization, involving universities, research and development institutes, and laboratories. Furthermore, Tanzania recognizes the pivotal role of investigation and

expansion (R&D) in national development and seeks to fully integrate an R&D policy into its National Development Vision, ensuring that scientific and technical knowledge generated by research institutions aligns with the country's socio-economic needs. The National Growth Vision 2025 commits Tanzania to building a competitive knowledge economy driven by skills, knowledge, and innovation ((FYDP III 2021/22-2025/2026; Vision, 2025). The government aims to promote innovation through flexible legal and regulatory frameworks, financing strategies for tech start-ups, and the formation of Industrial R&D and innovation Parks to facilitate the transition of innovations from the lab to the market, ultimately enhancing competitiveness, productivity, and value addition activities across sectors (URT, Higher Education report, 2022). In this pursuit, universities are recognized as catalysts for fostering competitiveness, productivity, and value addition activities across various sectors, drawing from global best practices that emphasize the significance of higher education institutions in advancing knowledge-based economies.

## **1.2 Problem statement**

Universities in the knowledge economy serve as transformative hubs of innovation, integrating teaching, research, and societal engagement to generate knowledge with tangible economic and social value (Scott, 2006; Carayannis, 2016, Quansah, 2019). As dynamic organizational actors, they are expected to foster interdisciplinary collaboration, strengthen university-industry partnerships, and adopt effective strategies for managing and leveraging knowledge assets. Such practices not only prepare graduates with competencies relevant to global competitiveness but most importantly ensure that research outputs generated drive national and international economic transformation. Within well-governed university system, an enabling environment is created where competition stimulates creativity and invention, reinforcing universities' role as strategic players in knowledge-economy based growth (Broström, Buenstorf, & McKelvey, (2020); Krücken, 2021). In this way, universities embody the critical link between policy aspirations and societal needs, making their internal managerial practices of planning, organizing, controlling, and leading central to shaping meaningful participation in the knowledge economy.

Universities in many developing countries, including Tanzania, continue to face significant challenges in aligning their internal managerial practices with the demands of the knowledge economy. While global scholarship (Scott, 2006; Carayannis, 2016) emphasizes the importance of prioritizing knowledge creation, dissemination, and utilization, Tanzanian universities are still constrained by structural, cultural, and managerial barriers. Studies (Jackson, 2003; Newell, 2004; Kabilwa, 2018) reveal that higher education institutions often operate under rigid command-and-control models that hinder knowledge sharing and collaborative problem-solving. Additionally, universities struggle to quantify and strategically manage intangible assets such as intellectual capital (Armstead & Meakins, 2002), despite their importance in generating financial and developmental value.

Evidence shows that although Tanzanian universities have policies and plans in place to contribute to knowledge-based development (Kahangwa, 2018), significant gaps persist in how internal processes such as planning, organizing, controlling, and leadership are applied to advance knowledge economy objectives. Existing research highlights broader contributions of higher education to the information economy (Marginson, 2009; Moiseev et al., 2019; Finegold, 2006), but less attention has been given to the specific internal managerial functions that directly shape universities' ability to transform knowledge into innovation and tangible economic impact. The persistence of traditional academic cultures, weak interdisciplinary collaboration, and insufficient engagement with industry continue to limit universities' effectiveness in this domain. Efforts have been made to reform higher education policies and align curricula with knowledge economy priorities, yet little has been done to systematically examine internal management practices that drive this alignment. Without addressing these gaps, universities risk producing research that remains disconnected from societal needs and economic opportunities.

This study addresses this problem by investigating using a case study research of how university administrators in Tanzanian public universities principals, deans, head of departments and coordinators apply managerial functions of planning, organizing, controlling, and leading in relation to knowledge economy initiatives. By filling this gap, the study provides critical insights into the strengths and weaknesses of

managerial practices and offers recommendations for enhancing universities' contributions to economic growth and societal transformation.

### **1.3 Purpose of the Study**

The purpose of this study was to explore the utilization of planning, organizing, controlling and leading of university management in the promotion of knowledge economy in Tanzania.

#### **1.3.1 Specific objectives of the study**

- i. To explore how university management integrates aspects of knowledge economy in their planning
- ii. To investigate how university management organizes the knowledge economy practices
- iii. To establish how control mechanisms, support knowledge economy
- iv. To determine how leading in the university plays a role in the support of knowledge economy

#### **1.3.2 Research questions**

- i. How does internal university management integrate aspects of knowledge economy in their planning?
- ii. How does internal university management organize the knowledge economy practices?
- iii. How does university internal control mechanisms work to support knowledge economy?
- iv. How does leading in the university play a role in the knowledge economy?

## 1.4 Conceptual Framework

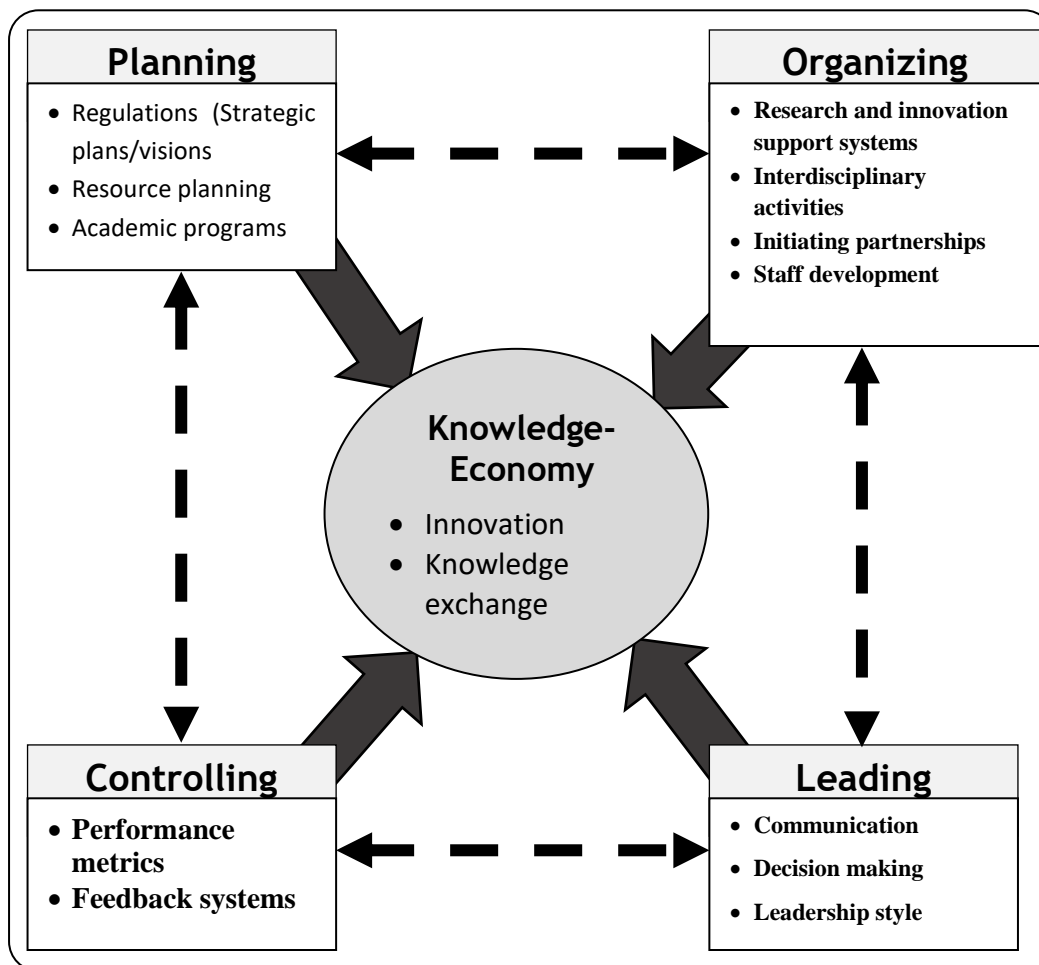


Fig 1.1: Conceptual Framework

Source: researcher own source

In the context of university management promoting knowledge economy initiatives, considering an interactive mode of thinking involves how different managerial elements interact, influence each other, and contribute to the overall promotion of a knowledge-based environment. This model shows that the management functions (planning, organizing, leading, and controlling) as represented with a dotted two-way arrow connecting them, while the knowledge economy initiatives are at the center, the use of such arrows typically signifies interactive and reciprocal relationships between these management functions. This also allows for a feedback mechanism between the management functions in supporting a knowledge economy environment.

Internal University Management Planning may include strategic plans processes integration of R&D, & I technology and training programmes, financial,

infrastructure plans and strategic partnerships. Organization processes in relation to KE may involve: research support systems; staff development; initiating partnerships, knowledge sharing platforms and interdisciplinary activities while the Internal Control Mechanisms fostering KE may include: research & Innovation performance metrics and leading through different styles may encourage innovation from the academic staff, collaboration and communication strategies for conducting interdisciplinary approach. This leads to outputs of KE creativities such as: research and innovation output and impact; skill transfer and commercialization; Industry collaborations and partnership; Enhanced academic reputation and rankings and collaborative research-undertaking.

The arrows from management functions to KE initiatives suggest the following: In the planning phase, university administrators may set strategic goals to enhance research collaboration and technology integration. The arrows indicate that the planning decisions directly influence the initiation of specific knowledge economy initiatives, such as establishing interdisciplinary research centers or investing in advanced technological infrastructure. The university's management decision to create dedicated research teams, allocate funds for innovation labs, and establish partnerships with industry reflects the influence of organizing on KE initiatives. It signifies the direct influence of structural decisions on the implementation of these initiatives. The solid arrow reflects the leadership's guiding impact on these initiatives, for instance, a university college principal commitment to promoting a culture of incessant learning and experimentation directly influences the initiation and success of knowledge economy initiatives. Control mechanisms are implemented to monitor and evaluate the effectiveness of knowledge economy initiatives by assessing the impact of research projects or innovation programs, the solid arrow illustrates the direct influence of controlling mechanisms on shaping and refining the strategies of knowledge economy initiatives.

### **1.5 Significance of the Study**

It is expected that the outcomes of this study would broaden the body of knowledge-on-knowledge budget and higher education management practices in Africa and may be advantageous to the various stakeholders as follows; This study may be of operational relevance, and suitable for those interested in higher education theory, policy and practice.

**Academic and Research Advancement:** The outcomes of the study are intended to add to the enhancement of academic and research activities within universities. By understanding how university management integrates knowledge economy aspects into planning and organization, institutions can develop plans to foster a culture of innovation, research network, research teamwork, and knowledge transfer. This can lead to the generation of high-quality research outputs, academic excellence, and increased contributions to the information economy.

**Financial Development:** The promotion of information economy initiatives is crucial for economic development. By exploring how universities in Tanzania contribute to the knowledge economy, the study can shed light on strategies that can be adopted by other institutions and stakeholders. The findings can inform policymakers, government agencies, and industry leaders on the role of universities in driving financial growth through the development of human capital, innovation, and entrepreneurship.

**Policy and Governance:** The study is expected to provide insights into the policies and governance mechanisms required to support knowledge economy initiatives within universities. By understanding how control mechanisms are used, policymakers and university administrators can develop effective regulations and frameworks that encourage knowledge creation, protect intellectual property rights, and foster collaboration between academia, industry, and government.

**Capacity Building:** The study is expected to add to capacity building efforts in higher education institutions by identifying best practices and strategies for promoting knowledge economy initiatives. It can guide university leaders and administrators in developing training programs, workshops, and initiatives that enhance the skills and capabilities of faculty, researchers, and students in areas such as innovation, technology transfer, and entrepreneurship.

**International Collaboration:** The findings of the study are also expected to facilitate international collaboration and partnerships. By understanding how universities in Tanzania promote the knowledge economy, institutions from other countries can identify areas of mutual interest and potential collaboration. This can lead to the exchange of knowledge, research collaboration, joint ventures, and the attraction of international funding.

## **1.6 Delimitations of the study**

The study was intensive on four functions of internal management that is planning; organizing, leading and controlling and how they facilitate the promotion of knowledge economy initiatives considering aspects of research; innovation; commercialization; in two public universities in Tanzania. Geographic Scope: The study focuses specifically on universities in Tanzania. It does not encompass universities from other countries or regions. Therefore, the findings and conclusions may not be directly applicable to universities in different contexts or locations.

The study working as a qualitative research approach, specifically a multi-case study design. This means that the findings are based on in-depth interviews, observations, and document analysis within a limited number of selected universities. The qualitative environment of the study limits the generalizability of the findings to a larger population.

This study mainly focuses on the internal management practices within universities that contribute to advancing knowledge economy initiatives. It gives limited attention to external influences such as government policy frameworks, partnerships with industry, or broader socio-economic dynamics that may also play a significant role in shaping the development of the knowledge economy in Tanzania. The focus on internal practices may provide a partial understanding of the broader ecosystem surrounding knowledge economy initiatives. Due to resource limitations and the qualitative environment of the study, a limited number of universities may be included as case studies. The sample size may not fully represent the diversity and variations that exist among universities in Tanzania. Therefore, the findings may not capture the full range of internal managerial practices employed by all universities in the country. The study recognizes that personal interpretations and biases could affect both data collection and analysis. The researchers' own perspectives, experiences, and backgrounds may influence how findings are interpreted. To minimize such bias, measures such as rigorous data analysis techniques, triangulation of multiple data sources, and reflexive practices throughout the research process will be employed.

Additionally, the study was conducted within a defined timeframe, with data collection and analysis confined to that period. As a result, it may not reflect recent

changes or developments in the internal managerial practices of universities in Tanzania related to promoting knowledge economy initiatives that occurred after the study was completed.

### **1.7 Justification of the study**

The explanation for the study is well-supported by two main reasons:

The knowledge economy is increasingly recognized as a key driver of financial growth, innovation, and competitiveness in the global context. Universities, as knowledge hubs, play a crucial role in generating, disseminating, and applying knowledge. Understanding how university management practices contribute to the promotion of the information economy is critical for enhancing the effectiveness and impact of universities in Tanzania. By investigating internal managerial practices, the study provides valuable insights into how universities can align their strategies, resources, and processes to support the knowledge economy, thereby contributing to national and regional development.

Tanzania, like many other countries, is experiencing the need to transition to a knowledge-based budget to foster sustainable development. With the increasing importance of research, innovation, and technology in driving economic growth and societal progress, it is crucial to examine how university management and leadership in Tanzania's universities are adapting to these changing dynamics. The study's focus on understanding the internal management practices of universities in promoting the knowledge budget is highly relevant and timely. The findings will provide valuable guidance to universities in Tanzania on how to leverage their strengths and resources to foster a knowledge-based ecosystem and contribute to the country's overall development goals.

Furthermore, the study's significance extends beyond Tanzania. As the findings shed light on effective internal managerial practices, they can help as a benchmark for universities in other African countries and globally. Policymakers and stakeholders in various regions can draw insights from the study to develop policies, strategies, and collaboration frameworks that promote the knowledge economy within their respective contexts. Overall, the study's justification lies in its potential to produce knowledge and provide practical recommendations for universities, policymakers, and stakeholders to enhance their contributions to the knowledge economy. By

addressing the evolving landscape and tests, the study aims to add to the broader discourse on knowledge economy development and guide universities and decision-makers in their efforts to foster economic growth, innovation, and sustainable development.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Overview

This section presents literature related to knowledge economy, understanding through knowledge budget models such as World Bank; Asian Development Bank models, Knowledge economy practices and indicators, The role of university management functions in promoting knowledge budget, theoretical framework, knowledge economy integration in Tanzanian public universities, knowledge economy in higher education, challenges faced by Tanzanian public universities in integrating knowledge economy practices, empirical studies, and research gap .

#### 2.2 Definitions of Key Terms

##### 2.2.1 Knowledge

Knowledge, in its broadest sense, embodies a familiarity, awareness, or understanding acquired through experience or education, encompassing facts, information, descriptions, or skills (Mohajan, 2016). It is increasingly recognized as a critical asset for gaining competitive advantage, with economists highlighting its significance in wealth creation and specialized competencies (Drucker, 1999; Blacker, 2002). Originating within human minds, knowledge expands through acquisition and dissemination, with existing knowledge forming the basis for further advancement (Baumard, 1999; Ipe, 2003). As emphasized in the World Growth Report (World Bank, 1998), knowledge plays a pivotal role in transforming resources, improving living standards, healthcare, education, and environmental conservation, indicating its multifaceted importance in societal progress. Knowledge, constructed from raw data, information, and prior knowledge, serves as the foundation for decision-making, facilitating action and individual development (Davenport & Prusak, 1997; Ipe, 2003).

Knowledge can be categorized in various ways, reflecting different perspectives on its nature and application. Blackler (2002) identifies five categories of knowledge as embrained (dependent on conceptual skills); Embodied knowledge (acquired by doing); Encultured (through shared understanding); embedded knowledge (residing in the systemic routines) and encoded (conveyed through symbols, manuals). Further

elaborating on types of knowledge, Olomolaiye and Egbu (2005), building on Rennie (1999), describe several specific forms “know-why” (scientific information of the value and laws of nature), “know-how (skills or abilities) Know-Where (ability to find the right information) know-what (accumulation of facts) Know-when (sense of timing) know-who (evidence about who knows what). Additionally, Polanyi (1958) introduced a fundamental distinction between explicit and tacit knowledge, which was later expanded by Nonaka (1994) that is explicit knowledge that is transmissible and codified knowledge articulated in numbers. While Tacit knowledge has a personal element and rooted in the individual. In the context of universities and the promotion of the information economy, recognizes the forms of knowledge through Explicit knowledge, as recorded and communicated through various mediums such as libraries and databases, constitutes organized information (Nonaka, 2009). Explicit knowledge is crucial because it can be systematically documented and disseminated. For instance, scientific knowledge derived from research becomes explicit when it is published in academic journals, shared in conferences, or included in educational materials. This form of knowledge is needed for the growth of the knowledge budget as it allows for the accumulation, transfer, and application of scientific discoveries on a broad scale, contributing to societal and economic advancements. Tacit knowledge, being personal, context-specific, and often unarticulated (Mohajan, 2016; Nonaka,1994). For instance, in the university it entails the skills and expertise a researcher develops over years of conducting experiments or the intuitive problem-solving abilities that come from hands-on experience in a laboratory are forms of tacit knowledge. This type of knowledge is crucial in the realm of scientific research as it drives innovation and the discovery of new insights Conversely, explicit knowledge, readily articulated and codified, plays a essential role in the promotion of the knowledge budget within universities, facilitating systematic documentation, dissemination, and application of scientific discoveries. The study in the framework of university management promoting a knowledge economy, will focus on scientific knowledge generated through research embodies both tacit and explicit forms. Universities, in fostering environments conducive to the development of both tacit and explicit knowledge, add significantly to the knowledge budget by balancing and integrating these forms of knowledge, thereby driving innovation, economic growth, and societal progress

### 2.2.2 Knowledge economy (KE)

The World Bank Institute [WBI], (2008) defines knowledge economies as economic systems in which the production, distribution, and consumption of information play a central role in driving economic growth and development. Meanwhile, Unger (2022) and Secundo, G., Ndou, V., Del Vecchio, P., & De Pascale, G. (2020) maintains that knowledge economy as a system of production and consumption is based on the information acquired by the workers or intellectual capacity. In that regard, knowledge budget comprises industries whose main determination centres on knowledge or information from high technical industries and information intensive services which includes publishing industries, scientific research and development and higher learning (Landström, 2008.)

In the evolving knowledge economy, continuous learning and development are crucial, requiring individuals and organizations to constantly update their skills to stay economical in today's rapidly varying financial environment. The knowledge economy necessitates lifelong learning which is essential for employability, emphasizing the pivotal role of knowledge and expertise in driving economic success and societal advancement (Tchamyou ,2014). Moreover, in this knowledge-driven economy, the significance of people's knowledge and know-how has become crucial for the success of businesses, organizations, and entire countries (Melnikas, (2008); Mosey, Wright, Clarysse (2012) Aparicio, , Iturralde, , & Rodríguez, . (2021). Individuals with the appropriate knowledge and skills are now becoming the main contributors to economic growth. Their expertise not only fuels innovation and efficiency within companies but also enables them to navigate the challenges and complexities of the global market. Okebula (2019) posits that the ability to acquire, utilize, and share knowledge effectively has become a vital aspect of achieving competitiveness and success in the knowledge economy. Similarly, companies must invest in the development of their employees' skills and information to maintain their competitive advantage.

Additionally, the appearance of the knowledge economy has redefined economic value, emphasizing the growing importance of intangible assets such as intellectual property and innovation capacity over traditional tangible assets such as land, buildings, and machinery were once seen as the primary drivers of economic prosperity, intangible assets such as intellectual property, patents, and innovation

capacity now hold greater value (Ralph and Roger 2018; Bilous, 2014). This change in perspective has resulted in the increased recognition and protection of knowledgeable property rights, as well as the promotion of research and development activities. These economies are distinguished by the utilization of highly skilled workers, the implementation of knowledge-intensive production processes, and a constant pace of innovation. Within the knowledge budget, knowledge is viewed as both a commodity and a resource, and it is gradually becoming the principal source of economic power. Consequently, industries that rely on knowledge and expertise are experiencing rapid growth, leading to the creation of new job opportunities and economic prospects. Top of Form

In the situation of this study the concept of KE means a framework of economic value and social progress through the generation, distribution, innovation and utilization of knowledge, including knowledge-intensive processes such applied research and collaborative research undertakings with industry partners conducted within a university setting.

### **2.2.3 Management**

Management is the process of preparation, organizing, staffing, guiding, and controlling government's resources (such as human, financial, and physical resources) in order to achieve the organization's goals and objectives efficiently and effectively (Kaehler & Grundei, 2019). Management involves making decisions, coordinating and supervising employees, and ensuring that tasks and projects are completed successfully. Successful management requires skills in leadership, communication, problem-solving, and decision-making. In addition to the aforementioned processes, management also entails nursing and evaluating the performance of individuals and teams within the organization. By assessing their progress against set goals and targets, directors can identify areas of improvement and implement strategies to enhance overall performance.

On that matter, the concept of effective management is crucial for organizational development. Khan et al. (2022) posits that effective management involves developing strategies and action plans to guide the organization towards its goals, this includes setting realistic and achievable objectives, and creating a roadmap to attain them. In the line to that, managers must also allocate resources

appropriately, considering factors such as budget constraints, time limitations, and available manpower. An essential aspect of management is the allocation and utilization of human resources, this involves recruiting, selecting, and hiring qualified individuals who possess the necessary skills and knowledge to fulfil their assigned roles. Cheng et al. (2021) maintains that managers are responsible for training and developing their employees to ensure they have the necessary competencies to excel in their positions.

Similarly, effective managers must possess a diverse skill set encompassing industry knowledge, decision-making expertise, problem-solving skills, relationship-building abilities, and a focus on customer satisfaction to drive organizational success in competitiveness. As Oladayo and Raju (2021) stipulates that managers in today's world must stay updated on industry trends, technological advancements, and market dynamics. They need to be proactive in identifying opportunities for growth, furthermore, managers play a crucial role in decision-making processes as they gather and analyse relevant data, evaluate potential risks and benefits, and make informed decisions that align with the organization's objectives. Likewise, Bang and Midelfart (2017) maintains that an effective managers also possess strong problem-solving skills, enabling them to address challenges and overcome obstacles in a timely and efficient manner, involves construction and maintaining strong relationships with stakeholders, such as clients, employees, suppliers, and shareholders. In that regard, managers must prioritize customer satisfaction and strive to meet their expectations by delivering high-quality products or services by establishing an effective communication channels with employees, encouraging feedback and development a sense of trust and loyalty (Sira et al., 2020).

#### **2.2.4 Managerial practices**

Managerial practices refer to the actions and behaviours that managers exhibit in order to effectively lead and oversee a team or organization. These practices encompass a wide range of activities, including development, organizing, guiding, and controlling resources to achieve organizational goals Valero (2021). In the same line managerial practices involve making decisions, setting objectives, allocating resources, and organising activities to ensure that tasks are completed efficiently and effectively, it also entails communication, motivation, and coaching to develop and empower employees (Ekermann & Karmfalk, 2023). Generally, effective

managerial practices involve fostering a positive work culture, encouraging collaboration and teamwork, promoting innovation, and managing conflicts and performance issues.

In addition to monitoring and evaluating performance, managerial practices encompass a comprehensive range of events aimed at optimizing employee performance and fostering growth within an organization (Bagu et al., 2021). In that matter, one of the primary roles of managers is to conduct performance reviews, which involve assessing individual or team achievements against predetermined goals and objectives. Chatterjee et al, (2020, 2023) insist the offering timely and specific feedback, managers can acknowledge achievements, address areas that need development, and support employees in reaching their full potential. Likewise, Valero, (2021) reports the feedback can take various forms, such as regular check-ins, one-on-one discussions, or structured performance feedback sessions.

On that matter, effective managers have a strong ability to adapt and be flexible in their approach, they understand that different situations may require different strategies or approaches and are willing to adjust their methods accordingly. This also includes being open to feedback and continuously learning and improving. Organizational skills are crucial for effective managerial practices. Bratu and Cioca (2021) disclose that managers must be able to prioritize tasks, set goals, and allocate resources efficiently to ensure that deadlines and objectives are met. In that notion, they must also be able to delegate responsibilities and effectively supervise and coordinate the work of their team members. Successful managers are able to build and maintain strong relationships with both their team members and other stakeholders. This involves being able to build trust, collaborate effectively, and resolve conflicts in a constructive manner (Okebula, 2019).

Furthermore, effective managerial practices involve the crucial ability to build and sustain strong relationships with both internal and external stakeholders. This encompasses various aspects such as networking, negotiating, and collaborating with other departments, teams, and organizations to drive successful outcomes and cultivate valuable partnerships (Boslye & Gifford, 2023). In that matter, Farooq (2022) posits that networking plays a pivotal role in developing relationships with individuals within and outside the organization, this involves actively reaching out,

engaging, and connecting with key stakeholders, including employees, colleagues, superiors, and even people from other organizations who hold relevant knowledge, skills, or resources. By fostering these connections, managers can tap into a diverse pool of expertise, insights, and support, enabling them to access valuable information and opportunities that can enhance their decision-making and problem-solving abilities (Munoz-may et al., 2021).

### **2.2.5 Internal managerial practices**

Internal managerial practices refer to the various strategies, structures, and processes adopted by managers within an organization to effectively and efficiently manage the resources and activities of the organization (Amara & Benelifa, 2017). These practices focus on improving decision-making, planning, organizing, leading, and controlling functions within the organization. Likewise, internal managerial practices include Goal setting and planning: Managers define organizational goals and develop plans to achieve those (Anosike & Ahmed, 2022). Internal managerial practices involve creating strategic plans, setting objectives, and allocating resources accordingly; Organizational structure: Managers develop an appropriate organizational structure that defines reporting relationships, authority, and responsibilities (Suares, 2015). On that regard, this structure can be hierarchical, matrix-based, or flat, depending on the nature and difficulty of the organization; Communication and coordination. Pinto et al. (2014) maintains that managers have to establish effective communication channels and coordination mechanisms to ensure smooth flow of information, collaboration, and cooperation among different departments and levels of the organization; Resource allocation and utilization: Managers allocate resources, such as finances, human capital, and technology, optimally to support organizational objectives. Similarly, they also monitor resource utilization to ensure efficiency and cost-effectiveness. Managers establish performance metrics, set performance targets, and regularly evaluate the presentation of individuals, teams, and the organization as a whole which includes providing feedback, coaching, and recognition to improve performance (Salem, 2019).

Internal managerial practices also include employee development and training: Managers invest in employee development through training programs, skill-building workshops, mentorship, and career development opportunities (Amara & Benelifa,

2017; Chen, & Huang, 2017). In that regard, they identify and nurture talent within the organization to enhance employee skills and knowledge; Decision-making processes: Managers establish decision-making processes, frameworks, and tools to ensure timely and effective decision-making. This includes gathering relevant information, generating replacements, evaluating options, and choosing the best course of action; Risk management: Managers identify possible risks and develop strategies to mitigate them. They establish risk management protocols, including contingency plans and insurance coverage, to minimize the impact of adverse events on the organization; Quality controlling: Managers implement quality management practices, such as total quality management (TQM) or Six Sigma, to safeguard that the organization's products or services meet or surpass customer expectations. This involves continuous monitoring, analysis, and improvement of processes and products; Ethical and sustainable practices: Managers promote ethical behavior, transparency, and sustainability within the organization. They ensure compliance with legal and regulatory requirements and also establish policies and procedures to promote environmental sustainability and social responsibility (Bratiam, 2018).

Internal Managerial practices in the context of university management refer to the strategic methods and approaches employed by university administrators and academic leaders to promote and contribute to the knowledge economy. This includes fostering a culture of continuous learning, innovation, and knowledge intensive activities among faculty, researchers, and students. Effective managerial practices in universities also involve strategic resource allocation to support research and development activities, technology transfer initiatives, and industry collaborations. Moreover, promoting interdisciplinary collaborations, encouraging entrepreneurship and commercialization of research outcomes, and ensuring effective knowledge dissemination through knowledge sharing platforms such publications, conferences, and partnerships are essential aspects of managerial practices in university management within the knowledge economy framework. Overall, these practices aim to enhance the university's role as a hub of knowledge creation, transfer, and application, contributing significantly to economic growth, innovation, and societal progress.

## **2.3 Key Characteristics of Knowledge Economy**

### **2.3.1 Knowledge creation and innovation**

A study by Hadad (2017) maintained that a knowledge economy places a durable importance on the group of new knowledge and the ability to innovate. This means that values and encourages research and development, technological advancements, and the formation of new ideas, products, and services. The knowledge economy values technological advancements as a means to foster innovation. The continuous pursuit of new technologies and their integration into various industries is crucial in order to stay competitive. Advancements such as artificial intelligence, big data analytics, and automation can revolutionize how businesses operate and create new growth opportunities (Beinart, 2019). However, the creation of new ideas, products, and services is also a fundamental aspect of a knowledge economy. It encourages individuals and governments to think outside the box and come up with innovative solutions to societal and economic challenges. The focus on creativity and innovation leads to the growth of new products and services that potentially disrupt existing markets or create entirely new ones. In a knowledge economy, the ability to adapt to change and embrace lifelong learning is highly valued. The rapid pace of technological advancements and globalization requires individuals to constantly update their skills and knowledge in order to remain relevant in the job market. Lifelong learning becomes essential for individuals to stay competitive and thrive in this economy (Burlacu, 2018).

Furthermore, knowledge economy promotes collaboration and knowledge sharing between different stakeholders. It recognizes that no single entity has a monopoly on knowledge and that innovation often occurs through interdisciplinary cooperation. Universities, research institutes, and businesses collaborate to exchange ideas, research findings, and expertise to fuel innovation. Open innovation models, such as crowdsourcing and open-source software development, are increasingly popular in this economy, as they tap into the collective intelligence and creativity of a diverse group of individuals.

### **2.3.2 Skilled workforce**

A key individual of a knowledge economy is a highly skilled and educated workforce. The economy relies on individuals who possess specialized knowledge, expertise,

and advanced technical skills. Education and continuous learning are prioritized to meet the anxieties of a rapidly changing economy (Okebula, 2019). Again, education plays a pivotal role in developing a workforce that can effectively contribute to a information economy. It is not just about the acquisition of basic knowledge but also the cultivation of critical intellectual, problem-solving, and analytical skills. As technologies advance and industries evolve, the demand for new knowledge and skills expands. Therefore, a strong emphasis is placed on continuous learning to keep up with the rapidly changing economy (Ackermann, 2023).

Individuals with a deep understanding of their respective fields can add to the growth of new ideas, products, and services. This requires a workforce that is constantly seeking out new information, expanding their knowledge base, and remaining up-to-date with the latest advancements. Consequently, a culture of lifelong learning is fostered to promote ongoing professional development (Okebula, 2019). Furthermore, in a knowledge economy, the role of education extends beyond formal schooling. Continuous learning is prioritized, encouraging individuals to engage in lifelong learning opportunities such as professional development programs, workshops, and online courses. This enables individuals to stay ahead of the curve, adapting to the changing demands of the economy and increasing their employability. Skilled workforce fosters a culture of intellectual curiosity and personal growth, ensuring that individuals are not only equipped with the necessary technical skills but also possess a broader understanding of the world and its complexities (Bratiam, 2018).

### **2.3.3 Information and communication technology**

Knowledge-based economies depend greatly on information and communication technology (ICT). ICT is essential for generating, sharing, and distributing knowledge, as it fosters collaboration, improves efficiency and productivity, and supports the emergence of new industries and innovative business models (Bratiam, 2018). Moreover, ICT allows individuals and organizations to collaborate effectively, regardless of their physical or geographical location. Through platforms such as video conferencing and cloud-based collaboration tools, people can work together on projects and share their expertise in real-time. This collaboration expands the scope of knowledge and allows for the pooling of resources and ideas. It also enables

the formation of global networks, where individuals and organizations can connect and exchange knowledge on a larger scale (Okebula, 2019).

ICT also enhances productivity and efficiency in knowledge economies. With tools such as project management software, data analytics, and automation, organizations can rationalise their processes, reduce costs, and optimize their operations. This increased efficiency allows for more time and resources to be allocated towards innovation and knowledge creation. Moreover, ICT provides access to real-time information and data that can be analysed and used to make informed decisions. This enables businesses and individuals to identify trends, assess market demands, and adapt their strategies accordingly, resulting in increased productivity and competitiveness (Vitalis et al., 2021; Brinkley 2018).

In addition to facilitating knowledge creation and collaboration, ICT also supports the development of new industries and business models in knowledge economies. The rise of e-commerce, online marketplaces, and digital platforms has transformed traditional industries and created new opportunities for innovation and entrepreneurship. These digital platforms enable individuals to monetize their knowledge and expertise by providing online courses, consulting services, or selling digital products. This opens up avenues for individuals to generate income and contribute to the economy, regardless of their location or background (Bratiam, 2018).

Lastly, Namani and Badivuku-Pantina (2019) posits that ICT plays a crucial role in the dissemination of knowledge, through digital platforms, information and educational resources can be accessed by a wide audience, regardless of geographical barriers. Online learning platforms, e-books, and digital libraries make education and knowledge accessible to individuals around the world, promoting lifelong learning and empowering individuals to enhance their skills and competencies. Moreover, ICT allows for the rapid dissemination of research findings and scientific discoveries, accelerating the pace of innovation and fostering collaboration among researchers and scientists globally (Vitalis et al., 2021).

#### **2.3.4 Intellectual property protection**

European Union Intellectual Property Office [EUIPO], (2016) connotes that protection of rational property rights is crucial in a knowledge economy. Strong legal

frameworks and enforcement mechanisms are in place to ensure that individuals and organizations can protect and capitalize on their knowledge, inventions, and creative works. This incentivizes innovation and investment in research and development. Furthermore, strong intellectual property protection adopts economic growth and competitiveness. In a knowledge-based economy, intellectual property often constitutes a significant portion of a company's value. By having robust legal frameworks and enforcement mechanisms in place, countries are able to attract foreign investments and encourage domestic investments in research and development. This, in turn, creates jobs, stimulates economic activity, and enhances the country's competitiveness in the world-wide market (Vitalis et al., 2021).

Intellectual property protection also shows a vital role in preserving cultural heritage and creativity. Whether it is music, literature, traditional knowledge, or folklore, these creative expressions are at risk of being misappropriated or exploited without proper legal protection. By safeguarding intellectual property rights, countries can preserve and promote their cultural heritage, ensuring that future generations can continue to benefit from and appreciate the diverse expressions of human creativity (Masa'deh et al., 2019).

Lastly, protecting intellectual property rights helps foster collaboration and knowledge-sharing. When individuals and organizations have confidence that their intellectual property will be protected, they are more likely to engage in collaborations and share their knowledge and inventions with others. This leads to a more dynamic and interconnected knowledge economy, where ideas can be built upon and advancements can be made collectively. Collaboration and knowledge-sharing are essential drivers of innovation and progress, and strong intellectual property protection encourages and facilitates these activities (Masa'deh et al., 2019).

### **2.3.5 Collaboration and networking**

Knowledge economies thrive on collaboration and networking. Companies, organizations, and individuals actively engage in partnerships, collaborations, and knowledge-sharing initiatives. Open innovation, where companies share their resources, ideas, and expertise, is commonly practiced to drive innovation and

accelerate growth (Sira et al., 2020). Additionally, networking plays a vital role in knowledge economies as it enables companies and individuals to build relationships and exchange information with others in their industry. Through networking events, conferences, and online platforms, professionals can connect with compatible individuals, stay efficient on the latest industry trends, and expand their knowledge base. The connections formed through networking can lead to new business opportunities, partnerships, and collaborative projects, ultimately driving economic growth (Vitalis et al., 2021).

Furthermore, in knowledge economies, knowledge-sharing initiatives are actively encouraged, as they add to the collective advance and development of society. Companies and organizations often organize workshops, seminars, and training programs to share their expertise and insights with others. By disseminating knowledge and empowering individuals and businesses, these initiatives foster a culture of innovation, promote sustainable development, and add to the overall security of the community. Moreover, knowledge sharing also helps companies build a positive reputation, attract top talent, and position themselves as industry leaders. It creates a combined and helpful environment where individuals and organizations can thrive and collectively contribute to solving complex challenges (Sira et al., 2020).

### **2.3.6 Entrepreneurship and innovation culture**

A study by Vitalis et al. (2021) reveals that knowledge economy fosters an entrepreneurial and innovative culture. It encourages individuals to take risks, explore new ideas, and start their own businesses. Supportive ecosystems, such as business incubators, accelerators, and venture capital funding, are in place to promote entrepreneurship and facilitate the growth of innovative start-ups. Supportive ecosystems, such as business incubators, accelerators, and venture capital funding, play a crucial role in fostering this culture. Business incubators provide aspiring entrepreneurs with the necessary resources, guidance, and infrastructure to launch their start-ups successfully. These programs offer mentorship, access to networks and markets, and administrative support, allowing innovators to focus solely on driving their ideas forward. Accelerators, on the other hand, focus on pushing already established start-ups to their next level of growth by

providing them with extensive mentorship, investment, and networking opportunities (Sira et al., 2020).

Additionally, venture capital funding acts as a catalyst by providing the necessary financial backing for these aspiring entrepreneurs, enabling them to bring their ideas to fruition and further invest in advancing their ventures. The presence of such supportive ecosystems stimulates innovation and encourages more individuals to step out of their ease zones and become entrepreneurs, ultimately contributing to the growth of innovative start-ups (Sira et al., 2020).

### **2.3.7 Globalization and competitiveness**

A study by Sira et al. (2020) admires that knowledge economy is highly competitive on a global scale, it is characterized by the ability to provide specialized knowledge, products, and services that can compete in the world-wide market. It embraces globalization and takes advantage of global networks and markets to expand its reach and influence. Furthermore, a knowledge economy recognizes that the world is increasingly interconnected. The concept understands the importance of international trade and cooperation, as well as the immense potential of global networks and markets. By embracing globalization, this economy can access new markets, collaborate with international partners, and tap into a diverse range of talent and resources (Bratiam, 2018).

For that case the ability to provide specialized knowledge, products, and services is crucial for success in the world-wide market. Mariela et al. (2021) postulates that companies and individuals must constantly adapt to changing technologies, consumer demands, and market trends to remain competitive. Moreover, with the increasing interconnectedness and integration of economies, knowledge-based industries can tap into global networks and markets to expand their customer base and increase their influence. By embracing globalization, a knowledge economy can access a wider pool of talent, collaborate with international partners, and leverage the benefits of economies of scale. This allows for greater efficiency, productivity, and competitiveness in the international market (Okebula, 2019).

### **2.3.8 Continuous learning and adaptability**

A study by Muzam (2023) reports that knowledge economy, continuous learning and adaptability are essential. Individuals, organizations, and even governments must be willing to learn, unlearn, and relearn as new knowledge and technologies emerge. Hadad (2017) contemplates that the ability to adapt to varying circumstances and navigate through doubt is key to upholding competitiveness and relevance. Similarly, organizations also need to substitute a culture of continuous learning and adaptability to succeed in a knowledge economy. As new knowledge and technologies emerge, organizations must not only stay informed but also be willing to unlearn outdated practices or strategies. For instance, if a manufacturing company does not adapt to new technologies, such as automation or artificial intelligence, they might face decreased efficiency and diminished output in comparison to their competitors. Therefore, Muzam (2023) believes that organizations that prioritize continuous learning and adaptability can maximize their productivity and maintain their competitiveness.

Governments also have a crucial role in promoting continuous learning and adaptability, which are essential for success in a knowledge-driven economy. Policies and initiatives should support lifelong learning, enabling individuals to continually develop new skills. By investing in education and training programs, governments can ensure that citizens possess the competencies needed to thrive in a fast-changing and competitive labor market (Muzam, 2023). In addition, governments must regularly update policies and regulations to keep up with rapidly advancing technologies and evolving knowledge. Such responsiveness creates an environment that encourages innovation, attracts skilled talent and businesses, and stimulates economic growth. Hence, governments that prioritize continuous learning and adaptability can create a vibrant and resilient knowledge-based economy (Okebula, 2019).

### **2.3.9 Sustainable Development**

Another important feature is sustainable development, which aims to foster economic growth while simultaneously addressing social and environmental concerns. It emphasizes innovation and the adoption of new technologies to tackle global challenges, including climate change, depletion of natural resources, and

social inequality (Barlacu, 2018). Additionally, a knowledge economy embraces innovation and technological advancements as key drivers of progress that addressing global challenges requires new and creative solutions. By investing in research and development, a knowledge economy seeks to foster a culture of invention and free enterprise. This promotes the creation of cutting-edge technologies and strategies that can tackle pressing issues such as climate change, resource depletion, and inequality. By harnessing the power of knowledge and technology, a knowledge economy aims to find sustainable solutions to complex global problems (Salem, 2019).

Likewise, a knowledge economy places importance on the equitable distribution of resources and opportunities. It acknowledges that societal advancement can only be attained when all individuals have the opportunity to obtain education, acquire skills, and secure work. A knowledge economy enhances economic growth and social well-being by empowering individuals and communities via investments in human capital development (Hadad, 2018). The objective is to mitigate inequality by guaranteeing that the advantages of economic progress are distributed across all sectors of society. This is accomplished by measures such as inclusive education, vocational training programs, and encouragement for entrepreneurship. By prioritizing social factors, a knowledge economy aims to create a society that is more cohesive, fair, and resilient. It recognizes that sustainable development entails not just economic prosperity, but also social progress and well-being for all (Sira et al., 2020).

#### **2.3.10 Data-Driven decision making**

A key characteristic of a knowledge economy is the use of data and analytics for decision-making. Data is collected, analysed, and utilized to gain insights, make informed decisions, and optimize processes. The data-driven approach enables organizations to better understand their customers, markets, and operations, leading to improved outcomes and competitive advantage (Fredriksson, 2018). Data and analytics also play a crucial role in strategic decision making within organizations. By analysing market trends, competitor activities, and internal operational data, businesses can identify potential opportunities and risks. This enables them to make informed decisions about market entry, product positioning, pricing strategies, and resource allocation, among others. By basing decisions on

solid data-driven evidence, organizations are more likely to achieve desired outcomes and minimize the risk of costly mistakes (Salem, 2019).

Data and analytics play a crucial part in contemporary decision-making, as they are essential for optimizing company processes and operations. According to Divan (2017), firms can pinpoint bottlenecks, inefficiencies, and places for development by examining data from several sources such as production systems, supply chain networks, and consumer feedback. Similarly, the concept of Big data analytics (BDA) offers a transformative method for making well-informed judgments, which has a substantial impact on the knowledge economy (KE). It provides essential knowledge to managers, acting as a guide for creating data-driven strategies within the knowledge economy paradigm. Businesses can optimize operational efficiency, minimize expenses, and boost overall performance by identifying and addressing areas that require attention and action using data-driven analysis (Awan et al., 2021). Big data has become a new scientific paradigm that is having substantial effects in different areas of the knowledge economy, ranging from national security to scientific exploration (Wang, White, & Chen, 2015).

## **2.4 Importance of Knowledge Economy in the Global Context**

### **2.4.1 Economic growth**

In today's globalized world, countries need to constantly innovate and adapt to stay competitive. The knowledge economy, focused on the generation, distribution, and utilization of knowledge, plays a crucial role in stimulating economic expansion. It encourages the growth of enterprises and services that provide significant value and have the potential to generate greater wages and job opportunities (Fredriksson, 2018). The knowledge economy also promotes the development of high-value-added industries and services. Instead of relying on traditional industries that may be subject to fluctuations in demand or resource availability, countries can focus on sectors that are based on knowledge and intellectual capital (Tchamyou, 2014). These industries often have higher profit margins and are less dependent on physical resources, making them more sustainable in the long run. Examples of high-value-added industries in the knowledge economy include software development, biotechnology, financial services, and creative industries such as design and entertainment. By investing in these sectors, countries can create higher-paying jobs and generate economic growth.

The knowledge economy also has the potential to enhance both employment opportunities and income levels for individuals (Ackermann, 2023). Investments in education, research, and technology help develop a skilled workforce capable of actively participating in knowledge-driven sectors. This expansion creates more opportunities in high-skilled professions, where individuals can apply their expertise to achieve success. Participation in these sectors often leads to higher earnings, as industries and services within the knowledge economy typically generate greater profit margins, allowing for increased wages (Fredriksson, 2018). Moreover, the knowledge economy encourages entrepreneurship, enabling individuals to establish their own ventures and pursue independent paths to success. When combined with supportive structures for startups and small enterprises, this entrepreneurial environment fosters economic vitality and contributes to greater prosperity for both individuals and society as a whole (Bratiam, 2018).

#### **2.4.2 Productivity and efficiency**

The knowledge budget is characterized by the use of advanced technologies, data analytics, and automation. This leads to increased productivity and efficiency, as tasks can be performed faster and with fewer resources. Knowledge-based industries also tend to have higher levels of specialization and expertise, leading to better allocation of resources and more efficient production processes (Sickles & Zelenyuk, 2019). One of the key features of the knowledge economy is the reliance on advanced technologies. These skills, such as artificial intelligence, machine learning, and robotics, facilitate the automation of routine tasks, allowing for greater accuracy and speed in completing various activities. This not only enhances overall productivity but also reduces human error, resulting in improved efficiency and cost savings (Bratiam, 2018).

Moreover, the utilization of data analytics is essential in the knowledge economy. Organizations have the ability to collect extensive quantities of data from several sources, such as consumer engagements, market patterns, and internal processes. Through the utilization of analytics, firms may extract important insights and make informed decisions based on data to optimize their operations, improve customer experiences, and uncover novel business prospects. This analytical approach enables organizations to be proactive rather than reactive and to adapt swiftly to rapidly changing market conditions processes (Sickles & Zelenyuk, 2019). In the information

economy, collaboration, teaming, and knowledge sharing are fundamental for generating new ideas, solving problems, and finding innovative solutions. For example, Edmondson's discussion on 'teaming' (2012) points out a close relationship that these elements of cooperation and teaming are crucial for driving progress and achieving breakthroughs (Edmondson's,2012). The knowledge economy underscores the importance of cooperation (Unger, 2022), with organizations increasingly recognizing the need for networking and partnerships to gain access to diverse perspectives and specialized expertise. The advent of digital platforms and online communities has revolutionized this collaborative landscape, allowing knowledge workers to connect and collaborate across geographical boundaries. This connectivity facilitates the exchange of ideas and best practices, nurturing a culture of continuous learning and innovation (Scuotto et al., 2020; Zhao et al., 2021). Through these collaborative efforts, organizations can accelerate the development of new products, services, and technologies, effectively making a micro-foundation model for co-operative innovation and skill transfer. By leveraging the collective knowledge and skills of diverse teams, businesses can enhance their competitive edge and drive significant advancements in their respective fields.

In the knowledge economy, specialization and expertise are highly valued, playing a serious role in the success of various industries. According to Hanushek and Woessmann (2023) and Ghafar (2020), knowledge-based sectors such as technology, finance, research and development, and professional services demand employees with in-depth knowledge and specialized skills. This specialization enables the efficient distribution of incomes and the effective utilization of expertise in specific areas, allowing organizations to streamline production processes, enhance product and service quality, and achieve higher levels of customer satisfaction (Sickles & Zelenyuk, 2019). The ability to focus on specialized areas allows businesses to optimize their operations and deliver superior outcomes, ultimately leading to a competitive advantage in the market. Another notable aspect of the knowledge economy is the emphasis on lifelong learning. As knowledge and technology continue to evolve at a rapid pace, individuals and organizations must continually update their skills and knowledge to remain competitive. This necessity for ongoing education underscores the dynamic nature of the modern job market, where staying relevant requires continuous learning and skill development. Bratiam (2018) highlights that continuous learning is seen as a critical investment, helping

individuals maintain their employability and enabling organizations to adapt to evolving industry trends. This commitment to lifelong learning ensures that employees can keep pace with technological advancements and industry needs.

Lastly, the benefits of a knowledge-based economy extend far beyond mere economic prosperity, encompassing significant social and cultural advancements. As these economies prioritize education and lifelong learning, they cultivate a culture of continuous improvement and personal development, leading to overall societal progress. Individuals in such economies become better equipped to solve complex problems, think favourably, and make informed decisions, thereby enhancing their personal and professional lives. Furthermore, knowledge-based economies often emphasize social mobility by providing equal chances for all members of society to access education and participate in economic activities. This inclusive approach not only reduces inequalities but also fosters social cohesion and stability (Sira et al., 2020). The commitment to lifelong learning ensures that individuals can continuously update their skills, adapt to changing job markets, and remain competitive, which contributes to a more dynamic and resilient workforce. Moreover, by valuing and investing in human capital, knowledge-based economies create environments where innovation thrives, driving technological advancements and improving quality of life. This holistic development, characterized by economic growth, social equity, and cultural enrichment, underscores the profound and multifaceted impact of a knowledge-based economy on society.

### **2.4.3 Global competitiveness**

Knowledge-based economies are better equipped to compete in the global marketplace, producing cutting-edge technologies, products, and services that are in high demand worldwide, as evidenced by a study by Unger (2022). This competitive advantage is bolstered by the ability of countries excelling in the knowledge economy to attract foreign direct investment, establish strong international trade partnerships, and create a favorable business environment that fosters innovation and entrepreneurship (Scuotto et al., 2020; Zhao et al., 2021). The emphasis on specialized skills and advanced knowledge in these economies not only enhances their global standing but also contributes to their resilience against economic downturns. Unlike traditional industries that may struggle during recessions, the skills and expertise developed within a knowledge-based economy

are more transferable and adaptable across various sectors, providing a buffer against economic shocks (Schwab, 2018). This adaptability allows individuals and businesses to pivot and seize new opportunities even in challenging times. Additionally, global competitiveness motivates countries to prioritize knowledge-based economies by investing substantially in research and development, which fuels ongoing innovation and technological progress. This continuous cycle of innovation enhances their competitive advantage while supporting sustained economic growth and development. By strategically focusing on building a knowledge-driven economy, nations position themselves at the forefront of global economic trends, fostering long-term stability and prosperity.

#### **2.4.4 Societal development**

The information economy plays a crucial role in advancing societal development. It helps build a highly educated workforce, which is essential for a nation's social and cultural growth. By encouraging lifelong learning and continuous skills enhancement, it strengthens human capital, leading to higher living standards and improved quality of life. Furthermore, the knowledge economy supports the widespread dissemination of information, increasing access to education, healthcare, and other vital services (Schwab, 2018).

In addition, the knowledge economy facilitates global collaboration and the exchange of ideas. Modern communication technologies allow individuals and organizations to connect across borders, promoting cross-cultural understanding, international cooperation, and the sharing of best practices. This interconnectedness drives innovation and supports the creation of solutions to global challenges such as climate change, poverty, and healthcare issues (Sira et al., 2020).

Moreover, the knowledge economy empowers both individuals and communities by providing avenues for personal development and economic advancement. Continuous learning and skill acquisition enable people to respond to evolving market demands and pursue fulfilling careers. Access to information also equips communities to tackle social challenges, engage in civic activities, and make well-informed decisions. Consequently, the knowledge economy promotes social inclusion and helps reduce inequalities by offering equitable opportunities for all members of society (Bratiam, 2018).

#### **2.4.5 Sustainable development**

The knowledge economy can add to sustainable growth by promoting environmentally friendly practices, resource efficiency, and the development of clean technologies (Milewska, 2018). The knowledge economy plays a pivotal role in promoting innovation in areas such as renewable energy, waste management, and sustainable agriculture, helping countries tackle urgent environmental challenges and shift toward more sustainable economic systems. Specifically, it supports the development of clean technologies through research and innovation, leading to improved solutions for energy production, waste handling, and sustainable agricultural practices (Zhao et al., 2019). These advancements facilitate the use of alternative and renewable energy sources, such as solar and wind power, reducing reliance on fossil fuels and mitigating environmental impacts (Burlacu, 2021).

In addition, the knowledge economy encourages the adoption of sustainable waste management practices. It promotes the creation of efficient recycling systems, waste-to-energy technologies, and strategies to minimize waste generation. By improving waste management processes, countries can lessen their environmental footprint, support a circular economy, and reduce both resource extraction and landfill accumulation (Sira et al., 2020). In agriculture, the information economy empowers farmers and stakeholders with data and technological tools to implement sustainable methods. Digital platforms and agricultural technologies enable precision farming, optimizing the use of resources such as water and fertilizers, increasing crop yields, and reducing the use of harmful chemicals. These practices help protect the environment while enhancing food security and supporting rural development (Androniceanu et al., 2021).

Furthermore, the knowledge economy contributes to sustainable environmental management by facilitating the collection, analysis, and dissemination of environmental data (Zhao et al., 2019). This data-driven approach allows governments and organizations to make informed decisions, design effective policies, and monitor key environmental indicators such as air quality, water pollution, and biodiversity loss, enabling timely interventions (Okebula, 2019).

Ultimately, transitioning to sustainable economic models is essential for long-term environmental protection and societal well-being. The knowledge economy supports

this shift by promoting eco-friendly practices, efficient resource management, and the adoption of clean technologies. Through innovation and the sharing of knowledge, countries can advance sustainable development goals while minimizing negative impacts on the environment (Bratiam, 2018).

#### **2.4.6 Collaboration and cooperation**

The knowledge economy encourages collaboration and cooperation among countries, as knowledge and expertise are shared across borders. This promotes international partnerships, research collaborations, and the exchange of best practices. By working together, countries can tackle shared global challenges such as climate change, public health crises, and poverty reduction (Zhao et al., 2019). Again, one of the major benefits of the knowledge economy is the facilitation of international partnerships. In today's knowledge-driven world, countries no longer need to view economic or technological gains as a zero-sum game, where one nation's success comes at another's expense. Instead, they can form partnerships and collaborate, leveraging each other's strengths and resources. By sharing knowledge, technology, and experience, nations can collectively enhance capabilities, improve productivity, and create innovative solutions to common challenges (Masa'deh et al., 2019).

Research collaborations are a central feature of the knowledge economy, fostering international cooperation. In this era, research has become a global endeavor that transcends borders, allowing scientists and experts from different countries to work together on joint projects. By pooling resources and expertise, these collaborations accelerate scientific discoveries and technological advancements. Such partnerships not only speed up progress but also ensure that diverse perspectives and specialized knowledge contribute to more comprehensive and effective outcomes (Burlacu, 2021).

The sharing of best practices is another key element of the knowledge economy. When countries develop successful strategies to address social, economic, or environmental issues, these approaches can be shared with others facing similar challenges. Governments, organizations, and individuals can learn from each other's achievements and mistakes, adapting effective solutions to their own contexts (Androniceanu et al., 2021). This exchange enhances efficiency, prevents

duplication of effort, and accelerates progress in critical sectors such as governance, education, healthcare, and sustainable development.

Perhaps the most impactful benefit of collaboration in the knowledge economy is the ability to tackle global challenges that cross national boundaries, such as climate change, public health crises, and poverty reduction. By working together, countries can combine intellectual, financial, and technological resources to develop comprehensive and sustainable solutions. International partnerships enable the coordinated pooling of expertise and assets, allowing nations to address systemic problems that require holistic and collaborative action (Androniceanu et al., 2021).

Furthermore, collaboration in the knowledge economy fosters a culture of openness, inclusivity, and mutual respect. It breaks down barriers and promotes cultural understanding, appreciation, and collaboration. As countries engage in collaborative efforts, they build relationships based on trust and mutual benefit, strengthening diplomacy and international ties. This interconnectedness nurtures a global community that is better equipped to address not only local challenges but also shared global concerns, leading to a more prosperous and sustainable world for all (Sira et al., 2020).

## **2.5 Knowledge Economy Practices and Knowledge Economy Indicators**

### **2.5.1 Research and development spending**

A key measure of a knowledge budget is the level of investment a country or organization dedicates to research and development (R&D) activities, encompassing support for scientific research, innovation, and technological advancement (Bejinaru, 2017). Allocating resources to R&D is a critical component of a knowledge budget, reflecting a nation's or institution's commitment to fostering knowledge-based growth. In a knowledge-driven economy, emphasis shifts from traditional industries toward the creation and practical application of knowledge, which fuels economic growth and productivity. By investing in R&D, countries and organizations can stimulate innovation, develop a robust intellectual property portfolio, and maintain a competitive edge in technological progress. Such investments also cultivate an environment that encourages continuous learning, facilitates the generation of new ideas and solutions, and enhances global competitiveness (Mohamed et al., 2022).

Furthermore, investment in activities brings substantial benefits to a knowledge economy. It promotes advancements in scientific research, leading to the discovery of new technologies and solutions (Mohamed et al., 2022). This, in turn, can lead to the development of new industries and job opportunities. Moreover, investment in R&D activities can enhance productivity and efficiency in existing industries. By fostering innovation, countries and organizations can create a positive feedback loop where increased investment in R&D generates new knowledge and technologies, which further promote economic growth (Masa'deh et al., 2019). Additionally, investment in R&D helps attract and retain talent by providing opportunities for scientific researchers and innovators to advance their skills and knowledge. This creates a favourable environment that stimulates knowledge transfer and collaboration, which are crucial for a knowledge economy. By encouraging investment in R&D, countries and organizations can also attract foreign direct investment and partnerships with international organizations, fostering global knowledge exchange (Bejinaru, 2017).

### **2.5.2 Intellectual property protection**

Strong intellectual property protection shows a vital role in nurturing and promoting a knowledge economy. It encompasses various forms of lawful actions such as patents, copyrights, trademarks, and trade secrets that are designed to safeguard innovations and creations. The prevalence of patents filed and the robustness of Intellectual Property (IP) laws in a country is indicative of the significance placed on knowledge creation and protection within that jurisdiction (Bejinaru, 2017). Patents are one of the most significant elements of IP protection. They bestow exclusive rights upon creators or creators to avoid others from using, selling, or manufacturing their inventions without prior permission. By granting patent rights, countries encourage inventors to disclose their groundbreaking technologies in return for a limited monopoly that allows them to exploit and profit from their innovations. A robust patent system fosters an environment conducive to knowledge creation, as inventors are more likely to invest their time, effort, and money into research and development activities, knowing that their ideas will be adequately protected (Brem et al., 2017).

Similarly, copyrights play a crucial role in safeguarding creative works such as literature, music, videos, and software. By granting authors exclusive rights to their

original expressions, copyrights incentivize artistic and creative endeavours. Copyright protection ensures that creators are acknowledged for their work and have the ability to control its usage, reproduction, and distribution (Brem et al., 2017). This encourages the continuous production of diverse artistic and cultural content, leading to a richer knowledge economy. Additionally, trademarks are another vital aspect of IP protection. By if legal protection to characteristic signs, symbols, or logos related with goods or services, trademarks enable businesses to differentiate themselves in the market (Bejinaru, 2017). Trademark protection ensures that consumers can easily identify and distinguish products or services of one company from those of competitors, fostering fair competition and consumer trust. A strong trademark system encourages businesses to invest in branding, marketing, and quality control, which in turn promotes economic growth and innovation.

Furthermore, trade secrets serve as vital assets for businesses, encompassing confidential information such as formulas, recipes, manufacturing processes, or customer data. Robust trade secret protection enables companies to safeguard their proprietary information from misappropriation or unauthorized disclosure. This encourages businesses to invest in research and development, as they are reassured that their valuable trade secrets will be adequately protected, fostering an environment conducive to innovation and knowledge sharing (Bejinaru, 2017).

### **2.5.3 Education and skills development**

The significance of extremely educated and skilled workforce cannot be overstated. The quality of education systems serves as a fundamental indicator of a nation's ability to cultivate and nurture the knowledge and skills required for economic development (Brem et al., 2017). A well-designed and effective education system ensures that students receive a high-quality education at all levels, from primary to secondary and tertiary. It highlights critical thinking, problem-solving abilities, and relevant technical skills, equipping individuals with the necessary tools to thrive in a knowledge-based economy (Salem, 2021).

Furthermore, enrolment rates in tertiary education play a crucial role in shaping a knowledge economy. Increased access to higher education indicates a society's commitment to invest in the development and empowerment of its citizens. It allows individuals to acquire specialized knowledge and expertise in their chosen fields,

fostering innovation and driving productivity within various industries (Bejinaru, 2017). Additionally, investments in lifelong learning and training programs are vital in maintaining the competitiveness of a knowledge economy. Such initiatives ensure that individuals can continually adapt and upgrade their skills to match evolving market demands, facilitating the creation of a dynamic and highly adaptable workforce capable of driving economic growth and innovation (Salem, 2021).

#### **2.5.4 Knowledge diffusion and sharing**

The dissemination and transfer of knowledge among individuals, organizations, and sectors is critical for a knowledge economy. Indicators include the number of scientific publications, collaboration among researchers and institutions, and the accessibility of knowledge through open access initiatives (Wu, 2016). In the same vein, in an information economy, the sharing and exchange of knowledge play a crucial role in driving innovation, fostering growth, and improving overall productivity. The dissemination and transfer of knowledge among individuals, organizations, and sectors serve as key indicators of a thriving knowledge economy. One such indicator is the number of scientific publications, which not only reflects the extent of research being conducted but also signifies the level of knowledge being generated and shared. Collaboration among researchers and institutions is another important indicator, as it highlights the extent to which knowledge is being shared and developed collectively, leading to the formation of new ideas and advancements (Wu, 2016).

The accessibility of knowledge through open access initiatives is vital for a knowledge economy. By removing barriers such as paywalls and restrictive copyright policies, open access initiatives enable a wider audience to access and utilize research findings and insights. This accessibility not only promotes the democratization of knowledge but also facilitates the transfer of ideas across various fields and disciplines, thereby catalysing innovation and spurring economic growth (Bejinaru, 2017).

#### **2.5.5 Information and communication technology infrastructure**

Advanced Information and Communication Technology (ICT) infrastructure is necessary to facilitate the storage, processing, and transmission of knowledge. Indicators in this area include the availability and speed of internet connections,

mobile phone penetration, and investment in ICT infrastructure (Wu, 2016). In today's digital era, an advanced evidence and communication technology (ICT) infrastructure is crucial in efficiently managing the vast amounts of knowledge being generated and shared worldwide. With the exponential growth of data, an efficient storage system is essential to prevent information overload and ensure seamless access to knowledge (Bejinaru, 2017).

Additionally, an advanced ICT infrastructure enables the speedy processing of data, allowing for quick analysis and decision-making. The availability and speed of internet connections play a significant role in ensuring the accessibility and sharing of knowledge across geographical boundaries (Vitalis, 2021). The penetration of mobile phones, which serve as a primary source of internet access for many individuals, further emphasizes the importance of a robust ICT infrastructure. Lastly, continual investment in ICT infrastructure ensures scalability, security, and reliability, guaranteeing the uninterrupted transmission of knowledge and creating an environment conducive to technological advancements. An advanced ICT infrastructure is a key driver in enhancing global connectivity, knowledge sharing, and innovation (Vitalis, 2021).

#### **2.5.6 Innovation capacity**

The ability to generate and adopt new ideas, technologies, and practices is paramount. This aspect of the economy is measured through various indicators such as the number of new products and services introduced, the level of entrepreneurship, and the number of patents granted. The introduction of new products and services signifies a vibrant economy that constantly seeks innovation and stays ahead of the curve (Bejinaru, 2017). Similarly, a high level of entrepreneurship demonstrates a dynamic business environment that encourages risk-taking and fosters creativity. Additionally, the number of patents granted reflects the ability of individuals and organizations to develop and protect their intellectual property, indicating a strong emphasis on research and development. Thus, a thriving knowledge economy actively promotes the generation and adoption of new ideas, technologies, and practices (Wu, 2016).

### **2.5.7 Entrepreneurship and innovation ecosystems**

In order for a knowledge economy to flourish and thrive, it is imperative to have supportive ecosystems that foster entrepreneurship, innovation, and knowledge-driven start-ups. These ecosystems play a vital role in providing the necessary resources, infrastructure, networks, and guidance to enable the growth and success of these ventures. Several key indicators help determine the presence and strength of such ecosystems, including the availability of venture capital, start-up creation rates, and the number of incubators and accelerators processes (Bratian, 2018).

Venture capital, often referred to as risk capital, represents the financial resources provided by investors to support early-stage and high-potential start-ups. The availability of venture capital indicates the confidence and interest of investors in supporting knowledge-driven ventures. A strong presence of venture capital firms within an ecosystem signifies that there are opportunities for startups to secure the necessary funding for research, development, marketing, and scaling their innovative ideas (Thomas et al., 2018). Furthermore, start-up creation rates are another crucial indicator of a supportive ecosystem. These rates highlight the level of entrepreneurial activity within a region or industry and reflect the ease of starting a new venture. High start-up creation rates suggest that there are favourable conditions, such as supportive policies, access to resources, and a culture that encourages risk-taking and creativity. Moreover, a thriving ecosystem will witness a continuous influx of new startups, indicating dynamic and vibrant environment where entrepreneurs are motivated to take risks and pursue innovative ideas (Thomas et al., 2018).

### **2.5.8 Intellectual capital**

Bratian (2018) posits that knowledgeable is a concept that encompasses the intangible resources and capabilities possessed by a country or organization, which play a vital role in driving its wealth and competitiveness. It embraces elements such as human capital and organizational knowledge, which ultimately contribute to the overall success and growth of a nation or a business process Human wealth refers to the knowledge, skills, and expertise of individuals within a workforce. It encompasses both formal education and informal learning experiences that individuals possess, enabling them to complete tasks efficiently and effectively. The

level of education and skills of a workforce is a critical indicator of a country's intellectual capital. A highly educated workforce can significantly enhance productivity, innovation, and overall economic performance (Androniceanu et al., 2021).

Organizational knowledge, on the additional hand, comprises the collective expertise, experience, and information accumulated within an organization. This knowledge is a product of various factors, including the organization's culture, processes, and learning mechanisms. The ability to leverage and effectively utilize this knowledge is an essential aspect of intellectual capital. Organizations that excel in managing and disseminating knowledge assets are often at an advantage in terms of competitiveness and innovation (Bratian, 2018). Furthermore, indicators of intellectual capital also include the retention of top talent within an organization or country (Androniceanu et al., 2021). Attracting and retaining highly skilled individuals is crucial in maintaining and growing intellectual capital. Organizations that have a high employee retention rate often have a stable and experienced workforce, which can lead to enlarged productivity, innovation, and overall success. Similarly, a country that can retain its top talent within its borders is more likely to benefit from the intellectual capital these individuals bring, leading to economic growth and competitiveness.

Effectively utilizing knowledge assets is another important indicator of intellectual capital. It involves the ability to capture, store, share, and apply knowledge within an organization or country. This includes making an environment that encourages knowledge sharing and teamwork, implementing effective knowledge management systems, and promoting continuous learning and improvement. Organizations and countries that prioritize and invest in the effective utilization of knowledge assets can gain a reasonable advantage by leveraging their knowledgeable capital to drive innovation, problem-solving, and decision-making processes (Bratian, 2018).

## **2.6 Knowledge Economy models**

The World Bank and the Asian Development Bank (ADB) have both developed models and theories related to the knowledge economy. Here are some proposed models by these institutions.

### **2.6.1 World Bank's model of knowledge-based Economies**

The World Bank's framework of Knowledge-Based Development (KBD) outlines the essential components required to achieve economic, social, and environmental growth driven by knowledge. According to the World Bank (2007), these components include a well-educated and highly skilled workforce, a robust and modern information infrastructure, an effective system to support innovation, and institutional arrangements that promote the efficient creation and dissemination of knowledge. Education and training systems cover primary and secondary schooling, vocational and technical training, higher education, and lifelong learning opportunities. The emphasis on each element varies depending on a country's level of development. In today's knowledge-driven era, the continuous updating of skills and knowledge has made lifelong learning increasingly critical. This encompasses technical training, development of problem-solving skills, and nurturing of critical thinking. Social education aims to facilitate holistic human development by equipping individuals with the knowledge, skills, and values necessary for meaningful and fulfilling lives (World Bank, 2007). Therefore, cultivating a culture that values continuous learning and openness to new ideas is fundamental for sustaining a knowledge-based budget (Utz, 2006).

Rapid advancements in Information and Communication Technology (ICT) are profoundly shaping economic and social activities, as well as the ways in which knowledge is acquired, generated, shared, and applied. A modern, comprehensive, and reliable information infrastructure allows for efficient communication, knowledge dissemination, and data processing. ICT tools—including telecommunication networks, television, and radio—play a role similar to that of railways and roads during the industrial era, serving as critical enablers of the global information economy. These technologies significantly reduce transaction costs by providing convenient access to information. ICT-related policies cover the regulation of telecommunications and investment in infrastructure, enabling broad deployment through applications such as e-government, e-business, and e-learning. For low-income nations, prioritizing foundational ICT infrastructure is essential before advancing to more sophisticated technologies. As information becomes increasingly central to competitiveness, effective use of ICT is key to reducing barriers of cost, time, and distance in economic activities (Utz, 2006; World Bank, 2007).

An effective innovation system consists of firms, research centers, universities, consultants, and other organizations that remain up-to-date with emerging knowledge and technology, access global knowledge resources, and adapt them to local needs. Public support for innovation, science, and technology encompasses a range of institutional and infrastructural roles, from disseminating basic technologies to conducting advanced research initiatives. A strong innovation system aligns science and technology infrastructure with production needs, promotes private sector involvement in technological development, and strengthens links between industry, universities, and research institutions. Key focus areas include establishing national legislation, intellectual property rights frameworks, quality and standards systems, and metrology infrastructures to create a conducive business environment. Encouraging innovation also involves fiscal incentives, robust intellectual property protection, and competitive research programs. These initiatives aim to integrate research with industrial application, stimulate innovation, and drive economic growth (Goel, 2004; Utz, 2006). In developing countries, much of the knowledge and technology fueling innovation is often sourced from abroad, through foreign direct investment, imports of equipment and goods, and licensing agreements. While foreign contributions are vital, especially in less-developed countries, it is crucial that these imports do not overshadow or marginalize indigenous knowledge and traditional expertise (World Bank, 2007).

A nation's institutional and economic framework must facilitate the efficient mobilization and allocation of resources, encourage entrepreneurship, and support the creation, dissemination, and effective use of knowledge. Utz (2006) notes that a functional institutional and economic system enables firms, individuals, and organizations to respond to evolving opportunities and demands with flexibility and innovation. Achieving this involves addressing a wide range of policy areas, including the macroeconomic environment, trade policies, finance and banking, labor markets, and market dominance. Good governance, which includes adherence to the rule of law, effective administrative capacity, and minimal corruption, is critical. Weak governance, which results in a substandard business environment, is a major barrier to overall economic and social progress and poses a significant challenge to knowledge-driven development (ibid).

### **2.6.2 World Bank's theory of knowledge assessment and sharing**

The World Bank underscores the critical role of valuing and sharing knowledge in promoting economic development. It emphasizes that nations must actively engage in education, research and development, and innovation to establish and sustain a knowledge-based economy. To support this, the World Bank has developed tools such as the Knowledge Economy Index and the Knowledge Assessment Methodology, which assist countries in identifying their knowledge assets and weaknesses, thereby guiding the formulation of policies aimed at strengthening their knowledge economies (Chen & Dahlman, 2005; Chen & Gawande, 2007).

Furthermore, the World Bank highlights the significance of knowledge assessment in tackling global challenges, including poverty alleviation and sustainable development. By evaluating a country's knowledge resources—such as human capital, scientific capacity, and technological infrastructure—policymakers can make informed decisions that promote inclusive growth and improve societal well-being. Education is a foundational element in building a knowledge-based economy. The World Bank emphasizes the importance of investing in education systems at all levels, from early childhood to higher education. Such investment should prioritize quality, equitable access, skill development, and lifelong learning, ensuring individuals are equipped with the competencies necessary to contribute effectively to economic progress (ADB, 2016).

Research and development (R&D) is another essential component for fostering innovation and stimulating economic growth. The World Bank encourages countries to prioritize investments in R&D to strengthen their knowledge economies. By supporting scientific research, encouraging collaboration between academic institutions and industry, and facilitating the transfer of technology, countries can expand their knowledge creation capacities and drive technological innovation (ADB, 2016).

Innovation serves as a major engine for economic competitiveness and productivity. According to the World Bank, countries need to cultivate an ecosystem that nurtures innovation by fostering entrepreneurship, safeguarding intellectual property rights, and promoting the adoption of new technologies. By enhancing innovation, nations can diversify their economies, attract investment, and generate high-quality

employment opportunities, thereby reinforcing overall economic development (ADB, 2016).

### **2.6.3 ADB's theory of learning for knowledge-based development**

The Asian Development Bank (ADB) highlights the central role of learning in driving knowledge-based development. It asserts that a nation's ability to acquire, absorb, and utilize knowledge is crucial for achieving economic transformation. According to the ADB, building a knowledge economy requires significant investment in human capital, including education and skills development. Furthermore, it stresses the importance of collaboration and knowledge-sharing among key stakeholders, such as governments, businesses, and academic institutions, to maximize the benefits of knowledge-driven growth (Kwon & Isidro-Cajilig, 2012).

The ADB emphasizes that investments in human capital are foundational for a thriving knowledge economy. Education, vocational training, and lifelong learning initiatives are vital for developing the skills and competencies of the workforce, which form the backbone of economic progress. By equipping individuals with the expertise and adaptability needed to meet evolving market demands, countries can harness human capital to enhance innovation, increase productivity, and promote sustainable economic development (Kwon & Isidro-Cajilig, 2012).

Beyond human capital, the ADB underscores the importance of fostering cooperation and knowledge exchange among multiple stakeholders, including government agencies, the private sector, and educational institutions. Such collaboration allows countries to pool expertise, share resources, and benefit from collective experience. By establishing strong partnerships and encouraging a culture of knowledge-sharing, nations can access best practices, adopt technological innovations, and generate creative solutions, thereby strengthening strategies for knowledge-based development (ADB, 2016).

### **2.6.4 ADB's theory of innovation systems**

Kwon and Isidro-Cajilig (2012) indicate that the Asian Development Bank (ADB) recognizes innovation as a central element of the information economy. The ADB introduces the concept of "innovation systems," describing the interconnected network of organizations, institutions, and individuals involved in the creation,

dissemination, and application of new knowledge and technologies. The ADB stresses that countries must encourage collaboration and establish strong linkages among actors within these systems to promote knowledge generation, technology transfer, and entrepreneurial activity (Lundvall, 2016).

Acknowledging innovation as a key driver of economic growth and development, the ADB emphasizes the need to cultivate and strengthen the knowledge economy. The concept of innovation systems highlights a coordinated network of multiple entities, including organizations, institutions, and individuals, which collectively engage in producing, sharing, and utilizing novel knowledge and technologies (Kwon & Isidro-Cajilig, 2012).

In the economic sphere, innovation contributes significantly to productivity, efficiency, and competitiveness by fostering the development of new technologies, improving existing processes, and enhancing production and distribution methods. From a social perspective, innovation supports the creation of new institutions and frameworks that uphold peace, equity, and human rights, including reforms in legal systems, governance, and social policies to promote inclusiveness and justice. Environmentally, innovation focuses on developing sustainable technologies, such as renewable energy solutions, to address challenges like climate change, resource depletion, and environmental degradation (ADB, 2014).

According to the ADB, establishing effective collaboration and connectivity among different actors within the innovation system is crucial for promoting the desired outcomes of information creation, technology transfer, and entrepreneurship. In the economic sphere, building networks involves the development of infrastructure, such as evidence and statement technology (ICT) networks, to facilitate the flow of information, trade, and investment. In the social realm, building networks entails fostering social networks, social trust, and cultural integrity, which are crucial for social cohesion, cooperation, and collective action. In the natural domain, building networks focuses on establishing agreements and partnerships to protect and sustain planetary life support systems. This includes international contracts on climate change, biodiversity maintenance, and sustainable development (ADB, 2007; 2014).

By fostering partnerships and fostering collaborations between actors such as universities, research institutions, business enterprises, government agencies, and

civil society organizations, countries can unleash the full potential of their innovation ecosystems (Lundvall, 2016). Furthermore, collaboration within the innovation system enables knowledge to be shared, facilitating the creation of new ideas, research findings, and technological advancements. This knowledge exchange is not limited to one particular sector but encompasses a diverse range of disciplines and industries, creating a rich environment for cross-pollination of ideas. It inspires interdisciplinary research and development, enabling the emergence of innovative solutions to complex challenges (ADB, 2007; 2014; 2016).

## **2.7 Knowledge Economy in Higher Education**

A knowledge-based economy is an economic framework where the main engines of growth and development are the creation, dissemination, and application of knowledge and information. Its relevance has grown considerably in the higher education sector, as universities play a central role in producing, sharing, and applying knowledge to benefit both society and the economy (TCU, 2019). Several key components define the knowledge economy within higher education.

### **2.7.1 Research and innovation**

Universities play a pivotal role in the knowledge economy through their research endeavors. They engage in scientific investigations, experiments, and technological innovations that expand understanding across diverse disciplines. Such research often results in the development of new products, services, and processes, thereby enhancing economic growth and competitiveness (Bejinaru, 2017). Additionally, universities act as bridges for knowledge transfer between academia and industry. By partnering with businesses and organizations, they share expertise and collaborate on projects aimed at solving practical problems and meeting industry demands. These collaborations frequently lead to the commercialization of research outcomes, the establishment of startups, the launch of innovative products and services, and the creation of employment opportunities (Broström et al., 2021).

Another major contribution of universities to the knowledge economy is the production of highly skilled graduates who are equipped with current knowledge and competencies in their fields (Bejinaru, 2017). These graduates serve as key assets in the workforce, driving innovation and productivity across industries. Universities also offer continuous professional development through executive education

programs, enabling professionals to update their skills and remain competitive in an ever-changing economic landscape (Broström et al., 2021).

Universities further support the knowledge economy by fostering entrepreneurship and innovation. They provide infrastructure such as incubators, accelerators, and funding opportunities, helping students, faculty, and researchers transform their ideas into viable business ventures. This ecosystem stimulates economic activity, nurtures a culture of entrepreneurship, and encourages innovative thinking within the wider community (Broström et al., 2021).

Moreover, universities enhance the knowledge economy by attracting international students and researchers. Prestigious institutions become hubs for those seeking quality education and research experiences, contributing fresh ideas, diverse perspectives, and collaborative opportunities. This enriches the knowledge ecosystem and promotes cross-cultural understanding (Bejinaru, 2017). Universities also serve as centers for knowledge dissemination and public engagement by organizing conferences, seminars, and workshops that allow scholars to share insights with the broader community. Collaborations with government bodies and non-governmental organizations further enable universities to conduct research addressing societal challenges such as healthcare, climate change, and social inequality. Through evidence-based recommendations, they support informed policymaking and contribute to societal progress and well-being (Broström et al., 2021).

### **2.7.2 Collaboration and partnerships**

Higher education institutions actively promote collaboration with businesses, government bodies, and other organizations to enhance research and innovation. These partnerships facilitate the sharing of knowledge, expertise, and resources, which contributes to the development of new technologies, startups, and industries (Broström et al., 2021). By building strong linkages with industry and public-sector organizations, universities play a critical role in advancing research and innovation. Such collaborations create a bridge between academic institutions and external stakeholders, allowing for the effective exchange of knowledge, skills, and resources necessary to drive technological progress and support economic growth (Bejinaru, 2017).

One of the primary outcomes of these partnerships is the development of new technologies. Higher education institutions often house cutting-edge research facilities and have a pool of talented researchers and students who are eager to tackle complex challenges. By collaborating with businesses and organizations, these institutions can apply their expertise to real-world problems and co-create solutions that have practical applications. This collaboration fosters scientific breakthroughs and the development of innovations that have the potential to transform industries and improve people's lives (Prelipcean & Bejinaru, 2018).

Furthermore, these partnerships also contribute to the emergence of startups and new industries. Business and government agencies often recognize the value of the research being conducted at higher education institutions and may provide financial support, mentorship, and access to industry networks. This support is crucial in enabling researchers and students to translate their ideas into tangible products or services. By fostering entrepreneurship and providing a nurturing environment for startups, these collaborations help create jobs, stimulate economic growth, and enhance regional competitiveness (Prelipcean, 2016).

### **2.7.3 Entrepreneurship and start-ups**

Universities play energetic role in nurturing and fostering entrepreneurship and startups. Within these institutions, there exist dynamic environments that provide the necessary tools, guidance, and support for individuals with innovative ideas to transform them into successful commercial ventures. By offering platforms and resources, universities empower students, faculty, and alumni to capitalize on their knowledge and creativity, ultimately contributing to economic growth, job creation, and innovation (Prelipcean, 2016).

One of the important ways in which universities facilitate entrepreneurship is through various incubator programs. These programs serve as a breeding ground for startups, offering mentorship, networking opportunities, and access to capital for aspiring entrepreneurs. Incubators provide a nurturing environment where individuals can collaborate with like-minded individuals, exchange ideas, and receive valuable advice from seasoned professionals. Through this process, startups are able to refine their business models, develop robust strategies, and fine-tune their products or services (Bejinaru, 2017).

Additionally, universities offer a wide range of resources and support systems that are essential for the growth and sustainability of startups. These resources include access to research facilities, technology transfer offices, intellectual property assistance, and legal guidance. Startups can take advantage of university laboratories and research centers to further their product development and innovation. Furthermore, universities often have partnerships with industry leaders, enabling startups to benefit from industry-specific expertise, market insights, and potential collaboration (Prelipcean, 2016). Thus, the impact of startups emerging from higher education institutions goes beyond individual success stories. These ventures have important impact on the overall economy. By creating new businesses, startups generate employment opportunities and contribute to job creation (Rao & Mulloth, 2017). They offer opportunities for students and graduates to enter the workforce and gain valuable experience. Moreover, startups often attract investments, which inject capital into the economy and stimulate economic growth. As these ventures grow, they contribute to tax revenues and further support economic development (Kwon & Isidro-Cajilig, 2012).

In addition to economic impact, start-ups emerging from universities also drive innovation. They bring fresh ideas, disruptive technologies, and novel approaches to existing industries, pushing the boundaries of what is possible. Start-ups often challenge traditional norms and stimulate competition, forcing established companies to innovate and adapt to stay relevant. This cycle of innovation leads to advancements in various sectors, benefiting society as a whole (Rao & Mulloth, 2017). Furthermore, universities themselves benefit from the entrepreneurial ecosystem they foster. Successful start-ups founded by students, faculty, or alumni enhance the reputation of the university. These ventures become success stories that demonstrate the effectiveness and quality of the institution's education and research programs. They attract more prospective students, faculty, and funding, further enhancing the university's resources and capabilities (TCU, 2019).

#### **2.7.4 Lifelong learning and skills development**

Higher education institutions encompass universities, colleges, and vocational schools that play an integral role in society by providing lifetime learning opportunities. In the context of today's rapidly evolving knowledge economy, these institutions serve as catalysts for individuals seeking continuous growth and skill

development while equipping them to thrive in an ever-changing market (Kwon & Isidro-Cajilig, 2012). One of the important contributions of higher education institutions to lifelong learning is the provision of continuing education programs. These programs cater to individuals who have completed their formal education and are now seeking to enhance their knowledge and competencies in specific areas. From professional certifications to advanced training modules, these programs ensure that professionals from various fields can keep their skills current and relevant to the demands of their industry (Rao & Mulloth, 2017).

Moreover, higher education institutions offer professional development courses, specifically designed to help individuals progress in their careers. These courses provide valuable insights and industry-specific knowledge, helping individuals develop the necessary skills and competencies required to meet the challenges of a dynamic workforce. Professionals from diverse backgrounds can access training programs tailored to their respective fields, equipping them with the expertise needed to excel in their chosen career paths (TCU, 2019).

#### **2.7.5 Regional and economic development**

Universities play a vital role in fostering regional and economic development, as they have the ability to interest students, faculty, and researchers from diverse backgrounds and geographical locations. This influx of talent brings with it a wealth of benefits for local communities (TCU, 2019). One of the most prominent advantages is the cultural diversity that these individuals bring. By enrolling students from various countries and backgrounds, universities create a vibrant and inclusive environment that promotes cross-cultural understanding and acceptance. This exposure to different perspectives and traditions prepares students to become global citizens, equipping them with the skills and knowledge needed to thrive in an increasingly interconnected world (Rao & Mulloth, 2017).

Furthermore, universities contribute to local economies through research investments. As academic institutions, they provide a fertile ground for groundbreaking research and innovation. Students and ability members engage in cutting-edge investigation projects that often result in important discoveries and technological advancements. These innovations can have significant societal and economic impacts, as they may lead to the formation of new produces, processes,

and industries. The resulting intellectual property generated by these research activities can also be a source of revenue for both the institution and the local community (TCU, 2019).

## **2.8 Theoretical Framework**

### **2.8.1 Henry Fayol's management theory**

The Administrative Organisation Theory, developed by Henri Fayol (1841-1925), a French businessman and manager, underpins this study and is recognized as a foundational influence in classical management theory. Fayol was the first to outline key management functions that modern management scholars consider essential to a manager's role. His framework identifies five core functions—planning, organizing, commanding, coordinating, and controlling—which guide organizations in achieving their predetermined objectives (Bacud, 2020).

University management involves the application of Fayol's principles, encompassing planning, organizing, directing/leading, coordinating, and controlling. This study investigates how these management functions are applied to advance the knowledge economy (KE). It examines how KE objectives are integrated into university planning, including the selection of appropriate goals and the formulation of strategies to achieve them. The study also considers how universities organize KE practices, such as resource allocation and grouping of personnel, and how control mechanisms monitor performance, correct deviations, and ensure KE goals remain on track. Furthermore, it explores how leadership facilitates KE promotion by inspiring a KE vision and modeling effective KE practices.

Although Fayol's Administrative Management Theory provides a solid foundation for understanding planning, organizing, leading, and controlling, it may not fully reflect the complex interdependencies and dynamic interactions present in a university setting. To address this limitation, the study incorporates Systems Theory to capture the holistic nature of university management and its influence on the knowledge economy. Systems Theory allows for the analysis of how different management functions are interconnected and how they collectively contribute to the attainment of KE objectives, offering a more comprehensive perspective on the university's role in promoting knowledge economy initiatives.

### 2.8.2 Systems theory

Systems Theory (1968) provides a framework for analyzing groups of interconnected elements and their collective properties, with the goal of understanding the outcomes that emerge from their interactions. The theory asserts that concentrating solely on isolated events is a reactive strategy. Instead, Chun et al. (2008) suggest that examining long-term behavioral patterns offers a more effective approach for understanding how systems can be improved over time. In organizational contexts, systems theory serves as a framework for problem-solving by identifying patterns that enhance understanding and responsiveness to challenges. This perspective emphasizes that effective problem resolution depends on the collective efforts of individuals and the integration of system components, rather than solely on individual performance in specific roles.

Building on this foundation, Chun et al. (2008) argue that an organization—whether viewed as a complete system or as one of its components—possesses unique features, values, or characteristics influenced by its context. The state of a system changes through events or manifestations, which reflect its dynamic nature. When applied to knowledge management, systems theory offers a lens for examining the collective events, processes, behaviors, and states associated with knowledge within an organization. Furthermore, Senge (1990) introduces the concept of structural learning, a key component of systems theory, which relates to knowledge. Structural learning involves the use, adaptation, and integration of existing knowledge to meet the demands of new applications or users (Bacud, 2020).

However, Chun et al. (2008) argues that the systems thinking method has valuable concepts that might provide direction in analysing the topic of knowledge exchange. An example of such a concept is the examination of behaviour patterns over a period of time, specifically focusing on systems archetypes. He states, "One of the advantages of using a system thinking approach is its ability to integrate the concept of change over time into the analysis of a problem." Therefore, these modifications are associated with patterns of conduct that have evolved over a period of time. Key behaviours inside the organization can contribute to the successful establishment of a conducive learning environment. For example, important behaviors could encompass a culture that promotes the sharing of knowledge and a

system of rewards for those who engage in knowledge sharing. According to Jackson (2003), system theory refers to recurring patterns of events that are commonly observed in multiple systems. He asserts that individuals should be identified to showcase recurring behavioral patterns resulting from specific structural traits, such as bureaucracy, which consistently lead to management issues. In addition, the level of service provided. Chun et al. (2008) provides an additional example of the limits to growth pattern in relation to knowledge exploitation (KE). This pattern occurs when individuals initially benefit from acquiring knowledge, resulting in improved performance. However, over time, the rate at which they acquire knowledge decreases, regardless of the amount of effort they put in. This could be attributed to limitations in resources, as the expenses associated with acquiring further information increase.

System thinking, in the context of knowledge engineering (KE), refers to a perspective that considers the collective events, behaviors, processes, and states related to knowledge inside an organization (Chun et al, 2008). The initial phase involves familiarizing oneself with prevailing knowledge management procedures in order to identify both favorable and unfavorable conditions associated with key aspects in knowledge management. Once the behaviors linked to favorable and unfavorable conditions are recognized, they can be either preserved or discarded or discouraged accordingly (Chun et al., 2008). A holistic understanding of this nature can propel a KE project towards success. According to Taborga (2011), systems archetypes can be used as a diagnostic tool to gain a deeper understanding of the dynamics of a specific group of behaviors that have resulted in an undesired state. In addition, they can assist managers in implementing its principles, formulating a comprehensive analysis of a crisis, and devising a strategy for recovery. A diagnosis of this nature can uncover issues pertaining to knowledge using means such as a knowledge evaluation assessment.

Taborga (2011) highlights that systems archetypes are instrumental in planning, as they enable organizations to identify and address potential issues early, when interventions are more manageable. Moreover, when organizational members possess a thorough understanding of these archetypes, they can leverage this knowledge to design dynamic systems capable of mitigating negative impacts as they arise (Taborga, 2011). Consequently, for the purposes of this study, applying a

systems thinking approach is appropriate for capturing the complex and evolving nature of knowledge exchange. Knowledge management within organizations involves examining the events, behaviors, processes, and states associated with organizational knowledge. Chun et al. (2008) suggest that systems thinking provides a robust framework for addressing the lack of a comprehensive structure in organizations, offering broad guidance for knowledge exchange activities.

Although Systems Theory offers a valuable lens for understanding the interdependencies of management within universities in supporting Knowledge Economy (KE) initiatives, its limitations in this context underscore the need for complementary frameworks. Specifically, Systems Theory may not fully capture the processes involved in adopting innovations and new technologies, which are critical for KE promotion. To address this limitation, this study incorporates the Technology-Organization-Environment (TOE) framework, providing a more detailed analysis of the factors influencing university management practices in advancing KE initiatives, particularly regarding the complex dynamics of innovation adoption.

### **2.8.3 Technology-Organization-Environment (TOE) framework**

The TOE framework, created by Tornatzky and Fleischer (1990), delineates three dimensions of an enterprise's circumstances that impact the acceptance and execution of technical innovation: technological circumstances, organizational circumstances, and environmental circumstances. The technical framework encompasses both internal and external technologies that are pertinent to the university. This includes existing procedures, equipment, and technologies that are now available in the market but have not yet been implemented by the university (Oliveira & Martins, 2011; Awa, Ojiabo, & Orokor, 2017). For example, universities can plan to adopt new research technologies and digital platforms to enhance research capabilities, such as integrating advanced laboratory equipment for research purposes. Management can assess available technological options, forecast future technological needs, and allocate resources accordingly, helping set strategic goals that align with technological advancements, ensuring the university stays competitive and innovative.

The organizational context refers to the characteristics and resources of the organization, including scope, size, managerial structure, and communication

processes (Tornatzky & Fleischer, 1990 in Oliveira & Martins, 2011; Baker, 2012). Universities can establish specific targets for research funding, publication output, and technology transfer activities. This involves setting priorities and creating roadmaps for achieving these goals, ensuring the institution's resources and efforts are directed towards fostering a knowledge economy. Additionally, university organizing internal structures may promote interdisciplinary collaboration and streamline innovation processes by defining roles, responsibilities, and workflows facilitates efficient research and innovation activities. Leading involves motivating and guiding academic faculty staff towards achieving strategic innovation goals such as setting an example, communicating the importance of innovation.

The environmental context includes the external environment in which a university operates, encompassing industry structure, regulatory environment, and market conditions (Baker, 2012). University management can strategically plan partnerships and projects that leverage external support and enhance the institution's impact on the knowledge economy. By organizing effective communication channels and governance structures for external engagement, universities can better navigate environmental factors and enhance their contributions to the knowledge economy. This involves establishing protocols to regularly review and adapt to changes in the external environment, ensuring the university remains compliant and competitive. Leaders can actively engage with industry partners, government agencies, and international organizations to foster collaborations that enhance the university's role in the knowledge economy through advocacy, networking, and strategic partnerships.

The TOE framework offers a systematic approach with clear dimensions (technology, organization, environment) for analyzing innovation processes, facilitating a more organized and in-depth analysis of how university management functions such as planning, organizing, controlling, and leading—support the knowledge economy. TOE framework, while comprehensive, has limitations in its application. The paradigm may not comprehensively encompass the intricacies of technology adoption and deployment, especially in dynamic situations where external influences might exert a substantial influence on technology choices (Oliveira & Martins, 2011; Baker, 2012). Despite this, the TOE framework remains relevant for studying university management's role in promoting KE as It helps to identify and leverage key drivers

within a university setting, ultimately supporting the advancement of the knowledge economy

#### **2.8.4 The relevance of the theories to the study**

Henri Fayol's management theory is relevant to the effective management of universities, particularly in the context of promoting a knowledge economy. His principles provide a framework for organizing, planning, leading, and controlling university functions. The theory provides valuable insight into the study's exploration of the functions entailed in university management. Firstly, planning, which entails the intricate process of forecasting future conditions, setting strategic objectives, and developing effective strategies to achieve these goals, provides the foundation for investigating various aspects of university planning, including the formulation of institutional goals and the strategic direction of research and innovation initiatives. Secondly, the organizing aspect, as elucidated by Fayol describe mechanisms involved in arranging resources and tasks to align with the objectives of the institution. This dimension of organizing enables a detailed examination of the diverse roles played by different managers within the university hierarchy, as well as the collaborative efforts among different departments and units, all aimed at advancing the knowledge economy. Thirdly, the leading dimension, characterized by the motivation and empowerment of staff, offers invaluable insights into the dynamics of leadership within the university context. By scrutinizing leading practices such as fostering teamwork, encouraging innovation, the study gains a deeper understanding of how leading can contribute to the attainment of institutional goals and the promotion of knowledge economy. Finally, the controlling function, which encompasses the monitoring of performance and the implementation of control mechanisms to ensure adherence to established standards and objectives, serves as a critical component of university management. Through an examination of control processes such as regular evaluations, audits, and feedback systems, the study sheds light on the various strategies employed by university administrators to maintain accountability, optimize resource utilization, and drive continuous improvement in pursuit of KE.

By adopting a system thinking approach to university management, a comprehensive understanding of the intricate relationships among different components such as faculty, policies, funding, research thematic areas, infrastructure, and other

elements is attained. This perspective facilitates the identification of feedback mechanisms, streamlining of processes, and cultivation of an environment conducive to fostering a knowledge economy. Moreover, it underscores the importance of discussing the adaptability and flexibility of universities in response to both internal and external changes. This adaptability is particularly crucial within the dynamic landscape of academia, where embracing new technologies, innovative teaching methodologies, and evolving global demands. Furthermore, exploring how universities coordinate academic departments, research centers, and administrative divisions to collaborate effectively towards shared objectives is pertinent. Such coordination not only strengthens the university's role in driving the knowledge economy but also enhances its impact on national development, particularly within the context of Tanzania.

Combining Henri Fayol's Administrative Management Theory, Systems Theory, and the Technology-Organization-Environment (TOE) framework offers a comprehensive lens for examining university management in the promotion of the knowledge economy (KE). Fayol's theory provides essential guidance on core management functions, including planning, organizing, leading, and controlling, serving as a basis for establishing study objectives and analysing managerial practices within higher education institutions.

Systems Theory complements this perspective by highlighting the interconnectedness and interdependence of various components within the university system, illustrating how management functions interact to achieve KE objectives. Meanwhile, the TOE framework offers a structured approach to examining how technological innovations are adopted and implemented within universities, taking into account the technological, organizational, and environmental factors that shape KE practices. By integrating these three theoretical approaches, the study can obtain a richer understanding of how university management contributes to KE initiatives and identify strategies to enhance innovation, collaboration, and knowledge creation within academic institutions.

## **2.9 Knowledge Economy Integration in University Management**

### **2.9.1 Learning and innovation ecosystem model**

This model views the university as an integral part of a larger learning and innovation ecosystem. It recognizes the importance of collaboration and coordination among universities, industry, government, and community organizations to drive economic growth and societal development. The learning and innovation ecosystem model promote the sharing of resources, expertise, and best practices to create a vibrant knowledge economy (Bacud, 2020). Again, the model emphasizes the significance of collaboration and coordination among universities, industry, government, and community organizations. It recognizes that each of these entities brings unique strengths and expertise to the table. By working together, they can foster an environment that promotes learning, drives innovation, and ultimately leads to economic progress (Imanto et al., 2019).

One of the core principles of the learning and innovation ecosystem model is the sharing of resources, expertise, and best practices. Instead of universities operating in isolation, they actively seek partnerships with other stakeholders to leverage their collective knowledge and resources. This collaboration can take various forms, such as joint research projects, industry-sponsored educational programs, or government-funded initiatives (Imanto et al., 2019). Therefore, by fostering collaboration and sharing, the model creates a vibrant knowledge economy. Universities contribute by producing highly skilled graduates equipped with the latest knowledge and research findings. Industry partners participate by providing real-world challenges and opportunities for students and researchers to apply their knowledge in practical settings (Bacud, 2020).

### **2.9.2 Open innovation model**

This model encourages the university to act as an open innovation hub, fostering collaboration with external organizations. It involves active engagement with industry partners, government agencies, and non-profit organizations to address societal challenges and drive innovation. The open innovation university model emphasizes the co-creation of knowledge and the transfer of research outcomes to real-world applications (Bratium, 2018). The open innovation model emphasizes the co-creation of knowledge. Instead of conducting research in isolation, the university

actively involves external partners in the research process. This collaborative approach enables different organizations to contribute their unique insights, resources, and expertise. By bringing together academia, industry, government, and non-profit organizations, the university creates a rich and diverse ecosystem of knowledge creation (Imanto et al., 2019). Similarly, the open innovation university model also emphasizes the transfer of research outcomes to real-world applications. The research conducted within the university is focused not just on advancing knowledge but also on solving practical problems and having a tangible impact on society. Through partnerships with external organizations, the university ensures that the research findings are effectively applied in relevant industries, government policies, and social initiatives (Yi et al, 2022).

This model encourages a two-way exchange of ideas and knowledge between the university and its external partners. It recognizes that innovation is not limited to the boundaries of the university campus but lies in the connections and collaborations with the wider community. By actively engaging with industry partners, government agencies, and non-profit organizations, the university gains access to real-world challenges, industry trends, and societal needs. This valuable insight helps shape the research agenda of the university, ensuring that it remains relevant and impactful (Bratium, 2018).

### **2.9.3 Regional development model**

The regional development model underscores the pivotal role that universities play in promoting growth and development within their local regions. Under this model, universities are viewed as central drivers of economic advancement, actively engaging with local industries, businesses, and community organizations to tackle regional challenges and collaboratively generate innovative solutions (Masa'deh et al., 2019).

Collaboration forms the core of this approach, as universities partner with local stakeholders to identify the most urgent regional problems. By involving industries, businesses, and community groups in the solution-development process, the model ensures that strategies are specifically adapted to the region's unique needs and conditions. This cooperative framework also facilitates the sharing of resources,

expertise, and knowledge across diverse participants, leading to more effective and sustainable outcomes (Masa'deh et al., 2019).

A central aim of the regional development model is to stimulate entrepreneurship within the local economy. Through the provision of resources, mentorship, and institutional support, universities foster an entrepreneurial culture among students, faculty, and regional stakeholders. This supportive environment encourages the establishment of new enterprises and startups, which contribute to job creation, economic diversification, and enhanced regional prosperity (Bratium, 2018).

#### **2.9.4 Sustainable development model**

The Sustainable Development Model is a model that prioritizes the integration of sustainability principles and practices into every facet of university operation. This holistic model encompasses various areas such as teaching, research, campus infrastructure, and community engagement, recognizing the interconnectedness and interdependence of these different components. In regards to teaching, the Sustainable Development Model ensures that sustainability is embedded within the curriculum and pedagogy. It encourages the inclusion of courses and programs that focus on environmental conservation, social justice, and economic resilience, equipping students with the necessary knowledge and skills to address sustainability challenges (Wells, 2017).

Furthermore, the model emphasizes the need for research that promotes sustainable solutions and innovation. It encourages faculty and students to conduct interdisciplinary research that tackles real-world problems, such as climate change, poverty, and inequality. By fostering research that is aligned with sustainable development goals, universities contribute to the global knowledgebase and offer practical solutions to pressing societal issues (Imanto et al., 2019). Additionally, the Sustainable Development Model also underscores the importance of social responsibility. It encourages universities to adopt inclusive and equitable practices, promoting diversity, equal opportunities, and social justice. This includes fostering an inclusive campus environment, creating a diverse and inclusive workforce, and ensuring fair labour practices (Bratium, 2018).

## 2.10 Universities and Knowledge Economy

The knowledge economy is an economic system that emphasizes the extensive use of human knowledge and its transformation into innovation, technology, machinery, decision-support systems, and products to generate economic value. This mode of production relies primarily on intellectual capabilities rather than physical resources, making it highly knowledge-intensive. In essence, the knowledge economy centers on the creation, distribution, and application of intellectual capital, highlighting the ability to utilize scientific discoveries and practical research effectively (Dědečková, 2020).

In a knowledge economy, growth and competitiveness depend on the accumulation and strategic use of knowledge or intellectual capital. Knowledge capital encompasses the collective expertise of the workforce, alongside the information and technological infrastructure available to them (Moules, 2017). Additionally, this economic model produces intangible assets, including patents, copyrights, proprietary software, and systems for knowledge processing, which contribute to value creation. Fundamentally, the knowledge economy is a system of production and consumption that leverages intellectual capital, particularly through the application of scientific and empirical insights. Salem, released in 2014. Knowledge economies, in contrast to industrial economies, prioritize intangible assets like information rather than raw resources. As a result, they are driven by the economics of abundance rather than scarcity. Lamre and Abosede (2018) assert that knowledge sectors, such as computing, media, and medical, require individuals with exceptional intellectual abilities. Knowledge workers in these industries are highly educated and possess the autonomy and flexibility to make independent decisions, while also being specialists in their respective professions. A knowledge economy is an economy where knowledge workers are the essential input element. This contemporary manufacturing method is most apparent in industrialized nations, where a proficient labor force is essential for conducting research, creating breakthroughs, advancing technology, and making scientific progress. These developments and innovations enhance manufacturing efficiency and generate fresh prospects (Vaidya, 2021).

The knowledge economy is distinguished by its reliance on intellectual capabilities rather than physical inputs in the production process. Production is characterized by

codification, digitization, and automation. Workers in this economy possess high levels of skill and typically hold college degrees. As a result of the high labor productivity, wages are also high (Zeb, 2022). Moreover, allocating resources towards education and training cultivates proficient and capable individuals who are able to generate research and scientific expertise. Human capital and abilities serve as the creators of novel knowledge, which is then converted into innovations and superior products. Knowledge is ephemeral and always evolving. Research universities and technological centers are the primary sources of new knowledge generation (Dědečková, 2020).

In addition, Wells (2017) contended that knowledge-intensive activities constitute the primary component of the knowledge economy paradigm. Therefore, the majority of qualities have developed in correlation with knowledge. According to Djilali (2017), the primary components are knowledge-based companies, knowledge workers, and knowledge processes. Therefore, there is a strong focus on knowledge management, which involves actions such as creating, storing, retrieving, and distributing information. The modern economy consists of not only service entities, but also high-tech manufacturing entities. Skilled individuals in this economy must possess appropriate degrees or certificates, as well as skills such as technical expertise, interpersonal abilities, and problem-solving capabilities (Moules, 2017).

### **2.10.1 The Role of university management functions in promoting knowledge economy**

In today's fast-paced and interconnected world, universities play a vital role in fostering a knowledge economy. With their focus on education, research, and collaboration, universities and colleges from different parts of the world contribute significantly to the creation, acquisition, and dissemination of knowledge. In this article, we will explore how university management functions promote a knowledge economy (Wells, 2017). Universities act as key hubs for knowledge creation, through research activities and collaborations with industry and government, universities contribute to generating new knowledge. Faculties and researchers explore novel ideas and concepts, conduct experiments, and publish their findings. By investigating various fields of study, universities provide the foundation for innovation, technological advancements, and scientific breakthroughs. Additionally,

universities often have centers and institutes dedicated to specific areas of research, further enhancing knowledge creation in those domains. (Bratium, 2018).

Similarly, Universities also play a crucial role in knowledge acquisition, by offering a wide range of courses and educational programs, universities provide individuals with the opportunity to acquire knowledge and skills in various disciplines (Imanto et al., 2019). Students gain specialized knowledge through degree programs, enabling them to contribute effectively to the knowledge economy. Moreover, Wells (2017) reveals that universities often encourage interdisciplinary studies, allowing students to explore connections between different fields and foster creative thinking. By providing access to libraries, laboratories, and other resources, universities facilitate the acquisition of knowledge through both theoretical and practical means.

Furthermore, universities excel in knowledge dissemination. Through teaching and mentoring, professors and educators pass on their expertise to students, who, in turn, become the future workforce of the knowledge economy. Universities also contribute to knowledge dissemination by publishing research papers, academic journals, and participating in conferences and symposiums. These activities facilitate the sharing of information, ideas, and best practices among academics, professionals, and policymakers (Imanto et al., 2019). Moreover, Collaborations between universities, industry, and government is another vital aspect of promoting a knowledge economy, Universities often collaborate with industry partners to develop innovative solutions, support technological advancements, and commercialize research findings Salem (2014). Such collaborations lead to the transfer of knowledge and expertise from academia to industry, fostering economic growth and competitiveness. Universities also collaborate with government agencies to address societal challenges, provide expert advice, and inform policymaking (Vaidya, 2021).

Overall, university management functions contribute significantly to promoting a knowledge economy by fostering knowledge creation, acquisition, and dissemination. Universities and colleges from different parts of the world play a vital role in advancing society's knowledge base through teaching, research, and collaboration, by investing in education, research facilities, and partnerships,

universities empower individuals and communities to thrive in the knowledge economy (Lamre & Abosedo, 2018). As the world continues to evolve, universities must continue to adapt their strategies and management functions to stay relevant and impactful in advancing the knowledge economy (Bratium, 2018).

### **2.10.2 Positioning higher education to build a knowledge-economy**

Efforts should be made to address the challenges facing higher education institutions in Africa in order to better contribute to knowledge-driven economies (Grau, 2017). This can be achieved by bridging the gap between policy and practice, improving investment and teaching and research capacity, tackling academic corruption, and addressing curriculum inadequacies. Additionally, there is a need to train and supply graduates with technical skills in fields such as engineering, data analysis, and IT. Similarly, creating an integrated educational environment that promotes creativity and lifelong learning is essential for preparing students for success. Higher education institutions should embrace Information and Communications Technology (ICT), as it plays a crucial role in today's knowledge-based economy and can provide a competitive advantage (Vitalis, 2021).

Correspondingly, Entrepreneurship education is important for diversifying economies, fostering innovation, and enhancing entrepreneurship development, it equips students with the necessary skills and knowledge to establish their own businesses and contribute to employment opportunities in different sectors of the economy (Wells, 2017). Additionally, Partnerships between higher education institutions and industries are crucial for enhancing global competitiveness and economic growth. These partnerships can facilitate the creation and transfer of knowledge and skills. Additionally, collaboration with rural communities, which possess indigenous knowledge, can also contribute to addressing current and future challenges. It is important to protect and document this indigenous knowledge by creating a database that higher education institutions can utilize (Okebukola, 2017). Therefore, to enhance the capabilities of higher education institutions, there should be a focus on increasing research potentialities and allocating more resources to graduate training and research. New funding mechanisms, including support from governments, regional and continental bodies, development partners, and philanthropic foundations, should be established. Additionally, Bejinaru (2017)

maintains that citizens, private corporations, and alumni should contribute to funding research efforts

### **2.10.3 Knowledge economy practices and indicators**

Information is a multifaceted concept that garners attention from both theorists and practitioners. Different methodologies have been devised, but the one consensus is that knowledge encompasses more than mere data and information. The budget operates by producing information and knowledge as commodities. Knowledge management is crucial since knowledge is a highly strategic resource that can result in long-term improvements in profitability. The establishment of a knowledge society is of paramount importance (Mohamed et al., 2022). As stated by Rim et al. (2019). In the current competitive environment, it is important to evaluate the real progress in managing the knowledge budget and implement appropriate steps to support and enhance it. To enhance the evaluation approach, it is crucial to identify the major factors that contribute to the assessment process (Sira et al., 2020).

Knowledge economy practices are the processes that an organization uses to capitalize on its intellectual capital or knowledge (Salem, 2014). This includes activities such as collecting and disseminating information, utilizing expertise, creating and sharing knowledge, and harnessing technology to drive more value. Examples of knowledge economy practices include open innovation, saying networks, big data analytics, virtual collaboration, and learning and development (Dědečková, 2020). Knowledge economy practices emphasize the importance of utilizing knowledge and information in order to attract and maintain sources of innovation, productivity, and competitiveness. These practices include the construction and dissemination of information, increased use of technology, the fostering of information-intensive industries, economic networking activities, and the development of human capabilities and skills. Indicators used to measure progress in attaining a knowledge-oriented economy include skilled labor force, technological innovation, information and communication technologies use, knowledge creation and dissemination, cultural factors, and economic development (Sira et al., 2020).

The knowledge economy is shaped by various indicators such as economic incentives, institutional systems, educated and accomplished human resources, an effective business innovation system, and a modern information and communication structure

(Bejinaru, 2017). In this economy, individuals with valuable human capital play a crucial role (Mohamed et al., 2022). Economic growth can no longer rely solely on increasing the amount of people in employment, as it has in the past. Instead, it requires a significant increase in the productivity of knowledge work and knowledge workers. Therefore, it is important for managers to be aware of the constant need for new knowledge and for their training and education to adapt to the changing demands of the knowledge economy. Effective advanced practices in management education are flatteringly increasingly important in determining the competitiveness of the knowledge economy, moreover (Chen et al., 2019).

Thus, discussing the information economy without being able to measure and evaluate its impact would be of limited value. As a result, various indicators have been developed over time to capture and understand these effects. By examining their characteristics, we can divide knowledge budget indicators into two groups. These indicators serve as statistical tools to assess a country's economic presentation based on the contributions of knowledge, technology, and services to its output. Some commonly used knowledge economy indicators include the Human Capital Index, Index of Knowledge-Based Capital, Postsecondary Education Output Index, Fear of Innovation Index, and Research and Development Intensity Index (Mohamed et al., 2022).

The first category focuses on the fundamentals of the knowledge economy, and this set of indicators explains how much of the knowledge economy makes up the nation's overall economy. Examples include the percentage of the workforce employed in high-tech industries and the percentage of higher educated individuals. Universities play a significant role in the information economy by serving as influential hubs that not only gather valuable intellectual resources but also provide fresh knowledge and technical advancements through their research endeavors (Sira et al., 2020).

The second main category consists of indicators referred to as presentation or output indicators. The indicators encompass the production of advanced technology industries, high-tech sector exports, GDP growth, and labor productivity growth (Sira et al., 2020). Another noteworthy classification technique is the one put up by the World Bank. Instead of categorizing indicators based on the qualities of a knowledge-based economy, they delineate four fundamental pillars of such an economy. An effective innovation system that allows businesses, research institutions, and

universities to generate knowledge is one of the pillars, along with an economically and institutionally sound framework that encourages businesses to make use of both existing and new information, a highly educated and competent populace that produces and uses new knowledge, and a constantly evolving information infrastructure that allows for efficient data exchange, distribution, and analysis (Sira et al., 2020).

The information economy indicators, according to European Bank data from 2019, have been divided into four categories: those that deal with invention and entrepreneurship, such as industry expenditure, enterprise expenditure determined by the size of the business, and the number of scientific and technical publications per individual; those that deal with human capital, or the abilities, knowledge, and skills that employees possess; those that deal with information and communication technologies; and those that deal with the effects on the economy and society. Human capital, a constituent of intellectual capital, pertains to the expertise, aptitude, and cognition possessed by employees rather than being owned by the firm (Mura, 2019).

The capacity to manufacture and disseminate competitive products and services in the international market is crucial for the advancement of a knowledge-driven society and a sustainable economy. A highly educated and skilled labour force is crucial for the success of the knowledge economy. Therefore, the percentage of individuals in a region's workforce who possess at least a college degree is a significant indicator of economic activity (Sira et al., 2020). The advancement of innovation is contributed by investment in research and development, adoption of new technologies, and the generation of innovative ideas. A region's innovation capacity can be gauged by the number of patents obtained by its corporations and the presence of startups. Technology spillovers involve the exchange of knowledge and information between industry, universities, and research institutes. Regions with efficient technology transfer systems are more likely to benefit from innovation and experience rapid economic growth. Knowledge-intensive services are activities that heavily rely on knowledge, analysis, and problem-solving abilities. These services often drive economic growth in areas where few other sectors offer comparable returns. Developing countries face the challenge of keeping up with the

fast-paced changes and economic impacts in the global market, which makes achieving and maintaining competitiveness difficult. Merely being passively open to the free market is not sufficient (Sira et al., 2020).

## **2.11 Knowledge Economy Integration in Tanzanian**

### **2.11.1 Overview of Tanzanian higher education system**

The Tanzania Commission for Universities (TCU) was founded on July 1, 2005, under the Universities Act, Cap 346. It functions as a legal entity with the duty of understanding, authorizing, enrolling, and certifying universities and university-level programs offered by higher education institutions in Tanzania. The TCU also has the responsibility of coordinating and assuring the effective functioning of all university institutions in the country, with the goal of establishing a unified and reliable higher education system (as stated in The Universities Act, Cap. 346). Moreover, the establishment of the TCU was intended to supplant the Higher Education Accreditation Council (HEAC), which had been functioning since 1995 in accordance with the Education Act. The HEAC had a narrow scope of authority that was exclusively dedicated to overseeing the development and accreditation of private educational schools. The limited focus of this scope was considered insufficient for fostering a sustainable collaboration between the public and commercial sectors in the field of higher education, as specified in the National Higher Education Policy of 1999 (The Universities Act, Cap. 346).

Tanzania's higher education system include both university institutions and middle-level tertiary institutions. Based on July 2021 data, the country has a total of 47 university institutions, consisting of 30 fully established universities and 17 university colleges as defined by The Universities Act, Cap. 346, 2021. In order to create a university in Tanzania, individuals or organizations need to apply to the Tanzania Commission for Universities (TCU) for a Provisional Licence, in accordance with the Minimum Guidelines and Norms for Governance Units set forth by the Commission. The application process requires the utilization of TCU Form No.1, as outlined in the First Schedule of the regulations (The Universities Act, Cap. 346, 2021). In Tanzania, the university institutions are classified into three primary categories: comprehensive universities, university colleges, and university campuses, centers, and institutes. As of 2023, there are a total of 34 fully

established universities, 15 university colleges, and 11 university campuses, centers, and institutes functioning in the country (TCU, 2023). The significant rise in the number of university organizations is a direct result of the expansion of the higher education sector, which consisted of only one university institution in 1961 (The Universities Act, Cap. 346).

### **2.11.2 Current status of knowledge economy integration in Tanzanian universities**

The information budget has been a part of Tanzanian universities for some time, and the government is working to promote its development. Currently, most universities in Tanzania have integrated some form of knowledge economy activities into their curricula, though the integration is still in its early stages.

#### **2.11.2.1 Expertise**

The leading university in Tanzania, known for its exceptional academic standards and commitment to excellence, bids a wide range of specialized courses tailored to meet the demands of the rapidly growing knowledge economy. Recognizing the shifting global landscape, where intellectual capital and innovation are crucial for sustainable development, this esteemed university has designed its curriculum to empower students with the essential skills, knowledge, and expertise required to excel in a variety of knowledge economy-related fields. In addition to teaching, the university also provides a comprehensive range of consultancy services, research services, innovation and entrepreneurship services (University of Dar es salaam prospectus, 2023).

#### **2.11.2.2 Consultancy services and teaching**

According to the University of Dar es Salaam Strategic Plan (2020/2021-2025/2025), the internal university management has incorporated a consultancy program into their planning. This is evident in Strategic Objective D, which focuses on research, innovation, and knowledge. The university aims to achieve this objective by providing training for staff on consultancy issues, increasing the offering of consultancy facilities and continuing education, increasing the volume of both consultancy and non-consultancy public services, reviewing the consultancy policy

by June 2023, and enhancing competitiveness and staff motivation (University of Dar es Salaam Strategic Plan, 2020/2021-2025/2025). Teaching practices have also been organized within the university, as stated in the strategic plan objectives, specifically Objective D (University of Dar es Salaam prospectus, 2023).

#### **2.11.2.3 Research services**

The university has research programs dedicated to studying topics related to the knowledge budget (University of Dar es salaam prospectus, 2023). One such program is the Computer and IT Systems Engineering program, which combines knowledge from various disciplines such as Computer Science, Computer Engineering, Information Systems, Electronics Engineering, Telecommunication Engineering, and Electrical Power Engineering. This integrated approach equips students with a comprehensive understanding of engineering principles, preparing them for careers in academia, research, or technical entrepreneurship. The program covers both hardware and software aspects of computer systems and emphasizes their integration. Despite the university's provision of funding for research through Competitive Research Grants since 2018/2019, the output in terms of publications and commercial products has been relatively low. Consequently, the university's income from research has been minimal (University of Dar es salaam prospectus, 2023).

#### **2.11.2.4 Innovation and Entrepreneurship Services**

In addition, the University of Dar es Salaam provides training and development in invention, creativity, and free enterprise through the University of Dar es Salaam Innovation and Entrepreneurship Centre (UDIEC) and other relevant units within the Colleges, Schools, and Institutes. The goal of the Centre is to foster the growth of knowledge, skills, and technologies aimed at addressing societal issues through innovation. The University of Dar es Salaam prospectus for 2023 emphasizes the mission to cultivate graduates who actively create job opportunities rather than solely seek employment, encouraging students to participate in Centre activities (University of Dar es salaam prospectus, 2023)

### **2.11.3 Challenges faced by Tanzanian universities in integrating knowledge economy practices**

The educational sector's challenges must be addressed in order to ensure that higher education institutions are fulfilling their obligations in the areas of education, research, commercialization, and knowledge transfer, all of which are essential for fostering innovation. The environment in which these institutions operate has undergone significant transformation over the course of several periods. Some of these obstacles will now be depicted (Kisanga, 2015).

#### **2.11.3.1 Funding and resource allocation**

Lack of sufficient financing poses the greatest challenge to achieving high-quality higher education and research in Africa. The issue of inadequate funding in education has hindered the progress of educational development, as numerous higher education institutions are unable to allocate resources towards research, construction of lecture halls, student accommodations, and the establishment of laboratories and workshops. Additionally, insufficient funds also affect the timely payment of staff salaries, research grants, allowances, and medical expenses (Ministry of Finance and Planning, 2023).

Allocation for the Education Sector The financing of the education sector in Tanzania is a collaborative endeavor involving the government, communities, parents, and end-users. The government is increasing the allocation of funds to education each year in order to enhance the provision of education and training services, including infrastructure and educational materials (URT, 2016b). Public institutions, such as secondary schools, heavily depend on government funding for their operations. The integration of ICT in education within these schools is closely tied to the amount of financial resources supplied by the government. In recent years, the budget allocated to the education sector in Tanzania has consistently decreased. As an illustration, the amount of money assigned to the education sector declined from 19.1% in the fiscal year 2012/13 to 16.2% of the overall budget in the fiscal year 2016/2017 (URT, 2016b). Despite other considerations, the proportion of the education budget provided to universities has remained comparatively insufficient in comparison to other levels of education. Between 2005 and 2017, the majority of funding (60.6%) in the education sector was

allocated to universities and secondary services. In comparison, only 14.5% of the funding went to universities, while the remaining 24.9% was divided between teacher education (1.5%) and practical and higher education (23.3%) (URT, 2016b). Despite the annual increase in the administration budget allocation to the education sector, it has not yet resulted in a substantial shift, as stated by Kisanga (2015).

#### **2.11.3.2 Policy and regulatory frameworks**

Inadequate policy implementation: The insufficient application of policies is a significant obstacle to achieving high-quality education. The education policies in most African countries are ambitious and designed to produce graduates who are both domestically significant and globally competitive. Regrettably, a significant number of the policy provisions are merely theoretical and do not translate into practical implementation. There is still a significant disparity between the recommendations for policies and their actual implementation. This represents a significant drawback in utilizing the potential of higher education to support the transformation of the knowledge-based economy (Kisanga, 2015).

#### **2.11.3.3 Collaboration and partnership building**

Universities must find a way to turn their potential into tangible outcomes in order to make a significant contribution to the world. According to Times Higher Education, over the next five years, universities will need to confront the emerging global challenges of expanding research on a geopolitical scale. This is because nations are increasingly prioritizing the strengthening of their global networks and focusing on strategic interests. Academics need to modify their study in order to accommodate the necessary alterations in sought solutions (Kisanga, 2015).

#### **2.11.3.4 Capacity deficit**

A lack of human capacity is another concern. The shortage pertains to the lack of knowledge and skills in people quality assurance within institutions and quality assurance agencies. Due to its recent emergence, only a limited number of individuals possess the necessary training and expertise in quality assurance as a conceptual framework and disciplinary focus. More than 80% of individuals employed in higher education institutions and national quality assurance bodies lack formal

training in quality assurance. Numerous individuals are acquiring knowledge and skills while actively working. This lack of capacity has a negative impact on the way institutions and organizations carry out their quality assurance operations. Fortunately, the situation is rapidly improving as the implementation of quality assurance training while in-service is becoming more prominent (Okebukola, 2017).

#### **2.11.3.5 Technology and Digital transformation**

The development of a well-informed workforce to assist enterprises and other organizations necessitates a science and skill building infrastructure. One of the main obstacles to achieving a knowledge-driven budget is the lack of sufficient ICT infrastructure at many higher education institutions in Africa. Numerous institutions lack access to beneficial internet connectivity. Technology-driven higher education is a powerful catalyst for change and an effective way to motivate and support creative minds and businesses (Bejinaru, 2017).

### **2.12 Policies and Initiatives Promoting Knowledge Economy in Tanzania**

#### **2.12.1 Tanzania national ICT policy of 2016**

Conduct a study on government initiatives to encourage the adoption of Information and Communication Technology (ICT) in the field of education. Acknowledging the significance of ICT in education, the Tanzanian administration has implemented multiple policy documents and initiatives to encourage the efficient utilization of ICT in education. Some of their objectives include advocating for the integration of technology in education and ensuring that there are sufficient ICT learning and teaching resources available. These measures aim to enhance the quality of science-based education and promote a knowledge-based society. In order to improve learning, the rules recommend the utilization of many technologies, including radio, television, computers, mobile phones, and the Internet.

#### **2.12.2 Tanzania development vision 2025**

This is the long-term development idea of the Tanzanian government which aims to transform the country into a middle-income, knowledge-based economy. It includes strategies for developing a high-skilled workforce, building a robust research and development base, and creating an environment that encourages innovation and entrepreneurship.

## **2.13 Empirical Studies**

### **2.13.1 The university management integrates aspects of knowledge economy in planning**

The study reviewed recent studies relating to the internal managerial practices of university in promoting knowledge economy in Tanzania in relation to how university management integrates aspects of knowledge economy in their planning. The reviewed studies each addressed various internal managerial practices of the university that promote the knowledge economy.

Bolisani and Bratianu (2017)'s study delves into the impact of uncertainty and environmental turbulence on knowledge strategy planning. Their research utilizes a mixed methodology, combining extensive surveys with an original re-elaboration in its design. The outcomes reveal a need for a critical examination of existing literature. Additionally, the study suggests an integrated approach, conceptualizing planning as an ongoing process of education and adaptation to the evolving needs and opportunities arising from day-to-day practices. In contrast, the current study employed a qualitative research approach based on the internal management of university in promoting knowledge economy in Tanzania.

Jami Pour et al. (2018)'s research in Iran focused on devising an integrated methodology for information management (KM) strategic planning to achieve strategic alignment. Their study utilized a mixed research approach, incorporating semi-structured interviews with KM specialists and employing thematic analysis to analyse the gathered data. The study identified key phases in the KM strategic planning methodology, including strategic review, strategic orientation, implementation, and evaluation. However, a limitation was noted, as the study solely relied on interviews for data collection within its mixed research framework. In contrast, the current study aimed to address how university management integrates aspects of knowledge economy in their planning.

Vadera et al. (2021)'s study in the Kingdom of Saudi Arabia explored the implications of the Knowledge Economy. The research incorporated various data collection methods, focusing on primary data obtained through a pilot project based on Saudi Aramco's best practices in knowledge economy. The study primarily adopted a quantitative research method, employing a numerical approach and utilizing surveys

with questionnaires as the chosen tool. The primary data, collected by the researcher, involved 60 employees of Saudi Aramco. The research revealed that effective Knowledge Management (KM) implementation in organizations yielded numerous benefits, including employee development, fostering an innovation culture, enhancing research and development, improving information collection, processing, and delivery, integrating ICT into business processes, facilitating effective communication, enabling faster decision-making, enhancing work quality, improving customer focus, boosting competitive advantage, refining repository management, and managing intellectual property effectively. In contrast, the current study based on how university management integrates the aspects of knowledge economy in planning.

Asong et al. (2017)'s research, conducted in Cameroon, explored the landscape of the Knowledge Economy in Africa using a qualitative research approach. The study sampled data from 53 African countries, utilizing information from the World Governance Indicators, the World Development Indicators, and Principal Component Analysis (PCA) spanning the years 1996-2010. The findings highlighted a shift in African governance around 1998, marked by discouragement of military intervention and encouragement of private sector investment. This shift facilitated investments in invention, education, and information and communication technology (ICT). The study recommended four key measures to consolidate innovation and quality education, including the promotion of technical education, support for research and development (R&D), fostering a lifelong learning culture, and a continual shift from traditional PhD programs to PhD by publication schemes. However, a limitation of the study was identified, as it collected data from numerous countries, raising concerns about the validity of the results. In contrast, the current study aimed to address how university management organizes the knowledge economy practices.

Universities are recognized as crucial catalysts of the knowledge economy due to policy and structural improvements. Ruxandra and Ştefan (2017) argue that the World Bank's policy has accurately detected and addressed the significant shift in the role of universities. The policy highlights four crucial functions of higher education in promoting economic growth driven by knowledge. One key aspect is the ability to develop a skilled and versatile workforce, which includes highly trained scientists, professionals, technicians, teachers for primary and secondary school,

and future government officials. Secondly, it refers to the ability to generate novel information or insights. The third capability is the ability to acquire and utilize existing global information for local purposes. Lastly, the transmission of norms, values, attitudes, and ethics serves as the fundamental basis for social capital, which is crucial in building robust civil societies and cohesive cultures. These elements are critical for fostering effective governance and political democracy. This facilitates the importance of universities increasing as the knowledge budget and knowledge society become more prominent (Bratianu (2014).

Several countries, recognizing the importance of investing in knowledge, have prioritized their higher education institutions to foster a knowledge-based economy through government programs. According to Moiseev, Komarova, Karelina, & Karelina (2019), the current stage of the knowledge economy in Russia is characterized by a notable rise in both the quantity of higher educational institutions and the number of students enrolled, signifying a shift in the role and position of higher education. By 2017, the number of universities had surpassed 2,660, an almost threefold increase from the 965 institutions that existed in 2000 over a span of 16 years. The total enrolment of students in all national and central universities, as well as supporting universities with a military department and other higher educational institutions in the country, exceeded 5.5 million. However, the literature tends to view the knowledge economy more from a quantitative perspective rather than a qualitative one.

Higher education policy has defined knowledge exchange (KE) as the integration of research, innovation, and the utilization of information and communication technology (ICT). Salem (2014) argues that colleges play a crucial role in the knowledge-driven economy of the twenty-first century. Furthermore, research universities are now widely recognized as crucial catalysts for innovation and significant contributors to economic expansion. This has led many policymakers to perceive these institutions as valuable sources of knowledge for the emerging economy, possessing vast reserves of potentially marketable knowledge that are yet to be utilized by companies. Nevertheless, this excessively mechanistic perspective on the conversion of fundamental scientific research into financially feasible goods not only leads to a misconception of the process of commercialization, but also distorts the perception of the roles and responsibilities of institutions. Salem (2014)

agrees with Wolfe (2005) that universities tend to adopt technological innovation rather than initiate it.

It appears therefore that universities are expected to progress in integrating aspects of knowledge economy in their plans in the effort of transforming their countries into knowledge-based economies. Motivating this discussion, a study on innovative Asia by Asian Development Bank listed ways in which economies can pursue knowledge-based economic development through establishing university with greater financial and administrative autonomy, higher education clusters to serve the needs of specific industries, universities to set leading research labs while establishing industry-university collaborations, universities should expand the use of ICT to transform teaching and training to enhance student-centered pedagogy and creativity, develop training that is responsive to the changing market needs, matching human resource development with economic and industrial competitiveness, developing centers of excellence in major disciplines in the university among others. As Teece (2000) further asserts the determining factor of a firm's innovative capacity are rooted in structural design, incentives, human resources, internal culture, and external linkages.

Moreover, knowledge is considered a crucial asset in the knowledge economy. As universities are seen as drivers of knowledge, they are taking the lead in implementing knowledge management. Sangeeta (2015) highlights the significance of establishing internal and external organizational systems to facilitate knowledge management. He says that while Knowledge Management approach is beneficial for all institutions, college authorities have not yet embraced its inclusion in academia. It is evident from this contest that there is a necessity to establish a culture of information sharing among the staff and students. There is a dearth of utilization of ICT and the development of advanced abilities among teaching professionals for the purposes of causal communication, capturing, documenting, and sharing knowledge. An effective policy should be developed to govern the capture and sharing of information and expertise among academic professionals within enterprises that utilize intranet or extranet platforms. This policy should specifically address the needs of branches located in different places but managed under the same organization.

Infrastructure and practical assistance from ICT managers and network administrators are essential for all academics. Furthermore, the current educational system is increasingly focused on market-oriented outcomes for both students and staff (ibid). This suggests that educational institutions should foster a supportive environment in order to address the current challenges posed by globalization, extracurricular activities, research, interdisciplinary disciplines, and the complexity of the global education market. Gibb (2005) argues that educational institutions are increasingly using entrepreneurial approaches to address various challenges. Gibb states that global competition pressures are distributed over three categories: Individual response, Organizational response, and Social response. Educational institutions are now placing new requirements on students to equip them for lifelong learning, remote education, short-term specialized courses and training, international mobility, cultural adaptation, part-time employment, working in diverse administrative settings, enhancing graduates' employability to handle both familial and societal responsibilities, and providing them with value-based education. In order for these outcomes to be achieved, colleges must establish efficient and well-organized internal processes to facilitate the development of a productive knowledge economy.

Research plays a crucial role in the transformation of economies and is considered a vital requirement for a knowledge-based economy. Various scholars have reached significant conclusions indicating that universities serve as robust centers for research. Consequently, it is imperative for universities to establish effective mechanisms to enhance research, such as securing funding grants and establishing efficient channels for the dissemination of information, such as conferences and libraries equipped with up-to-date systems. According to Wells (2017) cited in Bejinaru (2017), universities play a crucial role in cultivating the necessary strategic thinking skills in young individuals and researchers to address the complex challenges of our world. It is no longer sufficient to tackle these issues in isolation; instead, a multidisciplinary and global approach that transcends institutional and disciplinary boundaries is required. Consequently, universities should create innovative study programs and foster collaborative research agendas. In the Knowledge Economy, the role of knowledge workers is highly valued. Therefore, colleges should ensure they have the necessary resources to train future

educators who can effectively teach social responsibility to children from a young age. One way to support global development issues and protect the world's assets is by offering Continuing Professional Development (CPD) and lifelong learning opportunities to professionals, including educators, policymakers, entrepreneurs, and public sector employees. This allows them to improve their skills and knowledge, and take a cooperative approach towards these issues (Prelicean & Bejinaru, 2016; &Wells in Bejinaru 2017). It implies that institutions should strategize for curricula that will equip students with the necessary abilities demanded by the job market.

Effective management of intellectual capital has emerged as a crucial component in the knowledge-based economy (Laurent, 2014; Brown, Osborn, Chan & Jaganathan, 2005; Teece, 2001; Mahoney & Liebeskind, 2001). The evaluation and management of intellectual capital has become crucial in the Knowledge Economy, as it is considered a valuable asset (Laurent 2014). Dobre (2012) defines human resources management in the knowledge economy as the strategic management of knowledge workers who contribute significant value to organizations. These workers are considered the most skilled and valuable members of the workforce. It is essential for them to continuously update their skills, have access to relevant information, and be encouraged to utilize their knowledge to generate value for their organizations.

In a knowledge economy, it is crucial for organizational structures to be adaptable and for communication channels to be easily accessible in order to optimize information sharing. Mikula et al. (2007) identified one approach to differentiate knowledge-based organizations based on their organizational structure. This structure is characterized by high flexibility, openness to the environment through network and virtual constructions, extensive utilization of temporary task teams, and the establishment of positions or teams responsible for knowledge management (Pawłowski, Trzcieliński, Włodarkiewicz-Klimek, & Kałkowska, 2011). According to Lee and Roth (2009), in order to thrive in a rapidly evolving economy, higher education institutions (HEIs) need to effectively identify the primary factors both within and outside their organization that can leverage the value of their resources and adapt their structures accordingly. The slow pace of adaptation in the knowledge economy by Higher Education Institutions (HEIs), as identified by Nawaz et al (2014), can be attributed to the inherent characteristics of these institutions.

The organizations in question are characterized by their well-established administrative procedures and a culture of retaining information (Du Toit, 2000). Their structures predominantly adhere to a hierarchical organizational concept. Naser et al (2016) contends that this approach could provide a significant impediment to the dissemination of information. The hierarchical paradigm often hinders the sharing of knowledge and the smooth functioning of managerial activities. This is because it is often associated with characteristics such as excessive emphasis on hierarchical positions. The individuals in positions of authority are perceived as the sole experts responsible for resolving organizational challenges. Individuals that are closely involved in work processes are considered to be the ones performing manual tasks rather than being in a leadership position (Newell, 2004). The command-and-control paradigm, which has been prevalent in organizational life, including higher education institutions (HEIs), during the 19th and 20th century, is defined by a centralized authority structure (Jackson, 2003). This strategy also appears to continue in higher education institutions seamlessly in the 21st century. In addition to the hierarchical structure, culture also poses a barrier to information exchange in Higher Education Institutions (HEIs). Cranfield and Taylor (2008) identify two types of nations within Higher Education Institutions (HEIs). The first pertains to academic culture, whereas the second pertains to administrative culture. The former is not against the concept of sharing information, but the latter is very disinclined. According to Wiig (1993), the primary reason for this is because faculty participants view their knowledge as personal property that should not be readily shared, as it distinguishes them from others. According to Davenport, DeLong, and Beers (1998), a promising cultural environment is crucial for the success of an information endeavor. They argue that even with advanced technology, knowledge content, and solid project management methods, the effort will not be successful if the cultural environment is not supportive. Consequently, higher education institutions (HEIs) encounter challenges in harnessing knowledge mostly because of institutional and societal obstacles. Consequently, HEIs must reconsider their approaches to teaching, research, and stakeholder management. The initiation of this change necessitates a fundamental shift in both the cultural and structural aspects. Higher education institutions (HEIs) will face ongoing and growing external pressures due to the information economy (Kenway, Bullen and Robb, 2004). Naser et al.

(2016) strongly argues for distributed, flexible, agile, and flat structures in light of the barriers listed above. According to him, these structures promote involvement and international assistance, leading to improved decision-making, efficiency, and cooperation inside the organization. According to Metcalfe (2006), governments require knowledge management (KM) in order to effectively adjust to the information-based economy. In the context of Higher Education Institutions (HEIs), in order to thrive in the knowledge economy, it is imperative for them to be perceived as knowledge enterprises. According to Memba and Feng (2016), HEIs (Higher Education Institutions) are engaged in the knowledge business, which includes activities such as creating, sharing, and facilitating learning of knowledge. Similar to any other enterprise, they are susceptible to the market forces. Hence, the contention that knowledge management could provide valuable contributions to Higher Education Institutions (HEIs) in the information economy is significant.

### **2.13.2 The university management organizes the knowledge economy practices**

Balozi et al. (2014) conducted a study in Tanzania with the goal of developing theory that has immediate practical implications, emphasizing the advancement of theoretical understanding within the Tanzanian context and its potential contribution to the global knowledge economy. The research highlighted the need to explore how theory functions and performs in Tanzania, making comparisons with developed countries. Specifically, the study focused on the Theory of Planned Behavior (TPB) as a foundation for analyzing knowledge-sharing practices in the Tanzanian setting. Key propositions were identified to guide the development of TPB in relation to knowledge sharing. A noted limitation of the study was its concentration on a single theoretical framework, whereas the current study seeks to explore how university leadership contributes to the development of the knowledge economy.

Rivera et al. (2022) investigated knowledge management strategies in Mexico, employing a model that included six critical elements: management, culture, structure, human resources, information technology, and measurement. These components were considered vital for the creation, retention, dissemination, and utilization of knowledge. A detailed survey of 53 questions was administered to 36 participants engaged in knowledge management during both implementation and

growth phases. Findings highlighted the influence of cultural, human, and structural factors on knowledge management practices within universities. However, a limitation of this study was its exclusive reliance on survey methodology, which may restrict the depth of understanding. In contrast, the present study aims to examine how control mechanisms within universities facilitate the growth of the knowledge economy.

Ruxandra (2016) conducted research in Germany focusing on universities as knowledge-based learning institutions. Utilizing a qualitative approach, the study included 26 universities and applied the case study method. Data were collected through interviews and Focus Group Discussions (FGDs), then analyzed thematically. Results indicated that universities possess the potential to adapt their activities according to the principles of a learning organization. The study recommended that the concept of a learning organization be tailored for applicability in public, safety, human service, and knowledge-intensive organizations. In contrast, the present study focuses specifically on how university management integrates knowledge economy elements into their strategic planning processes.

Broström et al. (2021) carried out research in Ethiopia examining the knowledge economy, emerging ideas, and new challenges faced by academics. Using a qualitative case study design, data were gathered via interviews, FGDs, and document reviews, and analyzed through content analysis. The findings revealed that universities are key contributors to the knowledge economy, actively responding to stakeholder expectations by adopting new roles in teaching and research. Nevertheless, these institutions face numerous challenges during implementation, navigating the complexities and transformations inherent in the knowledge economy. Unlike this study, the present research focuses on how leading universities in Tanzania contribute to expanding the knowledge economy and how management organizes knowledge economy-related practices.

### **2.13.3 Control mechanisms support knowledge economy**

Bratianu (2018) did research on universities as learning organizations: Challenges and Strategies in Bucharest, Romania. The study found that a university can only become a learning organization if its leaders come up with clear plans for turning informal and local learning within the organization into a process that happens

across the whole organization. Knowledge management should supersede the more conventional method of supervision at universities, and university administration should emerge as a primary strategic driver. In today's knowledge-based economy, universities play an essential role in both the generation and dissemination of new information, as well as in the improvement of local communities through research and innovation. As a result, the university's goals and objectives should evolve to reflect these new realities, and the administration should be capable of implementing these changes through strategic academic management. This paper's methodology was based on a conceptual analysis and literature research that focused on the problems that universities face in the modern day. The findings demonstrated that in order for universities to transform into learning organizations, top-level administration must establish a series of preconditions and ensure that every member of the faculty and staff buys into the new goal and vision. In contrast, the focus of this research was on the knowledge economy practices organized by university administration.

Naser et al. (2022) looked at how the knowledge management model evolved at two Palestinian universities in the Gaza Strip, Al-Azhar and Al-Quds. The research used a mixed-method approach to multi-criteria country estimate and a subsequent regression model to back up the claim. In sum, their research proves that scientific research efficiency is impacted by knowledge administration's process, leadership, people, and outcomes. There is a dearth of particular information regarding the criteria utilized, the selection procedure, and the variables included in the regression model, as well as a brief description of the multi-criteria evaluation and subsequent model. The study's openness and replicability may be improved by including a more thorough description of the procedures used so that other researchers could evaluate and, ideally, repeat the findings.

Al-Shobaki (2022) study investigating the relationship between administrative presentation effectiveness and the utilization of decision support systems at Al-Azhar University in Gaza, a total of 61 academics in administrative roles participated. Employing a descriptive analytical approach, secondary data were gathered through a comprehensive inventory survey distributed to the entire research community. The study achieved a recovery rate of 65.6%, with 40 completed questionnaires retrieved. However, it is crucial to acknowledge that this participation rate may introduce response bias, potentially leading to differing

perspectives among participants and non-participants. A comprehensive examination of these potential biases and their implications for the study's outcomes should be addressed thoroughly in the discussion section. The findings of the research highlight a statistically significant direct relationship between the effectiveness of administrative presentation and the use of decision support systems at Al-Azhar University in Gaza, emphasizing the substantial impact of administrative effectiveness on the adoption of such systems.

Organizations must monitor their development in order to assess and evaluate their achievements in relation to established benchmarks, ensuring the attainment of goals that are aligned with the national economy. In order to adapt to the changing nature of work, it is necessary to examine and modify the functions and structures of educational organizations, as well as methods to education. This can be achieved through a comprehensive analysis of the adjustments needed to accommodate these changes (Lafayette, Curtis, Bedford & Iyer, 2019). In the knowledge economy, the controlling function of an organization involves assessing achievements and making necessary changes. According to Janus (2016), observing and evaluating are crucial for knowledge sharing and significantly contribute to long-term success by ensuring (1) accountability for resource allocation, (2) opportunities for practical improvement in knowledge sharing, and (3) validation of the learning achieved. These contributions are essential for maintaining the growth of information sharing and its growing prominence in the agendas of national and international policy makers. Monitoring activities may employ both quantitative and qualitative metrics. Quantitative measures include objective indications, such as the frequency of successful information exchange processes. On the other hand, qualitative measures involve subjective evaluations obtained by interviewing individuals about their views towards the activity. Dědečková (2020) highlights that in the dynamic business environment, where organizations strive for competitive advantage, managers must ensure the execution of plans to ensure that individuals are fulfilling the necessary tasks to achieve the objectives.

In order to support the knowledge economy, modern organizations should establish control mechanisms that align with the evolving changes in the economy. Sljivic, Skorup, and Vukadinovic (2015) suggest that organizations seeking new business

models, primarily driven by innovations, employ various control mechanisms to monitor their performance and mitigate the adverse impacts stemming from the external and internal environment. Additionally, they emphasize that the methods and instruments employed by management control are tailored to the unique characteristics of each firm and are not bound by any universally recognized norms. According to Marginson (2009), research universities have become important in the knowledge-based economy. They are influenced by global comparisons and are valued by investors in knowledge. However, these values are only partially determined by the institutions themselves. Research universities are governed by two parallel systems that regulate their value: the financial value of intellectual property and commercial knowledge products, and the status value of public good knowledge determined by university rankings, research and publication metrics, and potentially future learning outcomes.

#### **2.13.4 The role university in development of knowledge economy**

In addressing this objective, several empirical studies have explored the pivotal role of leading universities in fostering the growth of the knowledge budget. A notable investigation by Shumaila (2022) delved into the influence of the knowledge economy on Asian business. Employing qualitative methods for data collection, the study utilized Knowledge Economy (KE) indicators as independent variables. The expectation was that these independent variables would exhibit correlations either among themselves or with the component variables. The study encompassed all Asian countries, with Lebanon, Japan, and Turkmenistan being excluded from the sample due to data unavailability. The dataset spanned from 2000 to 2019, sourced from the World Bank indicators (WDI), focusing on variables such as education, ICT, economic encouragements, invention, institutional regime, and GDP growth. The findings of the study revealed that education and ICT contributed to a reduction in the time and cost associated with starting a business. Economic incentives played a dual role by decreasing the cost of business initiation while simultaneously increasing business density and the overall number of businesses. Additionally, innovation emerged as a factor positively associated with an increased number of businesses and business density. The study also highlighted that the institutional regime had a mitigating effect on the likelihood of business closure, whereas GDP growth demonstrated a significant negative relationship with business closures.

Lederman et al. (2017) conducted a study in Iran on the Knowledge Budget and the Information Assessment Methodology, employing regression analysis on panel data representing five-year averages from 2009 to 2014 across 53 countries. The findings indicated that a one-percentage-point rise in total R&D expenditure relative to GDP led to a 0.78 percentage-point increase in GDP. The research also revealed that public, business, and foreign R&D expenditures all positively and significantly influenced output growth. The study concluded that Iran needs to develop coherent policies prioritizing knowledge within its development agenda. Despite these positive results, the authors emphasized the necessity for strategic investments in R&D, education, and ICT infrastructure, alongside the development of robust innovation systems and scientific capacity, to remain competitive and achieve long-term national development goals.

Similarly, Tchamyu (2016) examined the impact of the knowledge economy on business across 53 African countries between 1996 and 2010. The study adopted the World Bank's four components of the knowledge economy—education, innovation, economic incentives and institutional framework, and information and communication technology—as its analytical foundation. Business performance was measured through indicators related to starting, operating, and closing businesses, using principal component analysis and panel instrumental variable fixed-effects methods. The study recommended that implementing knowledge economy policies could significantly enhance business initiation and operations in Africa, thereby addressing unemployment and improving African countries' competitiveness in global value chains.

Bejinaru (2017) conducted research in Suceava, Romania, on "Universities in the Knowledge Economy," utilizing observational and documentary review methods to generate both conceptual and practical insights. The study explored the evolving roles of universities within the knowledge economy, highlighting that, historically, universities have acted as scientific, cultural, and moral pillars, contributing to societal and economic development. Contemporary universities, however, are adopting more diverse roles that reflect dynamic capabilities, emphasizing

knowledge creation, processing, and transfer to society. The research stressed the importance of academic leadership as a central integrator of intellectual capital, guiding rational, emotional, and spiritual knowledge. The study concluded that universities, by fostering knowledge creation, can promote a more democratic and equitable society where progress is measured not just by competitiveness or productivity but by improvements in the quality of life and work for communities.

Okebula (2019) presented a study at Botswana University titled "The Role of Higher Education in Building a Knowledge-Driven Economy," defining a knowledge-driven economy as one where technology and information underpin economic activities and sustainable development. The study noted a historical reliance on traditional resources like labor and capital, but globalization, technological advancement, and shifting economic trends have prompted a move toward knowledge-based economies. Using a mixed-method approach that included documentary reviews and literature analysis, the research emphasized the need for African governments, including Botswana, to enhance higher education resources to maximize its potential as a driver of knowledge economies. The study recommended aligning educational outputs with future labor market requirements to ensure quality, relevance, equity, access, and accountability. It further highlighted the importance of producing entrepreneurial and high-quality graduates to contribute effectively to the knowledge economy in Botswana and across Africa.

Leadership in universities must align with organizational needs for change, necessitating the adoption of new leadership styles. Shattock (2009) emphasizes the importance of intellectual and visionary leadership, which serves two main purposes: first, to remove ideological barriers linked to the traditional business model and the concept of the university, and second, to implement these changes in accordance with the institution's existing culture, mission, and strategic objectives. Moyo and McKenna (2021) highlight that overly bureaucratic administrative structures frequently act as significant obstacles to the effective use of funding. Universities with weak administrative systems face severe limitations in executing knowledge economy initiatives. Delays in fund utilization, submission of project plans, and annual reviews suggest underlying institutional issues, particularly where the

distinction between the governing body (Council) and executive leadership (Vice-Chancellor and Senate) is unclear.

Kahangwa (2017) stresses the necessity of strong university leadership to enable academics to develop marketing skills and ensure research outputs are fully utilized. He advocates integrating academic, commercial, and neo-liberal approaches—encompassing competition, marketing, research, and private sector engagement. This integration reflects both the current state of universities and the types of interactions needed with public and private sector actors in the context of Knowledge-Based Economy (KBE) principles in higher education. For example, UDSM's Research Policy and Operational Procedures recommend producing high-quality brochures to promote the university's research activities. Similarly, Bertelsen (1998) observed in South Africa that university administrators accelerate the promotion of higher education through corporate management approaches, adopting commercial language and logic to redefine priorities and reshape institutional processes under neo-liberal influence.

Conversely, Leibowitz, Bozalek, Van Schalkwyk, and Winberg (2015) argue that robust leadership is essential for fostering professional cultures that support coaching, mentorship, and continuous learning within universities. Strong leadership not only guides institutional change but also cultivates an environment where academic staff can engage in meaningful professional development and innovation.

#### **2.14 Research Gap**

This study examines the internal managerial practices of universities in Tanzania concerning their role in fostering the knowledge economy. Despite the growing recognition of the importance of the knowledge economy, there is limited empirical evidence on how universities in Tanzania contribute to this shift. The studies cited underscore the role of universities in fostering the knowledge economy (e.g., Wolfe, 2005; Salem, 2014). They highlight the significance of various processes, including knowledge management, innovation, and research, in catalyzing the transition of economies towards knowledge-based paradigms. Moreover, there is an emphasis on leveraging Information and Communication Technology (ICT) to revolutionize teaching methodologies, On-going Professional Development (CPD), and lifelong

learning initiatives to meet market demands for specialized skills in innovation and entrepreneurship (Stefan, 2017; Bratianu, 2014; Moiseev et al., 2019).

While the literature underscores the crucial contribution of universities to the knowledge economy, it also reveals certain gaps and limitations in the existing research. Notably, many studies predominantly rely on quantitative data, overlooking qualitative dimensions essential to understanding the intricacies of the management process in supporting knowledge economy. Furthermore, there exists a limited focus on the internal managerial practices of universities in the specific context of Tanzania, particularly concerning their role in advancing the knowledge economy. By addressing these gaps, this study provides an understanding of how university management facilitates the knowledge economy within the framework of Tanzania. Additionally, it offers practical recommendations for policymakers and university administrators through a qualitative inquiry encompassing interviews with administrators across three levels of management, complemented by secondary data from diverse university reports and policy documents. Specifically, the study delves into the internal managerial practices of university management, exploring aspects such as policies, organizational structures, and resource management practices, including staff development and training programs. Drawing upon three theories the administrative management theory, systems theory, and the technology-organization-environment framework (TOE explains how Tanzanian public universities management promote the knowledge economy.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.0 Introduction

This chapter is concerned with the systems used in addressing the research problem. It describes the study setting, research philosophy, investigation approach; study sample, sampling techniques, data collection methods, demographic characteristics, reliability and validity. It also explains the regular procedures through which data are gathered, analyzed and interpreted. It then highlights ethical issues taken into reflection both before and in the course of soliciting data from different sources.

#### 3.1 Research Philosophy

The study methodological framework starting point was to describe the philosophical underpinning to guide the selection of the research methods. Creswell and Creswell (2023), advocate for research to have a philosophical worldview assumption that they carry to the study, the investigation design and implementing specific methods or ways of research that translate the approach into action. Research approaches of the study were based on the conventions of interpretive paradigm that comprises of beliefs that encompass meta-theoretical or ontological indicating beliefs about the nature and epistemological that describes the knowledge that informs the research and methodological assumptions that show how the knowledge might be gained (Tuli, 2010).

Interpretivism focuses on considerate and interpreting social phenomena from the perspective of the individuals involved. It recognizes subjective meanings and interpretations and often employs qualitative research methods. It explored how reality was created in the narratives of the managerial practices and as ascribed within institutional documents in relation to KE in the context of universities (Braune and Clarke, 2022). This philosophy enabled the research questions to be addressed through, the dynamic and context-dependent nature of internal university management incorporating knowledge economy initiatives. Rejecting fixed truths, the anti-foundationalist approach suggests that there is no universal blueprint for organizing knowledge economy practices or implementing internal control mechanisms. Instead, these processes are contingent on contextual factors and

should evolve with changing circumstances. The selection of social constructivism underscores the importance of collaboration and diverse perspectives in these endeavors, advocating for leading practices that fosters an environment conducive to the co-creation of knowledge that is valuable. The synthesis of each orientation connects the interpretive paradigm in which the university's engagement with the knowledge economy is flexible, adaptive, and contingent on the active involvement of diverse stakeholders in the planning, organization, control, and leadership processes.

### **3.2 Research Approach**

The study adopted a qualitative research approach, which focuses on understanding how individuals interpret and make sense of their experiences and the world around them (Lodico et al., 2006). Qualitative social research aims to explain phenomena or cases using non-numerical methods (King et al., 1994; Braune & Clarke, 2022). In this approach, the researcher collects, analyzes, and interprets data through qualitative techniques (Long & Godfrey, 2004), primarily relying on textual and verbal (conceptual or thematic) methods to capture participants' insights and perceptions. This approach seeks to explore social contexts, including cultural and situational factors, by addressing "why" and "how" questions to gain a comprehensive understanding of social realities (Long & Godfrey, 2004; Marshall & Rossman, 1999; Dharamsi & Scott, 2009).

The study employed a qualitative design guided by an interpretive research philosophy, enabling an in-depth exploration of university management perspectives. The researcher interacted with key informants, including Deans and heads of departments, to understand how internal managerial functions support the promotion of knowledge economy practices. Cohen et al. (2006) note that qualitative research typically involves smaller samples but produces detailed and rich data. This approach was therefore suitable, as it allowed the researcher to access the realities of the study environment. It was particularly appropriate for examining university policies and guidelines, which exist as textual data, as well as capturing academics' leadership experiences and practices in promoting the knowledge economy, recorded in narrative form.

Through this methodology, the researcher was able to obtain direct and original insights, capturing participants' perspectives on processes, challenges, and opportunities related to knowledge economy promotion in universities. For example, the study explored policies governing research alongside the actual managerial practices used to advance research initiatives. This approach facilitated the collection of participants' experiences, views, attitudes, and emotions concerning the problem under investigation.

### **3.3 Research Design**

The study adopted a multiple case study design, involving the selection of several purposefully bounded cases. This approach was chosen to gain a more thorough and nuanced understanding of the phenomena under investigation, rather than relying on a single case (Gay, Mills, & Airasian, 2012). The rationale for using a case study design aligns with the arguments presented by Creswell (2009), who notes that case studies are particularly effective for obtaining an in-depth comprehension of a specific case or phenomenon. By employing this design, the researcher was able to explore the distinctive characteristics and complexities of the two universities included in the study. This approach facilitated the identification of common themes that emerged across the institutions, allowing for a more comprehensive analysis and interpretation of the data. Specifically, two universities were selected as the cases for this study, with the intention of investigating the perspectives and experiences of Directors, Deans/Principals, Heads of department, and Coordinators within those institutions. The study employed a case study design involving two public universities; university of Dar es salaam and university of Dodoma as cases. The case study was especially relevant in this study since it offered a deep - contextually understanding of how internal university management engages with the knowledge economy. It allowed for researcher to draw a practical insight through a multi-perspective analysis of different ideas from academic leaders of two universities about the promotion of KE through managerial processes of planning, organizing, leading and controlling.

### **3.4 Study Setting**

Universities are recognized as centers for generating knowledge through research, disseminating it via publications and consultancy services, and developing human resources through teaching. However, as highlighted in the literature, they also

function as key hubs for producing and providing knowledge with a primary focus on economic objectives. This study was carried out in Tanzanian universities. Due to practical constraints, it was not feasible to include all universities in Tanzania; therefore, only two public universities were selected: the University of Dar es Salaam and the University of Dodoma. These institutions were chosen to examine higher education management practices within the context of the knowledge economy. Despite the significant role of higher education in Africa's knowledge economy, there remains limited research and understanding of this topic in the Tanzanian context specifically.

### **3.4.1 The University of Dar es Salaam (UDSM)**

The University of Dar es Salaam (UDSM) was selected for this study due to its distinction as Tanzania's first and oldest university. Established initially in 1961 as a college affiliated with the University of London, UDSM became a constituent college of the University of East Africa in 1963 and later gained full independence as a national university in 1970, alongside the other foundational colleges of Nairobi and Makerere (Mkude et al., 2003). The university comprises nine main colleges and approximately seven institutes, offering diverse programs at the undergraduate, master's, and doctoral levels. The study focused on the university's main campus, which houses five colleges: College of Engineering and Technology (CoET), College of Natural and Applied Sciences (CoNAS), College of Humanities (CoHU), College of Social Sciences (CoSS), and College of Agricultural Sciences and Food Technology (CoAF). Additionally, it has six schools: School of Education (SoED), University of Dar es Salaam School of Law (UDSoL), School of Journalism and Mass Communication (SJMC), School of Aquatic Sciences and Fisheries Technology (SoAF), School of Mines and Geosciences (SoMG), University of Dar es Salaam Business School (UDBS), and University of Dar es Salaam School of Economics (UDSoE). Key institutes include the Institute of Development Studies (IDS), Institute of Kiswahili Studies (IKS), Institute of Resource Assessment (IRA), and Institute of Marine Sciences (IMS). Among its 22 centers, one focuses specifically on innovation and entrepreneurship—the University of Dar es Salaam Innovation and Entrepreneurship Centre (UDIEC). By 2021, UDSM enrolled 46,112 students and employed 3,579 staff members (UDSM-DPF, 2021). The university has been actively pursuing strategic transformation initiatives aligned

with Tanzania's 2025 vision, which emphasizes building a robust and competitive national economy (Mkude, Cooksey & Levey, 2003).

As Tanzania's leading university, UDSM is recognized for its high academic standards and dedication to excellence, offering a broad spectrum of specialized programs designed to address the needs of the evolving knowledge economy. In response to global shifts where intellectual capital and innovation are vital for sustainable development, the university has structured its curriculum to equip students with critical skills, knowledge, and expertise essential for success in various knowledge economy sectors. Beyond academic instruction, UDSM provides extensive consultancy services, research support, and initiatives in innovation and entrepreneurship to complement its educational offerings (University of Dar es Salaam Prospectus, 2023).

According to the University of Dar es Salaam Strategic Plan (2020/2021-2025/2025), the internal university management has incorporated a consultancy program into their planning. This is evident in Strategic Objective D, which focuses on research, innovation, and knowledge. The university aims to achieve this objective by providing training for staff on consultancy issues, increasing the offering of consultancy services and continuing education, increasing the volume of both consultancy and non-consultancy public services, reviewing the consultancy policy by June 2023, and enhancing competitiveness and staff motivation (University of Dar es Salaam Strategic Plan, 2020/2021-2025/2025). Teaching practices have also been organized within the university, as stated in the strategic plan objectives, specifically Objective D (University of Dar es Salaam Strategic Plan, 2020/2021-2025/2025).

The university offers research programs focused on topics relevant to the knowledge economy (University of Dar es Salaam Prospectus, 2023). One notable program is the Computer and IT Systems Engineering program, which integrates disciplines such as Computer Science, Computer Engineering, Information Systems, Electronics Engineering, Telecommunication Engineering, and Electrical Power Engineering. This interdisciplinary approach provides students with a broad understanding of engineering principles, preparing them for careers in research, academia, or

technical entrepreneurship. The program emphasizes both hardware and software components of computer systems and their integration. Although the university has provided funding for research through Competitive Research Grants since 2018/2019, the outcomes in terms of publications and commercialized products have been relatively limited, resulting in minimal research-generated income for the university (University of Dar es Salaam Strategic Plan, 2020/2021-2025/2025).

Furthermore, the University of Dar es Salaam supports training and development in innovation, creativity, and entrepreneurship through the University of Dar es Salaam Innovation and Entrepreneurship Centre (UDIEC) and other relevant units across its colleges, schools, and institutes. The Centre aims to enhance knowledge, skills, and technologies that address societal challenges through inventive solutions. According to the University of Dar es Salaam Prospectus (2023), the institution is committed to producing graduates who generate employment opportunities rather than merely seeking jobs, actively encouraging students to engage in the activities offered by the Centre (University of Dar es Salaam website, 2023).

### **3.4.2 The University of Dodoma**

The University of Dodoma (UDOM) was nominated for the education because it is the second largest university in Tanzania and operates under a unique seven-campus college model. This model provides some degree of autonomy to each campus, which may result in different approaches and practices within the university. Additionally, UDOM has undergone significant growth since its establishment in 2007 and currently has a student population similar to the first university, UDSM. Studying UDOM will provide a comparison to UDSM and help analyze the practices in the knowledge economy. The goal of the University is to be a top-notch institution globally, providing a well-rounded education through various academic programs that transform minds and equip students to solve societal challenges effectively. It also aims to offer inclusive and high-quality education in areas like education, health sciences, life sciences, virtual education, social sciences, business studies, and law to a wide range of people through training, research, and community services. This aligns with the principle's requirements of KE where the provision of a comprehensive range of various skills across disciplines, the emphasis to research, and addressing the societal problems.

The university has strategically organized its practices into four key aspects: consultation, teaching, research, and training. The University of Dodoma (UDOM) seeks to position itself as a global institution that attracts top students, faculty, and researchers, and fosters an environment conducive to teaching and learning, research productivity, international collaborations, knowledge transfer, and public services. In line with this vision, UDOM has included Consultancy Programs in its Strategic Plan Objective 4, which aims to enhance research, innovation, and public services. As part of this objective, UDOM has planned to establish a Research and Consultancy Bureau by January 2023, as documented in the University of Dodoma prospectus for 2023 (University of Dodoma Strategic Plan 2022).

The university has allocated a budget for training programs, specifically for the new program. Furthermore, the university has conducted training sessions on research and funding opportunities. These training sessions are organized by the Training and Education department. Additionally, the university provides training to its staff members, enhancing their technical skills. The University of Dodoma's strategic plan for 2020/2021-2024/2025, referred to as Objective D, states that 30 staff members

will receive innovative research training workshops by June 2025, while 15 staff members will undergo advanced public service training workshops by the same time (University of Dodoma strategic Plan, 2023). Furthermore, the university has recently adopted a investigation agenda that spans from 2018/19 to 2028/29, aiming to support multidisciplinary research teams, foster human capital development, and provide infrastructure to encourage innovative research and growth for Tanzania's dynamic and responsive industrial economy (University of Dodoma Strategic Plan).

The University of Dodoma (UDOM) has incorporated ICT into their teaching methods, employed highly competent academic staff, offered online classes for remote students, and utilized pedagogical skills in their teaching practices. UDOM has included teaching practices in its strategic plan for the years 2020/2021-2025/2026, with the goal of creating a place for the transfer of knowledge in Tanzania (University of Dodoma strategic plan 2022). These efforts are aimed at increasing the excellence and quantity of skilled human capitals in the knowledge economy and creating new economic opportunities for students. Tanzanian universities as a whole are progressing in the integration of knowledge economy activities into their curricula, but additional support is needed to safeguard the sustained growth of the knowledge economy in the country (University of Dodoma Strategic Plan, 2022).

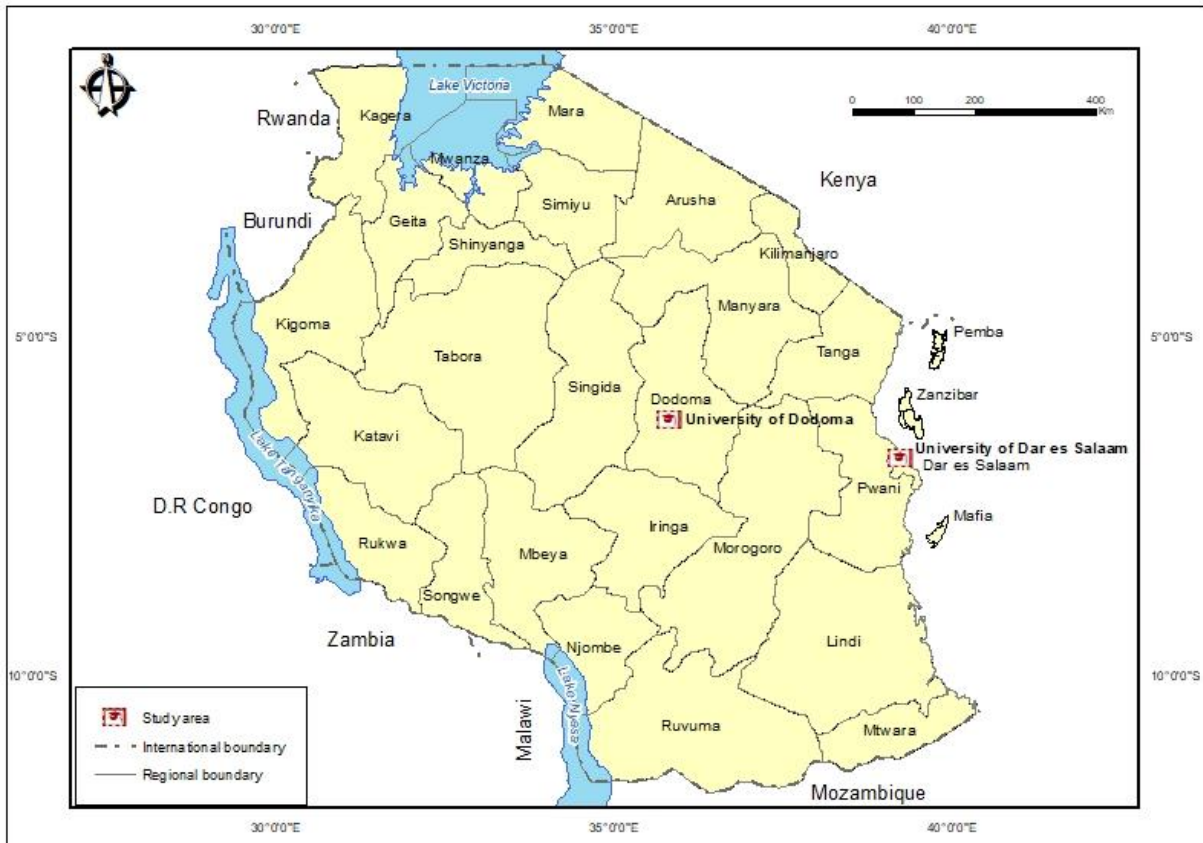


Figure 3. 1: Showing the Area of study

### 3.5 Study sample

#### 3.5.1 Sample Size

To ensure the accuracy and relevance of the outcomes, the study targeted a specific population comprising of internal public university managers. Participants involved in this study included the Directors of Research and Publications, Principals/Deans, Heads of departments and Coordinators. Deans of faculties/principals and head and departments were selected because by virtue of their positions in the universities, they are responsible for a multitude of managerial responsibilities of implementing the university goals, vision statements, since much of the work is done at departmental and faculty levels, therefore they were able to provide extensive information on how they harmonize and organize managerial elements at the university that ensures knowledge economy. These participants occupy key leadership roles within Tanzanian universities, and as the key developers and implementers of the institution.

Principals/Deans, Heads of departments and Coordinators were selected from different units since Some faculties have to a great extent retained their traditional role of educating and preparing learners for specific traditional professions albeit with some KE elements, whereas other faculties, particularly the ones which have to do with science and technological disciplines, as well as business studies are more influenced by KE. This corresponds with what has been identified in the reviewed literature that KBE has led to increased bias towards natural S&T disciplines but without neglecting representation from the social sciences.

Director of Research and Publication: As holders of administrative positions specifically focused on research and publication matters, they are responsible for overseeing research funding allocation. They play the role of determining the context of research and innovation within the academic staff. This may involve sharing information on policy frameworks related to Knowledge Economy (KE) initiatives, monitoring and enhancing research productivity across universities, and establishing criteria for assessing and promoting university staff. They also facilitate university-industry partnerships and oversee the development of KE through research outputs. Additionally, they implement control mechanisms and indicators to promote KE within academic circles.

Deans/Principals: These individuals are appointed to lead faculties and oversee the implementation of university policies within their respective units. They are entrusted with articulating and enforcing policies and procedures to academic staff members. Their responsibilities include assessing the human resource capacity within faculties for research, teaching, and community service. They oversee the types of research conducted within their faculties, which may include donor-driven, university-initiated, or faculty-initiated research projects. They also monitor research outputs and their impact on the academic community and beyond.

Head of departments: Responsible for translating policies into action plans so by virtue of their administrative role in the implementation process of university plans. Research productivity and sources of fund for the research conducted, implementation of policies directed towards promotion of KE initiatives, organizing and leading function in promoting KE and Coordinators: Also, responsible to organize various KE initiatives at the lowest level within the university structure Information

received from the include processes of monitoring and evaluation in the progress of enhancing KE initiatives, activities that support departmental action plans related to KE initiatives through organizing functions

Including coordinators as low-level managers in the study provided the study with a comprehensive view of how university management promotes the knowledge economy. Their position allows them to offer insights that are critical for understanding the practical application of strategies and rules at the operational level. Coordinators understand the practical challenges and opportunities at the ground level, that help bridge the gap between middle level management planning and practical implementation. Their role facilitates the integration and implementation of KE initiatives into the university’s broader goals. This ensures that the study covers both strategic and operational aspects of university management in promoting KE.

To obtain a representative sample from this population, a total of 30 respondents were selected. These respondents were carefully chosen to cover a diverse range of schools/colleges and departments, ensuring a comprehensive representation of management practices in the knowledge economy.

**Table 3. 1: Study Sample**

<b>No. Category of respondents</b>	<b>Expected number of participants</b>	<b>Data collection of instrument</b>
1. Dean of faculties /principals	4	Interview Guide
2. Director of Research &Publication	2	Interview Guide
3. Head of departments	10	Interview Guide
4. Coordinators	14	Interview Guide
5 Total	30	Interview Guide

**Source: Researcher (2022)**

The decision to select 30 respondents is based on the understanding that a diverse and representative sample is essential to achieve data saturation in qualitative studies (Guest, G., Namey, E., & Chen, M., 2020). The concept of saturation in qualitative research refers to the point at which additional data collection no longer generates new themes or insights, indicating that the data gathered is sufficient for a comprehensive understanding of the research problem. The idea of data saturation

is widely recognized by researchers as a crucial indicator of sample size adequacy in qualitative case studies. (Guest, G., Namey, E., & Chen, M., 2020; Aguboshim, 2021).

Various studies explain that saturation in qualitative investigation can be attained in a number of methods such as interviews or focus groups particularly how it relates to determining an adequate sample size (Fusch & Ness, 2015). For example, Guest, Namey, and McKenna (2017) found that, on average, around 8.4 focus groups, with a median of 5, are typically used in focus group research to achieve saturation. They emphasized that fullness occurred within the first twelve interviews, with basic basics for meta-themes present as early as six interviews (Guest, G., Bunce, A., & Johnson, L. 2006). This finding supports the idea that a relatively small number of interviews or focus groups can provide sufficient data for robust qualitative analysis (Guest, G., Namey, E., & McKenna, K. 2017; Guest, G., Namey, E., & Chen, M., 2020).

Despite global consensus on the importance of data saturation in qualitative research, some researchers describe the concept as complex because the decision to stop data collection is often dictated by the judgment and experience of individual researchers (Aguboshim, 2021). While the idea of saturation is helpful conceptually, it offers little practical guidance for estimating sample sizes before data collection, which is necessary for conducting quality research. Researchers advocate for flexibility and transparency in assessing and reporting on thematic saturation (Guest, Bunce, & Johnson, 2006; Guest, Namey, & Chen, 2020). Therefore Fusch & Ness, 2015 suggests that rich and thick data descriptions obtained through relevant data collection methods can significantly aid this process, particularly when coupled with an appropriate research study design that maximizes the opportunity to answer the research question effectively (Fusch & Ness, 2015).

In the context of this study on university management promoting the knowledge economy, achieving saturation is essential for capturing a comprehensive understanding of how management practices support knowledge economy initiatives in the university. By selecting 30 respondents, the study aims to cover a diverse range of schools/colleges and departments, ensuring a comprehensive representation of management practices. This approach is based on the understanding that a diverse and representative sample is necessary to achieve data saturation, as indicated by the findings of Guest, Namey, and McKenna (2017). This

sample size is justified by the need to capture a wide array of perspectives and experiences, which is essential for understanding the complexities of promoting the knowledge economy within a university setting. Therefore, the selection aligns with the evidence-based recommendations for nonprobability sample sizes in qualitative research, ensuring that the study's findings are both reliable and valid.

### **3.5.2 Sampling Techniques**

Purposive sampling, as described by Kothari (2006), is a non-probability sampling technique that involves the deliberate selection of specific individuals or groups who are believed to possess the necessary information or characteristics relevant to a particular study. In the context of this research, the technique was used to select deans of faculties and heads of departments who were experts in knowledge economy and higher education management.

The rationale behind using purposive sampling was the researcher's desire to include participants who had in-depth knowledge and understanding of the subject matter. By deliberately choosing participants who were experts or highly knowledgeable in the field, the researcher aimed to elicit rich and meaningful data that would provide valuable insights into the topic at hand. By selecting deans of faculties and heads of departments, the researcher ensured that participants were individuals in positions of authority within their respective institutions. This choice was made because these individuals are often responsible for shaping policies and making decisions that impact the management and development of the higher education.

The use of purposive sampling also allowed the researcher to gather diverse perspectives from different disciplines and departments within the university. By including participants from various faculties and departments, the study aimed to capture a broader range of ideas, experiences, and perspectives related to knowledge economy and higher education management. The process of selecting participants involved careful consideration of their expertise, experience, and relevance to the research topic. The researcher identified potential participants based on their professional background, previous research or publications in the field, and recommendations from experts in the field of higher education management.

The study drew 30 participants using non-probability sampling. The study employed purposive sampling at the starting point where deans were identified who then referred me to head of departments who then referred me to coordinators that hold positions that directly link in promoting KE initiatives such as coordinator for research and knowledge exchange (Snowball sampling). In another instance convenience sampling was used to select some of the head of departments who were accessible and willing to participate. Directors of research and representative in the office innovation and entrepreneurship center were also selected purposively

Once potential participants were identified, the researcher reached out to them, explaining the purpose and scope of the study, and inviting them to participate. Efforts were made to ensure the representation of different disciplines and departments to ensure a comprehensive understanding of knowledge economy and higher education management. Purposive sampling allowed the researcher to focus on individuals who were likely to provide valuable insights and information. By selecting participants who possessed in-depth knowledge and experience in the area being studied, the researcher aimed to ensure the credibility and validity of the research findings. It is important to note that purposive sampling does not aim to provide a representative sample of the entire population. Instead, it focuses on selecting individuals or groups who are most likely to provide the desired information and perspectives for the study. While this limits the generalizability of the findings, it enhances the richness and depth of the data collected.

### **3.6 Data Collection Methods**

Given that the study focused on examining policies, plans, and managerial practices—specifically how these practices support knowledge economy initiatives in Tanzania—such insights could only be effectively gathered through qualitative approaches. Consequently, two qualitative data collection methods were employed: document review and in-depth interviews. The use of these two complementary methods aimed to provide rich and detailed data. Employing a multi-method strategy was intended not only to enhance the credibility and trustworthiness of the findings but also to capture the perceptions, experiences, and sentiments of the respondents.

### 3.6.1 Interviews

The concept of the interview is highly valuable due to its significance and application in social science research. An interview involves an exchange of ideas between two individuals discussing a topic of shared interest (Kvale and Brinkmann, 2009). In this sense, an interview is a structured interaction or conversation aimed at exchanging viewpoints. The key distinction between a casual social conversation and a research interview lies in purpose: while casual discussions are ends in themselves, research interviews are tools to achieve specific objectives related to the researcher's focus. A research interview functions as an "instrumental dialogue," designed to provide the researcher with pertinent information—whether descriptive, narrative, or textual—that can be analyzed and reported according to the aims of the study (Brinkmann and Kvale, 2005).

This study utilized semi-structured interviews because of their flexibility, allowing the introduction of new questions as the conversation progressed. In semi-structured interviews, the sequence of topics and the phrasing of questions are determined by the interviewer (Corbetta, 2003). All respondents in this study participated in semi-structured interviews, which offered a flexible approach to explore emerging themes and gain a deeper understanding of their experiences with university management and knowledge economy (KE) initiatives. This method provided richer insights by addressing broad questions on how managerial processes—planning, organizing, controlling, and leadership—are applied to promote KE, while also enabling the interviewer to observe actual KE practices. Follow-up or probing questions were used to examine specific KE aspects such as research, internationalization, knowledge utilization, ICT integration, and workforce development. The interviews were conducted face-to-face. Unlike online or phone interviews, this method allowed for direct interaction between the interviewer and the interviews. The purpose of the face-to-face interview was to gather accurate and detailed data from the respondent, ensuring a higher quality of data. The interviewer and interviewees met at a predetermined location which created a comfortable environment for both parties. Moreover, face-to-face consultations provided a chance for the interviewer to build rapport with the respondent. Establishing trust and rapport positively influenced the respondent's willingness to share confidential information, resulting in more accurate data. The interviewer's

presence during the interview also allowed for immediate feedback and clarification.

The interviews were written in English (appendix) but the actual interviews happened in both English and Kiswahili depending with the respective respondents. The order of questioning varied dependent on the flow of conversation. The interviews lasted approximately between 40 minutes to 1and half hours 26 interviews were conducted at the university setting and 4 through the phone Most of the interviews involved manual note -taking and the few who consented were audiotaped. Selecting only two universities allowed me to spent a considerable amount of time (about 6 months) to really understand what they were practicing through engaging with the respondents effectively and interview them in depth and in some cases allowing flexibility whenever interview was rescheduled Although the interviews have many strengths some difficulties were experience for instance scheduling of interviews was very difficult and sometimes even postponed due the participants and their administrative role they were occupied ,in such cases patience was very much exercised .Also the concept of “economy “ in my study led some participants to believe that they were not the right respondents for the study but it took some explanation and convincing to show their relevance as participants in the study

### **3.6.2 Documents**

A variety of written materials produced by governments can serve as valuable sources of information (Curry et al., 2009). Documentary review entails examining formal documents such as reports, meeting minutes, attendance logs, and financial and operational records. It may also include analysis of policy papers and legislation. Through this process, both quantitative and qualitative textual data can be obtained. Depending on the nature of the data, the researcher can apply quantitative, qualitative, or mixed methods of analysis. By systematically and objectively categorizing key elements of written materials, the researcher can draw inferences regarding the origins of a message, describe its features, and assess its potential effects (Curry et al., 2009).

In this study, documentary review involved analyzing documents in both print and electronic formats, with most documents being accessed electronically, to gain insights into how plans and practices related to knowledge economy (KE) initiatives are articulated and implemented. The review was guided by the study's four primary research questions. The process started with a search for relevant documents on institutional websites and in physical offices during fieldwork. These documents were then read, evaluated, and interpreted to extract meaning. Secondary data were collected through materials such as curriculum policies, strategic plans, prospectuses, and university handbooks, providing a deeper understanding of how KE practices are embedded in university structures and activities. Documentary review also served to complement the data obtained through interviews, offering the advantage of extensive, permanently available information that enriched the overall data set.

**Table 3. 2: Institutional Policy-related and Other Documents Reviewed in the Study**

Document	Description
UDSM Vision, 2061	Stating broader goals and direction of the university
UDOM Strategic Plan 2021/22-2025/26	Spells out strategies and targets of the university for the period given
UDSM Five-Year Rolling Action Plan 2020/2021-2024/2025	For guiding identification of research priorities, funding sources and management of the research process at the university
UDSM Research Policy and Operational Procedures, 3rd.edition ,2015	For guiding identification of research priorities, funding sources and management of the research process at the university
UDOM Research Policy, Guidelines and Priorities,2014	Also identifies research needs and priorities, funding sources and management of the research process at the university
UDSM Intellectual Property Policy (UDIPP), 2008	For directing development, management and effective harnessing of university IP at the UDSM
UDSM Guidelines and Procedures for Management of Research Projects and Activities funded from External Sources (2020)	Establishes a general framework for the conduct of externally funded research of the university
<b>Other Documents</b>	
UDSM consultancy Policy and Operational Procedures, 2017	For direction of consultancy work and contribution of consultancy to the university
University Pres release	Information on actual practices such as events, activities of KE initiatives
Annual Report	Provide data on impact and outcomes of KE initiatives such research output
Website Information	Information on university news, description
UDSM Policy briefs and conferences proceedings	Understand the policy landscape on research themes of the university

### 3.7 Data Analysis

The study adopted thematic analysis as the primary method for analyzing data, following the stages outlined by Braun and Clarke (2006): becoming familiar with the data, generating initial codes, identifying potential themes, reviewing the themes, defining and naming them, and finally, preparing the report. Familiarization began during the data collection phase since the researcher personally conducted all interviews and documentary reviews. Additionally, transcribing the recorded interviews provided another opportunity to engage deeply with the data. The researcher read and reread the transcripts and field notes, revising them when necessary to ensure consistency in participants' responses, which facilitated accurate and coherent coding (Longhofer, Floersch, & Hoy, 2013). During this process, notes were written both manually and electronically, with sections of text highlighted in different colors to mark significant patterns, ideas, and issues that were particularly relevant to the study's focus on how university management supports the promotion of the knowledge economy.

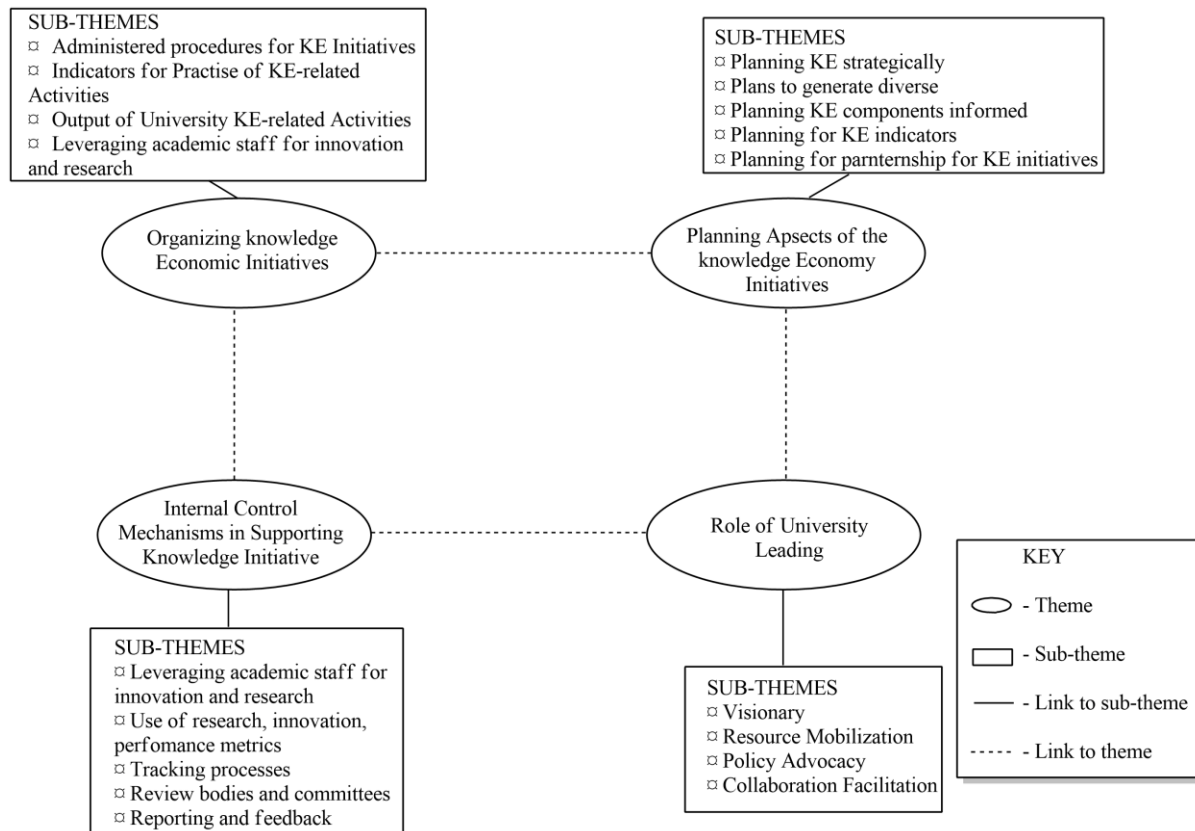
In generating initial codes, I used a software tool for qualitative data analysis initially, but later the researcher opted to proceed manually searching for themes and sub themes, involves ordering codes and relevant data into potential themes. As Neuman (2014) states, coding data into themes, a researcher first needs to learn how "to see" or recognize themes in the data. In the context of my study on university management promoting the knowledge economy, integration of both inductive and deductive coding approaches was applied to ensure a comprehensive analysis that not only captures the nuanced experiences and practices within university management but also aligns with established theoretical frameworks on knowledge economy. The inductive approach allowed me to uncover patterns and insights directly from the data gathered from university respondents, while the deductive approach enabled me to apply relevant ideas, concepts, and theories, such as Henri Fayol's Administrative Management Theory, to structure and interpret the findings systematically (Braun & Clarke, 2012; Neuman, 2014; Willig, 2020). Additionally, considering the complex dynamics of internal university management and its role in nurturing a knowledge economy, this perspective enabled the understanding of both the concrete managerial practices and the realities and interactions of managerial practices within the university environment

Coding in this study was performed at both the semantic and latent levels of meaning. Some codes closely reflected the participants' own language and terminology; for example, the code "not playing a strategic role in decision making" directly mirrored a participant's statement (e.g., LM said, "I don't make strategic decisions but I get involved in keeping records of research published at the department..."). Other codes were derived from the researcher's conceptual and theoretical framework. For instance, the code "supportive role" captured participants' descriptions of organizing minor departmental research workshops, aligning with both their accounts and the theoretical perspectives (Braun & Clarke, 2012). These codes were then grouped into categories based on shared characteristics, illustrating the links between management practices and knowledge economy (KE) initiatives.

The next stage involved reviewing the coded data to identify similarities and intersections between codes, forming the basis for sub-themes, which are components of larger themes. Codes that shared common features were clustered to reflect coherent patterns in the data. During this process, some codes evolved into sub-themes themselves, which were then connected to overarching themes derived from the study objectives (Braun & Clarke, 2012; Willig, 2020). For example, a participant stated, "Our academic staff are at the forefront of generating new ideas and making discoveries and we have to use that by supporting them," which was incorporated into the theme of organizing KE, with codes such as idea generation and use, and a sub-theme related to leveraging faculty expertise for KE initiatives. Developing the coding scheme was iterative, establishing a systematic structure that included themes, sub-themes, codes (labels and descriptions), and examples from interviews and documents (Schwandt, 1997 in Neuman, 2014).

During the sub-theme review phase, the researcher carefully examined coded data to identify overlapping or related codes, refining sub-themes to ensure they accurately represented the data. This iterative comparison of sub-themes against the entire dataset allowed adjustments to enhance clarity and coherence. Finally, the analysis phase involved producing the report, selecting vivid and illustrative extracts, and linking these quotations back to the conceptual and theoretical frameworks as well as the literature. The researcher ensured that the analysis

presented a cohesive narrative that integrated participants’ perspectives with theoretical insights, providing a rich and comprehensive understanding of university management practices in promoting the knowledge economy.



**Figure 3. 2: Thematic Map (adapted from Braune and Clarke, 2012)**

Management Functions include planning, organizing, leading, and controlling, which are essential components of any managerial process. In the context of promoting KE initiatives, each of these functions plays a crucial role. Knowledge Economy Initiatives (KE) represents the central focus of the thematic map, reflecting the ultimate goal of the university management's efforts. KE initiatives encompass activities aimed at fostering a knowledge-based environment, such as research collaboration, technology integration, innovation, and industry partnerships. University administrators set strategic goals and make decisions to enhance research collaboration, technology integration, and other KE initiatives. These decisions directly influence the initiation of specific initiatives, such as establishing interdisciplinary research centers or investing in advanced technological infrastructure. Organizational decisions, such as creating dedicated research teams, allocating funds for innovation labs, and establishing partnerships with industry,

directly impact the implementation of KE initiatives. This reflects the role of organizing in facilitating the execution of these initiatives within the university setting. Leading, represented by university college principals or other administrators, has a guiding influence on KE initiatives. Commitment to promoting a culture of constant learning and experimentation directly influences the initiation and success of these initiatives.

### **3.8 Trustworthiness**

#### **3.8.1 Triangulation:**

To ensure trustworthiness, methodological triangulation was employed. This involved collecting data through multiple methods, including face-to-face interviews and documentary review. By utilizing diverse data collection methods, the study compensated for the individual limitations of each method (Maxwell, 2013; Lincoln & Guba, 1985). Additionally, data triangulation was implemented by gathering information from various sources and participants across different management levels and research sites, enriching the dataset with diverse contributions.

#### **3.8.2 Reflexivity:**

Reflexivity was employed to mitigate researcher bias. Open-ended questions were utilized during interviews to minimize bias, and the researcher meticulously summarized the content of each question asked. This approach ensured that the study was not unduly influenced by the researcher's position as an assistant lecturer at a university (Maxwell, 2013).

#### **3.8.3 Transferability:**

To enhance transferability, thick descriptions of the data were provided. Detailed descriptions were included in the research report to present findings comprehensively and capture multiple possible meanings of the data (Creswell, 2022). Additionally, the study not only focused on exploring practices supporting Knowledge Economy (KE) initiatives but also analyzed challenges and gaps identified by interviewees. This broadened the scope of the study and provided a more holistic understanding of the topic.

#### **3.8.4 Authenticity:**

To ensure the authenticity of documents used in the study, thorough checks were conducted on their publication status. Official and up-to-date documents were selected for analysis (Bryman, 2012). Multiple readings of the documents were performed to extract sufficient information before analysis, enhancing the reliability of the data.

#### **3.8.5 Peer Review:**

Regular peer-review processes were conducted by consulting colleagues and experts. Feedback obtained during discussions on the investigation process, findings, and interpretations contributed to identifying potential biases, considering alternative interpretations, and enhancing the overall rigor of the study.

#### **3.8.6 Respondent Validation:**

Respondent validation was employed to check for trustworthiness. After analyzing interview transcripts, participants were contacted for further clarifications verbally and in writing. This ensured that participants' perspectives were accurately represented and added credibility to the interpretations (Maxwell, 2013).

### **3.9 Ethical Consideration**

#### **3.9.1: Research sites and Ethical clearance**

Field research Procedure: The ethical procedures and regulations of Uganda Christian University were strictly followed to gain access to respondents and university documents. Additionally, ethical clearance was obtained from the Tanzanian government through the Commission for Science and Technology (COSTECH). All necessary fees were paid, and the research proposal, along with the university's ethical clearance, was submitted for approval. However, there were challenges in obtaining the permit from COSTECH due to their quarterly application review process. Consequently, the researcher had to wait for six months for the permit to be issued. Once obtained, the permit granted access to all the universities where data collection was collected.

### **3.9.2 Ethical Principles**

The study adhered to several ethical principles throughout the research process. First, participation was entirely voluntary, ensuring that no individual was compelled to take part in the study. Second, participants were fully informed about the purpose of the study, the procedures involved—including face-to-face interviews—and the potential implications of their involvement before they agreed to participate. Third, questions were carefully designed and posed in ways that avoided causing any psychological distress. Informed consent was emphasized: although participants were professionals familiar with ethical standards, the researcher clearly explained at the start of each interaction that the study was conducted solely for academic purposes, and that they could withdraw at any time without fear of negative consequences. Additionally, participants were assured that personal names or identifying information would not appear in the study report or any related publications. Fourth, it was important to guarantee participants that the information they provided would be used only for the purposes explained during the consent process. When participants requested anonymity, the researcher ensured that this was fully respected, safeguarding their privacy and confidentiality throughout the study.

In the reporting of the findings, the participants have been grouped and coded anonymously into Senior Managers (SM) including Deans, directors, Principals, Representatives from Directorate office; Middle Managers (MM) including Heads of departments and Lower Managers (LM) as the Coordinators this is because during analysis the researcher realized that different individuals within different management level understand and engage differently with management functions and KE initiatives therefore taking into account respectful representation of participants voice.

### **3.9.3 Limitation of Research (Methodology and scope)**

There was a challenge accessing documents like minutes that would have informed the study on the processes involved especially at the departmental level and mainly because I was a researcher who as an outsider.

Generalizability: The study's focus on two Tanzanian universities limits the generalizability of its findings to other universities, particularly private institutions.

The use of non-probability sampling further restricts the representativeness of the example, impacting the external generalizability of the study beyond the specific cases, setting, and group studied (Polit & Beck, 2010). As Maxwell (2012) notes, Qualitative studies often have limited generalizability due to their focus on a specific context or group

One methodological limitation related to confirmation bias in conducting thematic analysis where there was the risk of interpreting data in a way that aligns with the pre-existing beliefs or expectations regarding how university management promotes knowledge economy initiatives. This may have led to the researcher to selectively focus on themes that confirm existing literature while overlooking contradictory evidence or alternative interpretations. As a result, the analysis may not fully capture the complexity or diversity of perspectives within the data. However, the researcher engaged in reflecting on her own biases, assumptions, and interpretations throughout the research process. I also documented through notes the reflections on potential biases that might have influenced how themes are identified, coded, and interpretation on how university management promotes knowledge economy initiatives (Braun & Clarke, 2006; 2022)

**Limited Quantitative Data:** Relying primarily on document review and in-depth interviews, the study lacks quantitative data, which could quantify knowledge economy practices or establish statistical relationships between variables. This limitation hinders a more comprehensive understanding of the extent and impact of these practices.

**Scope of Participants:** While the study engages key positions in university management, such as Directors of Research and Publications, Principals/Deans, Heads of departments, and Coordinators, it overlooks perspectives from other stakeholders like faculty members, students, or external partners. Including these perspectives could offer a more holistic view of knowledge economy initiatives within the university context.

**Temporal Limitations:** The research may not have captured the dynamic nature of university management practices over time. Internal strategies and policies can evolve, influenced by various factors including individual leadership styles, which may not be fully captured within the study's timeframe.



## CHAPTER FOUR

### DATA ANALYSIS, PRESENTATION AND INTERPRETATION OF FINDINGS

#### 4.0 Introduction

Findings pertaining to the four investigation questions that guided the study, are hereby presented in this Chapter four. The chapter entails the presentation of findings from analyzing university policies and institutional documents related to KE initiatives which validated the participants' opinions and actions in the promotion of KE. The chapter is divided into five sections: This section (4.1) describes the composition of the study participants, followed by section 4.2 which presents the findings of the first objectives under the theme of planning aspects in promoting KE. The findings of objective 2 themed organizing KE are presented in section 4.3, followed by presentation of theme leading in the promotion of KE as findings of the third objective in section 4.4, followed by the findings of the fourth main theme of objective 4 control mechanisms in promoting KE and finally 4.6 summary and conclusion of the chapter

#### 4.1: Characteristics of the study sample

The characteristics of the study sample relevant to the study, particularly concerning management practices and knowledge economy initiatives, would likely encompass a diverse range of individuals and groups within Tanzanian universities.

##### 4.1.1: Gender of Respondents

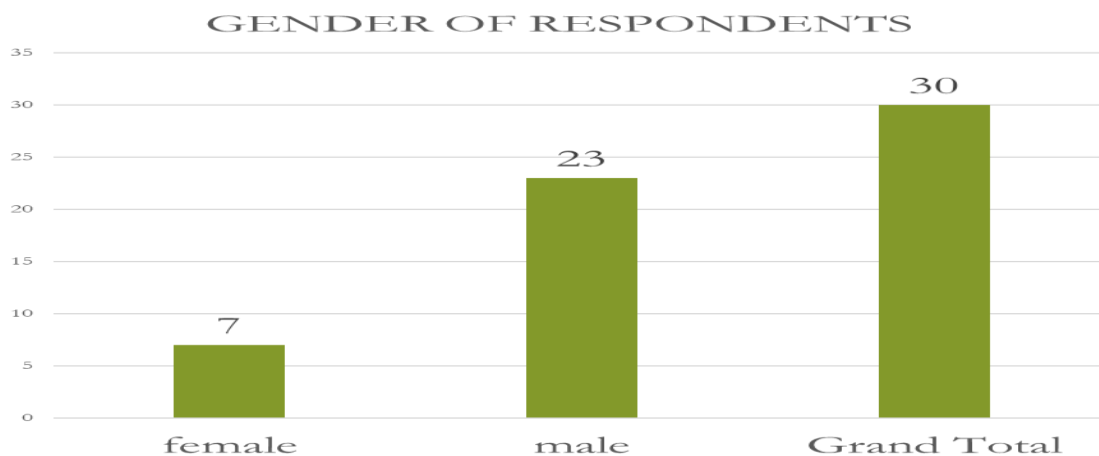
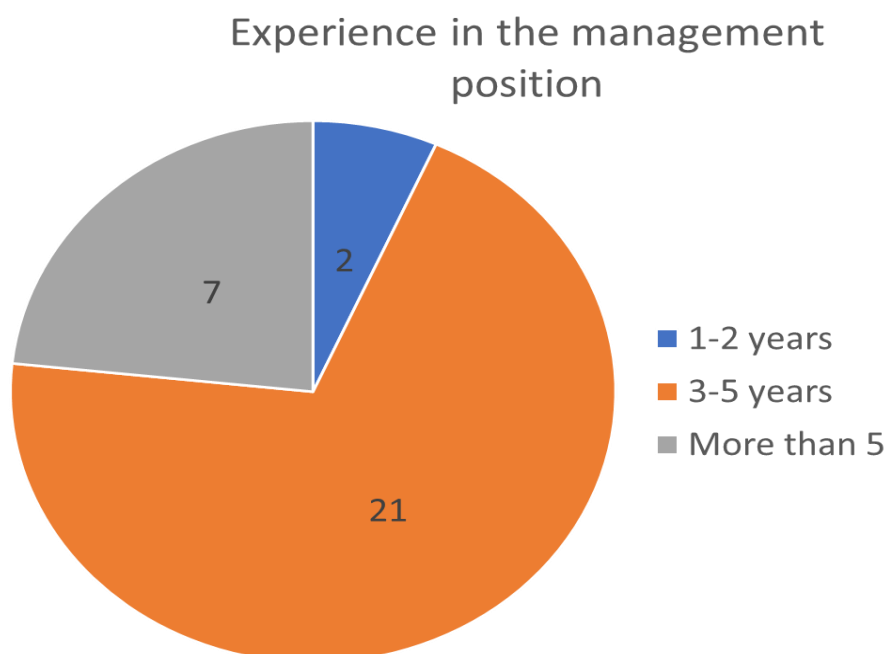


Figure 4. 1: Gender of the respondents

Figure 4.1 shows that out of the 30 respondents who participated in the study, 20 (66.7%) were male and 10 (33.3%) were female. This distribution reflects the continuing gender imbalance within management and leadership roles in Tanzanian public universities. While the gender distribution of respondents provides important contextual information about representation within university management, this study did not disaggregate or analyse findings along gender lines. The focus remained on the collective managerial practices planning, organizing, leading, and controlling irrespective of participants gender.

#### 4.1.2 Experience in the management position

For individuals in management positions relevant to the study, particularly within the background of university settings and their engagement with knowledge economy initiatives, several key experiences and qualifications would be relevant: Experience in strategic planning and leadership roles within academia is crucial for shaping the direction of the university towards knowledge economy objectives. This includes setting vision and goals, allocating resources effectively, and fostering a culture of innovation and collaboration among faculty, staff, and students.



**Figure 4. 2: Years of experience in the management Position**

The ideal years of experience in management positions relevant to the study, focusing on management practices and knowledge economy initiatives within

university settings, can vary depending on the specific role and responsibilities. Individuals with 3 to 5 years of experience in management positions may have gained proficiency in strategic planning, resource allocation, and stakeholder engagement within academic institutions. They would have likely overseen the implementation of initiatives related to research administration, technology transfer, and industry partnerships, providing valuable insights into the operational aspects of knowledge economy initiatives.

#### 4.1.3 Academic Rank

**Table 4. 1 : Academic Rank of the Participants**

SN	Academic Rank	Frequency
1.	Associate Professor	3
2.	Senior Lecturer	14
3.	Lecturer	13

Table 4.2 shows that out of the 30 respondents, 3 were Associate Professors (10%), 14 were Senior Lecturers (46.7%), and 13 were Lecturers (43.3%). This distribution indicates that the majority of participants held mid-level academic ranks, with relatively fewer drawn from the most senior leadership category. The majority number of Senior Lecturers and Lecturers suggests that much of the input on managerial practices and knowledge economy initiatives reflects perspectives from individuals directly engaged in teaching, research, and departmental leadership, rather than from top-level policy or strategic decision-making positions. This means that the perspectives captured in this study reflect both strategic insights from senior managers and operational experiences from middle- and lower-level managers. Findings were analyzed comparatively across these hierarchical levels, to explore how managerial rank influences approaches to promoting knowledge economy initiatives.

#### 4.2 Planning Aspects of Knowledge Economy Initiatives

It was found out that planning function entails systematic process of identifying strategies, resources that are relevant in fostering knowledge economy initiatives in the university Integration of Planning function was recognized through the different

institutional policy frameworks and plans. The following key considerations emerged from the data and each sub-theme has been analyzed in terms of prospects and challenges as follows; 4.2.1 describes the KE issues being strategically planned and placed, followed by how university management incorporates plans to generate variety ways of KE resourcing in section 4.2.2; Considerations of situational analysis in planning KE issues is depicted in section 4.2.3 and KE elements outlined in university plans and planning strategic partnerships for knowledge creation, sharing are presented in section 4.2.4 and 4.2.5 respectively.

**Table 4. 2: Planning Aspects of Knowledge Economy Initiatives**

<b>THEME: PLANNING ASPECTS OF KNOWLEDGE ECONOMY INITIATIVES</b>		
<b>SUB-THEMES</b>		<b>Examples of codes</b>
1.	Planning KE strategically	Long-term goals; timeframe; KE items scheduled; long direction; strategic areas for research; aligning visions; regulatory long-term framework; university planning informs college and department planning of KE components; establishing a general university KE initiative; budgeting for research and innovative activities annually; broader frameworks on KE; policies for more than 5 years; imagine future environment to operate; planning for a longer period of time
2.	Plans to generate diverse mechanisms for KE resourcing	Generate different approaches to secure funding; various options for supporting innovative ideas; generate internal research related activities revenue; charging fees for conferences; selling university made products; alternative routes to fund projects such as donors or NGOs; range of funding mechanisms and strategies
3.	Planning KE components informed through situational Analysis	Conducting a SWOT analysis to understand internal strengths, weaknesses, external opportunities, and threats in the context of KE; regulatory and policy frameworks influencing knowledge exchange; Studying the potential barriers and challenges that may affect the successful implementation of KE initiatives;
4.	Planning for KE indicators	Licensing policies; ICT use & Infrastructure; Increased value on R&D, &I; consultancy
5.	Planning for partnerships for KE initiatives	Potential connections; Partners for mutual benefits; Expertise of potential partners; other universities and research institutions; community contributions; collaborative networks; industry connections

*Source Researcher (2022)*

#### **4.2.1: Planning KE strategically**

The study found out that the several institutional documents responsible for incorporating aspects of KE initiatives were aligned with the national policies that

either implied or directly mentioned KE principles. For example, UDOM strategic plan (USP) states This Fourth Rolling Strategic Plan (URSP IV: 2021/22-2025/26) is heavily based on a review and replacement of RSP III (2017/18-2021/22). It aligns the contributions of UDOM to the national, local and global development frameworks that include the Ruling Party Election Manifesto (2020-2025); Tanzania Development Vision (2025); National Five-Year Development Plan (FYDP) III: 2021/22-2025/26. According to the FYDP III 2021/22-2025-26 highlights “for improved investment in science, technology and innovation as a way for the country to move from proportional advantage into competitive advantages, stimulate industrial development and become competitive in local, local and global markets (FYDP III,2021)”. The National Research and Development Policy (2010) explicitly indicate “To be a nation with a strong, dynamic, resilient and reasonable economy that is both knowledge-based and invention-driven.

Furthermore, by incorporating KE aspects into the university plans and strategies, universities foster collaboration and partnerships with industry, government agencies, and other stakeholders. This collaborative approach enhances the relevance and impact of research activities, facilitating the transfer and application of knowledge to address real-world challenges. By focusing their research activities and initiatives in line with the national agenda and visions, universities actively add to the advancement of the knowledge economy and the overall progress of the country. As one of the respondents put it in the following quotation:

...What we do as university more so a public university need to reflect what the country direction is therefore when you look at the plans, goals and strategies of the university are formulated based on the national policy frameworks since universities should address Tanzania needs (SM#7) ....

Upon reviewing the policy guidelines, it is evident that the university policy documents and plans have a time frame of five-year plans which directly indicate that universities tend to establish a long-term vision for the development of a knowledge economy. It provides stability and continuity in strategic decision-making, ensuring that initiatives are not subject to frequent changes or short-term fluctuations. For example, “UDSM vision 2061 states categorically that the main focus is intensifying research relevancy to community, focus to problem solving and

knowledge creation becoming a leading research University” (UDV-I,2061) and the mission of the Five-Year Rolling Strategic Action Plan 2020/2021-2024/2025 is aligned with UDSM Mission to advance the economic, social, and technological development of Tanzania and beyond through excellent teaching and learning, research and knowledge exchange (UD-FYSAP II, 2020).

This implies that universities do make substantial progress toward their knowledge economy goals since the time frame offers flexibility to respond to changing circumstances. Knowledge economy plans may require adjustments due to evolving technologies, market conditions, or policy changes. With a five-year plan, universities have the opportunity to periodically review and revise their strategies while maintaining the overall trajectory towards the knowledge economy vision.

These findings align with the interview respondent’s analysis for instance one of the senior managers remarked on the issue as indicated in the following quotation:

...I understand that there may be concerns about the long-term time frame for incorporating knowledge economy aspects into university plans and strategies. However, I believe that a long-term perspective is crucial for successfully integrating principles of innovation, research that will align with the changing environment... (SM#1, August, 2022).

It was found that use of strategic plans enabled the universities to have a comprehensive understanding of their current state and their future potentials in terms of funding research, innovation, partnerships and other areas in the context of knowledge economy. The findings showed that universities had established visions and strategic plans that contained important elements that place them at a competitive advantage both locally and internationally. The outline of the elements within different institutional plans that mention the idea of competitiveness as a strategic goal to pursue in the context of knowledge economy is presented in table 4.3.

**Table 4. 3: Elements within different institutional plans that mention the idea of competitiveness**

Cases	Plan/vision	Elements
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University A	UDSM Vision 2061	<p>By 2061, UA shall be transformed into a world class, international university, whose performance is clearly, distinctively, outstanding from that of runner up competitors</p> <p>To that end, the RSP IV implements UB aspiration of becoming among the top 20 best universities in Africa by 2030.</p> <p>..... seeks to become a world-class business school that is responsive to development needs through innovation, knowledge creation and application in the areas of Entrepreneurship, Business Management and Governance.</p> <p>.....seeks to realize University - wide strength and competitive advantages by making cross-cutting services like business, legal and management skills available to all University Units including but not limited to sciences.</p>
University B	Strategic Plan (2021/222025/26)	
College - University A	Unit's Vision (Website 2022)	
University A	Unit-Vision website ,2022	

Source: *researcher 2022*

Data in table 4.3 depict how universities are using their regulatory frameworks such as visions and missions to shape elements relating to knowledge economy and indicating competitiveness as a strategic plan in promoting knowledge economy. The finding highlights how the universities have established plans that aim to enhance competitiveness both locally and internationally. Knowledge Economy places strong emphasis on competitiveness.

Findings indicated that the various strategic planning process involve senior managers notably directors and principals who are directly involved in the development of plans while the middle level (head of departments) and lower managers (coordinators) are consulted and sometimes this even is communicated late as the participants explained it:

A senior manager

...Yeah, I mean basically this role puts you in a position to plan about different things within the unit that relate to activities like teaching schedules but of course i do this through my different head of departments.... (Respondent SM#8, August, 2022)

Meanwhile a middle level manager

...However not so much planning is carried out at this level “tunapaswa kutekeleza...(meaning we ought to implement) most of these policies at the department so my office focus on how to put into action for instance issues regarding teaching, gender and so on... (Respondent MM#7, August, 2022)

The statements indicate that senior managers, including directors and principals, are directly involved in the planning process. However, there seems to be a communication delay and a limited role for middle-level managers (head of departments) and lower managers (coordinators). This disparity in involvement may result in overlooking key elements crucial for promoting Knowledge Economy initiatives. The findings indicate that the development of the plan is grounded in a participatory approach, involving inputs from both management and staff. Through surveys and consultative forums, the university explores the aspirations of its stakeholders, aligning the planning process with the diverse perspectives and goals within the institution. The participatory nature of the university planning process, is outlined in different documents as follows: -

...The development of the plan relied on a participatory process. Through this participatory process the University explored the aspirations of the management and staff using a survey and various consultative forums... (UD-FYRSAP)

...The RSP IV was prepared through a consultative process that started with a comprehensive desk review which included an in-depth analysis of the performance of RSP III. (U-RSP III) ....

While the documents emphasize a participatory approach, the statements from the respondents suggest that the degree of participation varies across management levels. This difference in involvement could impact the depth and breadth of insights incorporated into the planning process, for instance regarding critical elements such as the status of industry partnerships, ethical considerations, and integrity, all of which are significant for promoting Knowledge Economy (KE) initiatives.

Senior manager: The units at the university are required now to develop research agendas based on the university overall strategic plan and this happens through committees of the members of the unit (SM#4)

Middle level manager respondent from a social science department: I do not recall a meeting where all academic staff were called to maybe discuss on the university policies, even here at the department level when I have a meeting and I happen to mention about a certain policy most of the staff are not aware (MM #8)

#### 4.2.2 Plans to generate diverse mechanisms for KE resourcing

The findings depict that University management have embraced diverse sources of resources to facilitate KE initiatives funding for prototype development and research, as one senior manager said:

...Strengthening of research involve strengthening of sources of funds having not relying to government funding just because we are a public institution. Actually, I would have talked about resources in general but funding is more visible when you talk about enhancing research activities, I means when funds are available even acquiring research infrastructure would be made possible.... (LM#4, November, 2022).

In the documents that were revised for this study, it is shown that university management through its plans is enhancing diverse funding of KE initiatives such as research and innovation as follows: -

...Strategic Objective 9: Mobilization and Management of Financial Resources Enhanced: Increase the level of the university's contribution to its recurrent budget from non-fee sources- A strategic framework for sustainable diversification of university funding sources developed and implemented by June, 2026... (U-RSP)

...Strategies for research funding: -Reinforce the capacity of the Directorate of Research and Publications to identify, share and utilize evidence on accessibility of sources of funding for research.... (U-RPG&O).

The findings indicate that government funding remains the primary source of support for Knowledge Economy (KE) initiatives within Tanzanian universities. However, there is recognition of the importance of diversifying funding sources to sustain and expand these initiatives. One alternative avenue identified is through donors, particularly from developed countries, who provide grants and scholarships to enable academic researchers to further develop their ideas into marketable products.

In response to the need for sustainable funding mechanisms, the University of Dar es Salaam (UDOM) has implemented specific policies and guidelines outlined in their Research Policy and Guidelines (2023, 3rd edition). One notable aspect of these guidelines is the introduction of institutional fees for grants solicited by individuals, departments, schools, or institutes. The institutional fee, set at a flat rate of 15% of

the grant's total value, aims to cover overhead costs associated with managing research projects.

The apportionment of funds from institutional fees is delineated within the guidelines. Central Administration receives 35% of the fees to support the general administration of the university, while the host college/school/institute receives 15% to cover coordination expenses and utilities such as electricity, stationery, water, photocopying, and communication.

Furthermore, the document highlights the universities' increasing focus on strengthening their financing through commercialized revenues generated from research activities. Income generated from research projects, particularly sales of research products, is administered according to specific guidelines:

1. For long-term projects (>2 years), income generated is apportioned to cover administrative costs as outlined in the guidelines for grants.
2. For short-term projects (<2 years), income generated remains within the host department and is used to supplement the department's budget.

This approach underscores the university's commitment to maximizing the financial benefits of research activities while ensuring transparency and accountability in the allocation and utilization of funds. By diversifying revenue streams and optimizing internal mechanisms for fund management, Tanzanian universities aim to enhance their capacity to sustain and expand Knowledge Economy initiatives, ultimately contributing to national development goals.

#### **4.2.3 Planning informed through situational Analysis**

Findings from the interviews showed that some documents that have incorporated KE elements have weak situational analysis, as one of the respondents from the middle level management commented:

...Of course, for we use the documents to make action plans within the department but while they provide insight into university goals, they fail address other aspects for instance status of interdisciplinary collaborations in the university... (Respondent MM#, July, 2022).

Another respondent from low level management stated:

...still I think aspect of how the university can strategically contribute to driving economic value I would say may be through innovation it's not written in in-depth insights... (Respondent LM#, October, 2022).

In addition, respondents MM#4, #8, and #9 mentioned other aspects that showed gaps within the situational analysis of the university documents such as status of partnership with the industry, ethnics and integrity that have an impact on advancing KE initiatives. These findings suggest that the situational analysis within the university documents indicated gaps in assessing critical areas such as industry partnerships, ethics, knowledge assets in the university and integrity.

The strategic plans document from the two universities showed a section of situational analyses that were categorized into areas such as evaluation of previous strategic plan, SWOC Analysis and Stakeholders analysis showing a number of KE initiatives such as;

For instance: UDOM Rolling Strategic Plan (2021/22-2025/26), RSP IV: Indicates the following section in the Situational analysis component; provides an overview of the present state of affairs, highlighting key aspects of both the internal and external operational contexts. This includes a concise evaluation of the outcomes achieved under the previous plan, RSP III: 2017/18-2021/22. In addition to detailing the historical Developments and advancements of the institution, this section delineates UDOM's Vision, Mission, and fundamental principles that steered the earlier plan. Moreover, it briefly examines the policy landscape and UDOM's internal dynamics. The document also delves into a stakeholder analysis for UDOM, outlining its Strengths, Weaknesses, Opportunities, and Challenges (SWOC), along with critical strategic concerns. (UDOM Rolling Strategic Plan (2021/22-2025/26, 2021),

Furthermore, Objective 5 of the strategic plan aimed to enhance and coordinate research, publications, and innovation within the institution. Key achievements included undertaking 91 research projects using internal funds, along with 59 externally funded projects and 33 collaborative research endeavours. Institutional research partnerships were also established, and efforts were made to review research agenda policies and guidelines.

This statement shows efforts regarding knowledge creation but it lacks of detailed analysis regarding how these initiatives align with knowledge economy principles.

Specifics on fostering innovation ecosystems, leveraging intellectual capital, and promoting digital transformation within these research activities which are needed for a more complete understanding of their impact on driving economic value through knowledge and innovation. (UDOM Rolling Strategic Plan (2021/22-2025/26, 2021).

Also, the documents show strategic interventions for KE related initiatives from the expectation of the partners: for instance, in the UDSM Five-Year Rolling Strategic Action Plan 2020/2021-2024/2025, (2020) from the higher learning institutions expectations; it states, “Promote collaborative multidisciplinary research projects; Encourage research and invention information distribution including research proposals and research results.” This means that the university may be at a point to translate stakeholder expectations into tangible outcomes that contribute to the knowledge economy.

#### **4.2.4 Knowledge Economy Elements in the institutions Plans**

Some important components constituting the KE pillars were gathered from the study findings as follows:

##### **4.2.4.1 Incorporation of Research and Development and innovation plans**

Research and development play essential role in integrating the information economy into university management planning. Universities should foster a research culture that encourages knowledge creation, innovation, and technological advancements. This includes establishing research centers, institutes, and partnerships with industry and other academic institutions. By promoting interdisciplinary research, universities can address complex societal challenges that require cross-disciplinary expertise. Moreover, universities should emphasize applied research, technology transfer, and the commercialization of intellectual property. This can involve establishing technology transfer offices, promoting entrepreneurship, and supporting startups based on university research. By actively engaging in research and development activities, universities can add to economic growth and societal well-being. The importance of planning for research in the universities became evident as respondents recognized research as one important function of the university. This was evident from the following responses:

...As I see it Tanzania needs to increase performance in its sectors and one way of doing it is by generating new knowledge that is relatable to its problems and needs, this new knowledge that am talking about will be found through research which as you know is one of the functions of university, so it's important to plan on how this function can be carried out effectively and that is why there is a Research Agenda Policy to guide these research plans in the university... (Respondent SM#2)

Another responded recognized the importance of research stating that:

...As a director i get involved in university planning in different capacities because of the three-tier function of the university teaching research and services for instance i am involved in planning for research resources for the students and the academic staff, funds among others... (Respondent SM#3)

This reflects the recognition of the importance of planning for research in the universities as the respondents recognized research as a key function of the university which is a crucial element in the knowledge economy practices. In addition, the idea of research and development being taken as an important function in the universities appears in the mission of one university which reads:

...to spread the economic, social and technical development of Tanzania and beyond through excellent teaching, research and public service using talented and inspired faculty, staff and students... (UDSM Vision,2061)

Similarly, in a statement strategic plan for one university, the vision is presented as:

...A centre of distinction in education, training, research, innovation and public services for sustainable and inclusive global development... (UDOM Strategic Plan 2021/22-2025/26)

In the light of the above responses the study revealed that the component of research was widely advocated compared to innovation which imply that most plans are connected to R&D which entails to activities aimed at generating knowledge or discovering new insights while innovation involves transforming research findings.

Similarly, other respondents pointed out that research in the 21<sup>st</sup> century is important for universities to give priority in their planning since R&D can results to outcomes of issues such as patents, copyrights or licenses and therefore research activities should be planned and structured accordingly.

Further evidence showed that universities have established policies that are geared in providing the framework and the management of research activities. These include documents such as Research Agendas, research policies and operational

guidelines among others. This shows how universities are taking seriously the component of research in their institutions. As one of the senior managers claimed that:

...Over the years teaching has been the most important activity of the universities especially in developing countries it carried almost 70% of the university activities but now we have progressed to emphasis on research function as equally an important activity since it generates knowledge that can be useful to the country, that now university have policies to direct research activities... (Respondent SM#3).

It indicates how Research and innovation is seen to have been accorded a major emphasis within the university and as a result there have been the production of several plans and policy documents. There have been various strategies and policy documents involving the management of research that have been produced as a result of the university placing a significant emphasis on research and innovation activities, either explicitly or through referencing. Examples from the study sites are included in the table below:

**Table 4. 4: Sites where emphasis has been placed on research and innovation activities**

Site	Research related policy/plan
University A	<ul style="list-style-type: none"> <li>• VISION,2061</li> <li>• UNIVERSITY RESEARCH AGENDA 2018/19 - 2027/28</li> <li>• FIVE-YEAR ROLLING STRATEGIC ACTION PLAN 2020/2021-2024/2025</li> <li>• GUIDELINES AND PROCEDURES FOR MANAGEMENT OF RESEARCH PROJECTS AND ACTIVITIES FUNDED FROM EXTERNAL SOURCES</li> <li>• RESEARCH POLICY AND OPERATIONAL PROCEDURES Third Edition June 2015</li> </ul>
University B	<ul style="list-style-type: none"> <li>• STRATEGIC PLAN 2021/22-2025/26</li> <li>• RESEARCH POLICY, GUIDELINES AND PRIORITIES, 2008,2014</li> </ul>

(Researchers own source)

Reflecting on the research policy documents of the universities, the findings showed that the research documents had important common aspects in terms of content and focus such as objectives, ethic guidelines, monitoring and evaluation among others in ensuring knowledge creation, transmission and dissemination.

Another respondent added

...Developing countries have been subjected to consume knowledge from other areas especially in the developed countries it is about time the university within the African context change this since we have all the ability to produce knowledge that is relevant to our context, although we still have a long way but am glad universities now here in Tanzania are making efforts to this regard... (Respondent SM#1).

This demonstrates how universities are more aware of the importance of producing information that is more appropriate to the context of the country as is portrayed in the policies, as one respondent pointed out that over the years, research and innovation have been given a lot of attention.

Similarly, this idea was observed from the research policy documents, for instance a research policy in one of the universities stated its research mission as follows:

...To create, apply, refine and advance knowledge in the fields of education, earth sciences, health sciences, natural sciences, mathematical sciences, information and communication skills, business, humanities and Social Sciences as well as use it to enrich teaching and offer solutions to development challenges” and further included a research motto that states “Research is the heart of Knowledge and Development... (UDOM Research Policy, Guidelines and Priorities, 2014)

However, a respondent within the middle level management had the following to say about it:

...I must say it is good that the university have a systematic structure that provide direction as how research can be carried out and it also go ahead to do constant reviews of the policies but now i must say some of these plans do not reach the right people who are the academic staff, we have a research coordinator in the unit but still these documents sometimes do not reach the tables of the academic staff yet they keep reviewing and producing new issues... (Respondent MM#2, ..., 2022)

This reveals that the universities are operating within complex managerial structures and there is a need for the university to consider proper coordination between different levels and units to ensure that university regulatory frameworks in form of policies, plans are accessible to members of the University for Proper Implementation.

The inclusion of research clusters and themes within university research policies indicates a strategic approach to organizing and prioritizing research efforts in alignment with national development priorities and emerging societal needs. By delineating specific areas of focus, such as health sciences, agriculture, renewable energy, or information technology, universities can concentrate resources and expertise to generate impactful research outcomes with market potential.

Research and innovation are further illustrated in the findings that indicated universities have increasingly recognized the importance of intellectual property (IP) and have implemented licensing policies to manage and protect university innovations. This shift underscores the value of IP as a significant asset derived from research activities. As a senior manager illustrated:

...The presence of a Knowledgeable Property Rights policy at our university is a significant step forward. It provides a structured way to protect our research outputs and innovations produced at the university and our staff and students, which I feel is very important for encouraging more productive research work...(SM#3)

...Having an IPR, the university engages with external partners more effectively, ensuring more cooperation and proper handling of intellectual property. But in addition, it promotes the university reputation...(SM#1)

Further a document on Intellectual Property Rights (IPR) in one of the selected University highlights this approach:

...One of the core functions of the university is to carry out and foster research with a view of providing solutions to the problems facing the Tanzanian society. In order to be effective, such function requires the following prerequisites such as availability of sufficient research funding; existence of a system that would facilitate the movement of research results from the institution to end-users through application of research results. In between the University and the public there is an important link, namely: the private sector or industry" (U-Intellectual Property Policy, 2008).

This indicate implementation of licensing policies reflects a strategic move by universities to ensure that research outputs can be translated into practical applications that benefit society. This includes fostering partnerships with the private sector to facilitate the commercialization of research findings. The university's IP is managed to benefit not only the institution but also the individual inventors and the public.

However, the study also reveals that there is a need to raise awareness among faculty staff about the importance and benefits of IP policies. As the participants clearly stated:

...Our university is making efforts in IP management issues, but many faculty members are still unaware of how to use these policies effectively for their purposes. there is a need for more effort in educating us about how to protect and commercialize our innovations ...(MM#3).

...While the IP policy is beneficial and important, it seems to be towards the sciences mostly. We need to see more of commercialization and related issues of intellectual property across all disciplines... (MM#5)

These findings indicate the need for the university managers raising awareness is particularly crucial as the current utilization of IP policies appears to be more prevalent within science disciplines. To maximize the impact of research across all faculties, the university should enhance more efforts to educate and engage all academic staff on the significance of IP and the mechanisms available for protecting and commercializing their innovations.

However, the university's Intellectual Property Rights (IPR) policy also acknowledges this challenge and highlights the need for a strategic approach to raise awareness and provide continuous training: "Intellectual property is a relatively new concept in most higher learning institutions of developing countries such as UDSM. It is also an evolving concept whose principles and rules are continuously changing and adapting to new trends and developments in science, arts and technology. It therefore requires a defined approach geared at a massive awareness raising campaign and continuous training to keep abreast with new developments. (U-Intellectual Property Policy, 2008).

Therefore, in addressing the awareness gap in IP policy utilization is critical for university management to strengthen and foster a culture of innovation that spans all academic disciplines. By implementing extensive awareness and training initiatives, the university can ensure that all researchers are equipped to protect and commercialize their work, thereby contributing more effectively to the knowledge economy.

Overall, the findings indicate that the university's IPR policy is an important component in promoting a knowledge economy. It does not only protect intellectual property but also encourages innovation, facilitates valuable and potential partnerships, and enhances the university's ability to commercialize research outputs. However, the university needs to increase awareness and understanding of these policies across all faculties to maximize their impact.

#### 4.2.4.2 Incorporation of Information and Communication Technology systems

The study found that internal university management has incorporated ICT in their planning. Evidence from data indicate that universities recognize ICT as an essential part for facilitating knowledge creation through research, dissemination of knowledge internally and externally to the wider audiences through channels such as online conferences and also in research management. Technological infrastructure is a critical enabler in integrating the knowledge economy into university management planning. Universities need to invest in advanced information and communication technology (ICT) infrastructure to support teaching, learning, research, and administrative processes. Robust networks, high-speed internet, and state-of-the-art computing facilities are essential to facilitate seamless connectivity and access to digital resources. Universities should adopt learning management systems, virtual collaboration tools, and online platforms to enhance the learning experience and facilitate remote learning and research collaboration. Additionally, investments in emerging technologies such as artificial intelligence, big data analytics, and virtual reality can promote innovation and prepare students for the digital economy.

Data from the interviews revealed that the universities consider integration of technology in many aspects of the university activities such as teaching, management activities. As several participants noted:

“The use of technology especially ICT is unavoidable since its driving the running of the university for instance as a principal I have like three departments to oversee that include more than 50 teaching staff and even a dozen number of students therefore just by clicking here on my computer I can check the status of students or even my staff “(Respondent (SM#7)

“I can mention that now we run so many issues with the use of data bases where the university creates data bases for different information that can be accessible for instance student’s information on admission academic results, tuition and there is the issue of internet where it enables one to gain access to different kind of academic resources both for us academic staff and the students” (Respondent SM#5)

Further analysis from the interviews showed how different managers view integration of ICT within the university at different levels of management as shown in table 4.6.

**Table 4. 5: Integration of Technology**

<b>Respondent</b>	<b>Extracts of Responses</b>	<b>Implications to KE</b>
<b>TOP LEVEL MANAGERS (Directors, Deans, Principals)</b>		
<i>(Respondent SM#3)</i>	“Personally, integrating technology for me in my position is that i am able to effectively use the data for strategic decision making and even plans and even establish external links with the outside world”	Data bases creates information used as asset of the university and strategic decision making
<i>(Respondent SM#4)</i>	“Yes, you know using ICT tools to easily forecast some of the scenarios for instance we could project the trend of the number of students to enrol in a certain programme in my unit” (meaning institute)	Create a tool for planning for the long-term to stay competitive
<i>(Respondent SM#2)</i>	“I can also mention we are also able to quickly manage different research information activities such as research permission letters from staff, issues related to grants from various units, funding clearance (colleges and schools) in 2020 the university launched RIMS (Research Information Management Systems) to electronically make research accessible and manage research effectively”	For knowledge creation and management - research issues such controlling and tracking publication, access to publication by the public; comprehensive application
<i>(Respondent SM#8)</i>	“I have to say the learning institutions are turning to computerized systems meaning every information that I have mostly is stored in digital manner and I could access it not only on my office computer but also private and even smart phone, aside this allow me to have a very general I would say holistic picture of my unit”	Digitalization of information and storage of information that can be accessed easily and anywhere
<b>MIDDLE LEVEL MANAGEMENT (Head of Department)</b>		
<i>(Respondent MM#2)</i>	“At this level I would say more than half of what I do in the office entails the use IT, be it planning for workloads, communication with my staff for instance like now I was just emailing my staff to attend the Adult Education 50 <sup>th</sup> anniversary that our department will be hosting “You see also it is very easy for me to leave the office and still things me because data is easily available”	Assist in organizing activities easily and communication to the staff as knowledge sharing easily
	“For me to be able to even organize for the time and specific schedules for teaching really the use of computer really helps .... i would also mention now the university has something they call office management system in other words is E-file iliyozinduliwa	Helps in time allocation It impacts on the knowledge management of the university data

	hivi karibuni ( <i>translation</i> : that was recently launched) it means as a head of department am able to work on any file online and give comments ,what happens is that the letter or request is taken to the registry then they scan and upload it to the system, it should have started a while ago but majority of the principals of college were reluctant and still required the hard copy “	
(Respondent MM#6)	“Well, in our case one of the areas I have seen integration of ICT is on tracking the performance of the staff through the OPRAS which is online ,where the academic staff fill the form online and I am able to evaluate his or her performance comment and move it up the ladder ..this really reduces the paper work “...if you allow me, as much as the university really emphasis on the integration of the ICT such that we even have an ICT policy that is focused on this level some of us still lack the technical knowhow of maneuvering through the systems so you have to call the IT personnel of the college and they are only 2 of them ”	Flexibility in managing issues
<b>LOWER-LEVEL MANAGEMENT (COORDINATORS)</b>		
(Respondent LM#6)	Mainly I would say that ICT integration mainly helps me to keep tracks of tasks deadlines, what I mean is an able to ensure timely completion of tasks	Keeping records
(Respondent LM#8)	As a research coordinator at the department, I normally receive the number of publications and research from the staff manually and I generate report of which I forward it to central administration, we still do not have an electronic research management system to track and keep records of research issues at the institution but I think the university is making plans on it. Communication that I do is mostly through emails which up to now for me have proven effective	Communication and keeping records
(Respondent LM#1)	I appreciate the initiative of the RIMS in our institution it makes easier for staff from unit level (meaning school) to at the process permission for research conducting this enables the system to manage the information of staff in terms of research and publication. Otherwise, I would also say it really enables me to compile and submit the	Communication

	number of publications at the unit and present it to the school board meetings	
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Researcher own source

The integration of aspects of technology into the university planning process is exemplified by the experiences and practices described by the university managers at the different levels. The responses provided offer insights into how technology and information and communication technology (ICT) tools are being harnessed to align with the principles of the knowledge economy within the context of university management and planning such the practices described highlight data-driven decision-making, forecasting, research management, digital transformation, holistic understanding, efficient communication, and adaptability implying characteristics of a knowledge-driven approach to management and planning.

#### **4.2.4.3 Incorporation of KE related Training Programs in university Planning**

The study found that training and development programs have been incorporated by internal university management in their planning. The study found that plans for training may involves a range of activities designed to prepare staff with the knowledge and skills needed to help them to perform their roles in the most effective and efficient manner. This includes staff training on new technologies, regulatory changes, or other topics that may be relevant to their roles. Also, providing professional development opportunities such as on-site conferences, workshops and seminars. Human resource growth is a key component of integrating the knowledge economy into university management planning. Universities must attract, develop, and retain a diverse and talented faculty and staff. This involves recruiting experts in emerging fields, fostering a supportive and inclusive work environment, and providing professional development opportunities. Universities should encourage faculty members to engage in industry collaborations, entrepreneurship, and research commercialization. Continuous learning and upskilling programs should be offered to faculty and staff to keep pace with advancements in the knowledge economy. By investing in the development of their human capital, universities can enhance teaching quality, drive innovation, and establish a competitive edge in the knowledge economy.

Evidence of a snapshot from University of Dar es salaam Strategic Plan (2020/2021-2025/2026) showed that Research, innovation, and knowledge exchange enhanced training and development programs, with the objective of Literacy Training Programmes for academic staff conducted by June, 2023 with the university strategic directions.

**Table 4. 6: Strategic Plan (UDSM 2020/2021-2025/2026)**

STRATEGY	TARGET	ACTIVITY	KPIs	RESPONSIBLE
		software		
	1 full functioning computer lab installed in each academic unit by June, 2026	Establish accredited strategic student computer labs in colleges, institutes and schools	Number and capacity of full-functioning computer labs	
Improve ICT experts and general users' knowledge of digital solutions, emerging technologies and security practices	2 professional training per annum	Design and offer training to ICT experts	Number training sessions	DVC-PFA, DHRA and DICT
	15 staff with professional certificates	Facilitate ICT staff to acquire professional certificates in various ICT specializations	Number of ICT staff with professional certifications	
	2 training workshops conducted per annum	Train end-users on UDOM ICT systems and infrastructures	Number of training workshops conducted	
Enhance publicity through the effective use of digital media	20% improvement in usage and uptime by June, 2023	Develop and sustain the core university websites	Percent on usage, uptime	DVC-PFA, PRMU and DICT
	Website updating and maintenance framework developed and operationalized by June, 2022	Develop and operationalize a modality for timely and effective UDOM websites updating	Website updating and maintenance framework in place	DVC-PFA, DICT, PRMU and Cost Centers
	80% of website users are satisfied every year	Facilitate relevance of the university	Percentage of website users satisfied	DVC-PFA, DICT and PRMU
	20% increase in website hits yearly	Facilitate visibility of the university	Number of hits increased on the website.	
	1 chat-bot on the UDOM website by June, 2023	Incorporate chat-bots in website to automate visitor-website interaction	Chat-bot in university website in place	
	4 functional university social media accounts by June, 2026	Establish and sustain effective UDOM social media accounts	Number of functional university social media accounts	

The findings from interview had similar results to documentary review that training and development programs has been incorporated by internal university management in their planning. This evidence was gleaned through interviews with, Senior Manager, Middle Manager, and Lower Manager. During the interview one of the Manager from senior managers had the following comments concerning internal university management to incorporate training and development programs in their planning:

...It is true that our university incorporates training and development in planning. In the 2022/2023 strategic plan, we have included training and development programs. We will offer more training opportunities to academic staff members. The majority of academic staff members from each College, School and Institute have been awarded scholarships to pursue PhD studies annually (SM#6) ....

Another Manager from Middle level Manager when interviewed had the following to say:

...University has to ensure the orderly conduct of university training and development adherence to set standards of learning by providing support to students in terms of coordinating the admission of students, offering training and other sensitization interventions in key areas like quality assurance, university leadership and management... (MM#7).”

Moreover, one of the Lower Managers had the following remarks:

...Training and growths include providing staff with evidence about research learning opportunities, training in proposal writing and project management, developing research uptake management and communication of research, as well as general staff capacity construction and academic development in research. The training continues to develop links with organizations and individuals within and outside Tanzania to assist and stimulate training and development. Through training, learning, teaching and training for development will offer the best available knowledge, tools and information to contribute to making University graduates competitive in the employment market.... (LM#3).”

The study findings implying that training and development program is an essential part of an internal university management plan. Since, training and development programs help to ensure that employees are up to date on the latest technology, strategies, and processes.

“University offer training programs that integrate research methodologies I think this is relevant to nurture academic staff in doing research effectively, however right now there is a need to plan for training programs that dwell more in issues of collaborating research projects marketing and grant writing and actually that’s what researchers are more interested in. (SM#4).” This statement reflects a perspective on the evolving needs of academic staff within universities, particularly regarding training programs related to research methodologies and collaborative projects, marketing, and grant writing. Here’s an interpretation:

The statement acknowledges the existing emphasis on training programs that integrate research methodologies. This suggests that universities already offer training to nurture academic staff in conducting research effectively. These programs likely focus on equipping researchers with the necessary skills and

techniques to design, conduct, and analyze research studies within their respective disciplines. However, the statement highlights a shift in the priorities of academic staff. There is a perceived need for training programs that go beyond traditional research methodologies and delve into areas such as collaborative research projects, marketing, and grant writing. This shift indicates a recognition of the importance of broader skills and knowledge beyond just conducting research.

They also help ensure that employees have the knowledge and skills needed to perform their jobs effectively. By incorporating training and development programs into their planning, internal university management can ensure that their workforce is knowledgeable and prepared to meet any challenges that arise. Additionally, investing in employee training and development helps to increase employee satisfaction and morale, which can lead to increased productivity and retention.

#### **4.2.5 Planning for partnerships for KE initiatives**

Findings showed that partnerships play a crucial role in the plans for promoting a knowledge economy. The emphasis is on fostering collaborations among academia, industry, government, and other stakeholders were emphasized in the interviews and documents. Evident from the following responses:

....Currently, the university is focusing on establishing relation with the industry, we have realized this kind of collaboration will be able to amplify our research produced in the university ,you see ,you could find that the university produces a prototype of a machine or something or technology that is not relevant to the market and this usually was a loss and I think its is good to have such partnership..( SM#9)

Notably these findings indicate that the aim is to create synergies, leverage resources, and share expertise to accelerate the development and implementation of knowledge-based initiatives. Partnerships also help in bridging the gap between research and practical applications.

Furthermore, in the strategic objective No.17 of the Five year Rolling Strategic Plan (2020/21-2024/25, (2020) of one of the university documents indicate that “Creating frameworks for strategic collaboration with key stakeholders in innovation” strategic Objective D stating research, Innovation, and Knowledge Exchange Enhanced is targeted to be achieved through 20 new collaborative partnerships with industry to commercialize applicable research findings by June, 2025”.

Some of the collaboration mentioned include industry business chambers, other universities and so on. in the same line for example Industry is listed as the main stakeholders for strategic intervention, for example Provide quality research outputs to industries; Engage the industries to solve their problems through applied research; Promote research information sharing including research proposals and research results Promote research collaboration with the industry (FYRSP 2020/21-2024/25)

The aim is to create synergies, leverage resources, and share expertise to accelerate the development and implementation of knowledge-based initiatives. Partnerships also help in bridging the gap between research and practical applications.

Further findings indicated that universities strategically plan for partnerships to align their long-term goals with the evolving demands of the knowledge economy.

As one of the respondents suggested:

...To remain relevant means is producing relevant research, graduates and innovation, that demands to know what the market requires and what the future looks through different markets which are business organization, banks where our students find employment, in other words is we cannot be isolated as an academic institution we need to open to have input from the outside community... (SM#7)

This requires a comprehensive understanding of market trends, technological advancements, and societal needs. Strategic planning involves identifying key focus areas, setting clear objectives, and formulating strategies to achieve them. The vision should emphasize the development of knowledge-intensive programs, interdisciplinary collaborations, and fostering innovation and entrepreneurship. By incorporating elements of the knowledge economy into their strategic plans, universities can position themselves as hubs of knowledge creation and dissemination.

The findings reveal that universities prioritize establishing partnerships for research and innovation to maximize the benefits, including market validation for research outputs, particularly products. This underscores the incorporation of the knowledge economy (KE) in university plans.

However, response from the middle level management suggested that as much as the idea of partnerships and collaboration are visible in the plans and policies of the universities the issues of memorandums are done at the central level.

"I agree that collaboration is essential, as we don't operate in isolation. However, I believe that if units were granted more autonomy in establishing partnerships, we would see more relevant collaborations that align with each school's specific needs. For instance, business and law programs could foster partnerships that cater to their unique requirements."(LM# 8)

This indicate the importance of collaboration and partnerships, but also suggests that giving individual units or departments more autonomy when establishing partnerships can lead to more effective and relevant collaborations. This means that these units can take ownership of their own partnerships and make decisions that align with their specific needs and goals. Suggesting that units could establish partnerships that are tailored to their unique requirements of programs and research, such as partnerships with industry partners or professional organizations. By giving more autonomy to individual units means forming partnerships that are more meaningful and impactful.

#### **4.2.6 Summary of the research findings of Planning aspects of KE initiatives**

Research and development play a pivotal role in integrating the knowledge economy into university management planning. Universities should foster a research culture that encourages knowledge creation, innovation, and technological advancements. This includes establishing research centers, institutes, and partnerships with industry and other academic institutions. By promoting interdisciplinary research, universities can address complex societal challenges that require cross-disciplinary expertise. This can involve establishing technology transfer offices, promoting entrepreneurship, and supporting startups based on university research. By actively engaging in research and development activities, universities can contribute to economic growth and societal well-being. Research and development (R&D) are integral to the integration of the knowledge economy into university management planning. Universities must foster a research culture that promotes knowledge creation, innovation, and technological advancements. This involves establishing research centers, institutes, and collaborations with industry partners and other universities. By encouraging interdisciplinary research and promoting collaboration across disciplines, universities can address complex societal challenges and contribute to economic growth. R&D activities should focus on applied research, technology transfer, and commercialization of intellectual property. Universities should also seek funding opportunities from both governmental and private sources to support research endeavors.

Technological infrastructure plays a vital role in integrating the knowledge economy into university management planning. Universities need to invest in state-of-the-art information and communication technology (ICT) infrastructure to support teaching, learning, research, and administrative processes. Robust networks, high-speed internet, and advanced computing facilities are essential. Universities should adopt learning management systems, virtual collaboration tools, and online platforms to facilitate remote learning, research collaboration, and knowledge sharing. Additionally, investments in emerging technologies such as artificial intelligence, big data analytics, and virtual reality can enhance the learning experience and promote innovation in the knowledge economy.

Academic and researchers staff training is a critical component of KE integrated in into university management planning. Universities need to develop, and retain a

diverse and faculty and staff research experts. This involves planning for training experts in emerging fields of research and innovation, fostering a supportive and inclusive work environment, and providing research professional development opportunities. Universities through integrating KE aspects in their broad and simple plans encourages faculty to engage in industry collaborations, entrepreneurship, and research for commercialization purposes. Moreover, universities should prioritize continuous learning and upskilling for faculty and staff to keep pace with the rapidly evolving knowledge economy. By investing in human capital, universities can drive innovation, enhance teaching quality, and establish a competitive edge in the knowledge economy.

In summary, the findings of the theme of integrating the knowledge economy into university management planning necessitates a multifaceted approach. This involves strategic planning and a vision that encompasses research and development, industry-academia collaboration, technological infrastructure, and continuous training programs—key areas of the knowledge economy that university management strives to enhance. By effectively incorporating these elements, universities can establish themselves as leaders in knowledge formation, innovation, and economic growth within the knowledge economy. The findings indicate that the university has been integrating knowledge economy initiatives into its plans, as reflected in various policies and interview statements from different managers.

#### **4.3 Internal university management organization of knowledge economy practices**

It was found out that organizing function entails activities and personnel in fostering knowledge economy initiatives in the university. The following key consideration emerged from the data and each sub-theme have been analyzed in terms of prospects and challenges as follows; 4.3.1 describes the administration of processes and procedures of KE activities, followed by how university management show organizing practices of KE related activities through research and innovations units, provision of KE ecosystem, operations for interdisciplinary research and communication and leveraging academic staff in different sections of 4.3.2.

#### **Table 4. 7: Organizing Knowledge Economy Initiatives**

**MAIN THEME: ORGANIZING KNOWLEDGE ECONOMY INITIATIVES**

SN	SUBTHEME	CODES
1.	<p>a.) Procedures for KE Initiatives such as: Sub-units for Research and knowledge exchange; collaborative administration</p>	<p>KE tasks broken down ;Alignment of administrative processes with policies (<i>interpretation of policies by managers</i>); Level of coordination between different level of management; copyrights to academic research; Economic returns to academic research and innovation; challenges of bureaucracy; poor connections between hods and senior managers ;majority of college principals do not have the qualifications related to the college specialization; some hods involve staff in budget planning but not implementation so you find money for research remains ;faculty members are not aware of the policies related to research like intellectual property rights ;poor attendance to the department meetings;</p> <p>Establishing partnerships with industry to support innovation is still a challenge especially at the department level</p>
2.	<p>Practices of KE initiatives such as R&amp;D, &amp;I; KE Resources; Interdisciplinary research such as</p> <p>b.) Resources</p> <p>c.) Research teams</p> <p>d.) Departmental meetings</p> <p>e.) Research Information systems</p>	<p>Publications; knowledge dissemination &amp;sharing platforms; Adaptability to technology: basic research versus applied research, startups; incubation of ideas; presence of technical staff in the laboratory</p> <p>Funding &amp;infrastructure; departmental sharing and communication</p> <p>Interdisciplinary nature of research &amp;projects; Inter-discipline relations; research teams; collaborative research</p> <p>However not conducted to a higher extent as emphasized in the policies</p>

MAIN THEME: ORGANIZING KNOWLEDGE ECONOMY INITIATIVES		
SN	SUBTHEME	CODES
3.	Channels for university KE related activities and outputs such as innovation and research	Applicability; emphasis on value to innovation; adoption of digitally enabled research; varying interest lowers practice of interdisciplinary research; academic staff mainly carryout research for promotion and most of them have not yet aware of how they can translate their ideas to money or other value; value of research and innovation connected /associated with promotion mostly; also, there is a challenge when a team brings proposals for a review hods do not review them thoroughly;  Marketing the university products through exhibitions; conferences; trade fairs
4.	Leveraging academic staff for innovation and research	Relevant & Practical trainings ( <i>such as building entrepreneurial mindset</i> ); Through promotion exercises; encouraging consultancy activities; Awards & incentives; academic expertise for cutting edge research; academic staff extensive connections and networks, attending conferences inside and outside the country,

#### 4.3.1 Organizing through Breakdown of KE administration procedures

Findings showed that administrative Processes can either enhance or limit execution of KE practices such as permission to attend conferences, funds requests, presence of sub -offices of research and knowledge exchange within the university and collaborative governance.

##### 4.3.1.1 Presence of sub -offices for research and innovation

Findings revealed that there are presence of research and knowledge exchange units are typically managed by administrative body within the university. This office oversees the coordination of research activities, ensuring that all projects align with the university's strategic goals and KE objectives. The management office run from the central administration to different offices at the school or college levels plays a crucial role in fostering an environment conducive to innovative research by facilitating access to necessary resources and support.

This study reveals that the presence of sub-offices, particularly in the context of research and innovation, is crucial for supporting the knowledge economy at the university. For instance, a respondent highlighted the importance of having a dedicated research coordinator at the office level, stating that they would be able to effectively manage all aspects of university functions.

...I am the but Head of Department and I could not deal with every aspect of the university function so i would say i really appreciate a research coordinator at the office who oversees issues of research at that level but also communicates with the central administration... (MM#6).

This finding suggests that decentralizing research management through smaller units can simplify tasks and encourage faculty research to grow. The respondent's statement underscores the benefits of having research coordinators at the school/college and even departmental level, who can oversee issues related to research at the sub-office level, thereby reducing some of the burden on the head of department. This insight has implications for university administrators, highlighting the importance of establishing effective organizational structures that support faculty research and innovation.

Furthermore, the data revealed that several respondents, including MM#8, MM#3, and MM#1, emphasized the importance of having coordinators in units such as knowledge exchange offices. These respondents highlighted the benefits of having coordinators who can facilitate the administrative procedures related to research and innovation, thereby enhancing communication on faculty research members.

Additionally, some of the lower managers on this issue noted that:

“We have a research coordinator at the college level and also department level and we get involved mainly through kukusanya taarifa za research (Collecting and documentation); and issues like organizing minor seminars for research at the college or department “(LM#5)

...I'm responsible for managing the day-to-day operations of the department research issues, things like scheduling meetings, tracking research output through number of publications for instance, and ensuring the research paperwork is in order. I don't have much input on other broad issues like managing research grants... (LM# 7)

...In the knowledge exchange office, we identify areas where our college and the neighboring institutions like the secondary schools call partner. I also

work closely with the faculty to identify areas where our research and services can facilitate knowledge transfer. It's a rewarding role, but basically, I am in the middle of the process, between central administration office... (LM#3)

Specifically, they noted that having coordinators can support administrative tasks, such as Preparing reports and documentation, providing administrative support to researchers. This finding suggests that the presence of coordinators in units focused on knowledge exchange and innovation can have an important impact on the research and innovation organizing practices at the university. In this context, while the coordinators may play a crucial role in facilitating the research process, they may not have the autonomy to shape the way of investigation or make decisions that have significant impact on the research since it seems the role of research coordinators have limited autonomy can be seen as primarily supportive, rather than strategic in nature.

#### 4.3.1.2 Lengthy administrative process

Some issues were raised in relation to administrative procedures especially linked to lengthy administrative procedures for approval and bureaucracy elements. This suggests that there are delays and inefficiencies in the process of obtaining approvals for research projects or attending conferences especially outside the country, which can be frustrating and slow down the research and innovation process. This can be particularly challenging for researchers who need to access resources, funding, or equipment quickly to advance their research.

The mention of "bureaucracy elements" also suggests that there may be complexities and red tape in the administrative procedures, which can be frustrating for researchers and make it difficult to get things done.

...The decisions for these research activities on issues of funding, ethics are made by the top organization themselves. We workers in a middle level are the implementers We cannot create any changes without approvals from the top management even if the idea is so productive.... (LM#4)

Other respondents such as MM#8, LM#3 LM#7 also noted that there is a long chain especially in the disbursement of funds especially for projects or consultancies where there is a % for the university. In the context of knowledge economy, this can be particularly problematic, as it can slow down the transfer of knowledge and innovation from academia to industry. Efficient administrative procedures are crucial for facilitating collaboration and commercialization of research findings.

Additionally, other respondents' statements included the following:

"There are a lot of governmental processes that we need to follow, which sometimes can be a barrier to innovation, it takes time to get things done sometimes " (MM#3)

"We need to simplify the process of approval and funding for research projects, I see it as complicated and time-consuming" (LM#2).

This further highlights the frustration and challenges faced by various managers on related issues of lengthy administrative procedures. They emphasize the need for simplification of processes such as approvals and funding process to facilitate innovation and research.

#### **4.3.1.3 Collaborative governance**

The findings also presented that academic leaders sometimes have collaborative leadership in terms of implementing KE activities. As one of the participants from the middle level commented:

“Most of the time you will find us three head of departments of the college meeting to plan and discuss matters such as organizing competition on research and innovation that will represent the college at the university level, sharing ideas on conferences (MM#6)”

But other respondents MM#6 MM#10, MM#13 pointed out that promoting proper coordination among different departments in a university, especially within the university units, is crucial for advancing Knowledge Economy (KE) initiatives and this could involve sharing of lab equipment others spoke of spaces for research.

Coordination also between different levels of management was mentioned to be an important factor in supporting knowledge economy. These findings underscore the interconnectedness of administrative processes, leadership dynamics, and organizational coordination in shaping the implementation of KE initiatives within universities. Addressing challenges related to fund disbursement, promoting collaborative leadership, and enhancing coordination across departments and management levels are essential steps towards fostering a conducive environment for knowledge creation, dissemination, and application within the university ecosystem.

#### **4.3.2 Organizing operations of KE Ecosystem**

The findings reveal that the university has implemented various structures and mechanisms to facilitate knowledge economy (KE) activities. These include research & innovation issues, allocation of resources, formation of research teams, Departmental meetings, and research information systems. The findings indicate that knowledge creation, dissemination, application and transfer at universities primarily occurs through various organizing structures at the university. This process is supported and driven by various mechanisms and strategies, as evidenced by statements from university managers and different university documents.

#### 4.3.2.1 Organizing knowledge production

Findings indicated that the university management in its organizing elements considers all kind of knowledge produced by research, either through the basic or the applied research. As the managers statements suggest:

“We push our faculty members to produce research and generate knowledge that is fundamental to the university and even the society” (SM #4)

In addition to basic and action research participants provided these statements;

....faculty members are conducting basic research mostly compared to action research that can be translate to commercialized products; however, the issue comes to translating research findings into commercial products or services can be a complex and time-consuming procedure especially in some disciplines in social science or education this translation is simpler with the science related disciplines .... (SM#4)

Another senior manager stated:

“When academic researchers think of conducting research they think of promotion and this could limit them to produce research is marketable or sellable.” (SM#6)

Conducting research for a long time has been for promotion purposes and this has been the case for a long time but now things are changing and research should go beyond this goal and translate to something of economic value to the society” (MM# 8)

While many researchers still focus on basic research, the university management is advocating for a balance with action research, which can be translated into commercialized products and services. This shift is crucial for promoting a knowledge economy that not only advances theoretical understanding but also drives economic growth. A participant pointed out:

“There is a need for more action research that can be directly applied and commercialized. While basic research is essential, translating findings into marketable innovations is equally important for our economic impact.”(SM#2)

The findings indicate that basic research focuses on fundamental scientific inquiry aimed at expanding knowledge and understanding within a particular field, often without immediate practical applications. In contrast, action research emphasizes

problem-solving and collaboration with stakeholders to address real-world challenges and effect positive change. While both types of research are valuable, action research has a more direct pathway to commercialization as it seeks to translate findings into practical solutions that address current societal problems. Furthermore, there is a perception among academic researchers that conducting research solely for the purpose of promotion may limit their ability to produce marketable or sellable research outcomes. This highlights the need to shift the mindset from a purely academic pursuit to one that considers the practical implications and market potential of research endeavors.

Findings showed that this is an indicator of the commitment to generating new knowledge, conducting impactful studies, and contributing to advancements in various fields. Example of data generated to explain this theme is as follows:

*The idea of Research Week was conceived in 2015 for the purpose of creating an avenue for UA researchers and innovators to showcase their research findings and innovations. Since then, UDSM has maintained annual culture of having a Research Week annually (Research and Innovation Week press release, 2021).*

In recognizing and motivating staff and students in research and innovation endeavors, outstanding researchers and innovators will be awarded various prizes in terms of cash, trophies, and certificates based on a well-established assessment and evaluation criteria.

All Junior Academic staff who have prepared proposals for possible submission are invited to apply for to the principal through the College Research and Publication Coordinator to participate in a workshop organized by the DRP, CIC for the JAS on 8<sup>th</sup> March, 2019. (Memo, UB, 2019).

Admittedly some issues were raised in ways organizing can limit the promotion of KE initiatives such as workload both by academic staff and administrative for instance one participant pointed:

*....We managers of the most of us are academic staff, outside the management role we have a teaching role as well as research role and this is the case also with the academic staff.... (MM#3).*

Other drawbacks included lack of cooperation between the senior staff and junior staff in issues of orienting junior staff into researchers and innovators

” I see the way senior staff treat the junior staff instead of actively involving them into projects and research activities they use them in marking scripts it is even worse when the senior is the supervisor of the academic staff... (MM#6)

This suggests that there are some challenges of cooperation between senior staff and junior staff in the university. Specifically, the managers feel that junior staff are not being actively involved in research projects and activities by their seniors, but instead are being used for other tasks such as marking scripts. This lack of involvement and recognition can be demotivating and lead to feelings of being undervalued and underutilized in the faculty /department. This may also suggest that the relationship between the senior and junior staff may limit opportunities for junior staff to develop their skills and knowledge as researchers and innovators.

Analysis indicate that Interdisciplinary activities are integral to the Knowledge Economy

As one of the respondents stated:

...Our university has strategically focused on fostering interdisciplinary collaboration and innovation which is the direction of the world today especially in academic institutions to remain active and visible. We have established dedicated research centers that bring together experts from different disciplines to tackle complex societal challenges... (respondent SM#4; October, 2022).

The emphasis on interdisciplinary collaboration in conducting research suggests a commitment to fostering production of research that is of valued. The research conducted within universities is purposefully oriented towards multidisciplinary approach that can generate holistic solution to societal problems. As read in one of the documents

... each individual research project should contribute to the overall goals and objectives of the University research agenda with emphasis on holistic, participatory and multidisciplinary approaches... (U-RPG&P, 2014).

An example of MA approach study: Building River Resilience through Integrated Approach under Climate Change: A Case of Msimbazi River, Dar es Salaam, Tanzania: Department of Water Resources Engineering, College of Engineering and Technology and Department of Sociology and Anthropology, College of Social Sciences

However, it was noted that implementing interdisciplinary research within the university have not been easy. One issue noted is the presence of rigid disciplinary boundaries that hinder collaboration across different fields. These boundaries often

stem from traditional academic structures and departmental divisions, which can create barriers to communication and integration of diverse perspectives. As one of the participant states:

“Implementing interdisciplinary research within the university has not been without challenges university have already structured units and departments into specialized disciplines which make it difficult to foster interdisciplinary research.” (SM#1)

This sentiment further highlights the structural obstacles that need to be addressed to promote more collaborative interdisciplinary research efforts. Moreover, interdisciplinary research requires a shift in mindset from both faculty research members and administration. Findings show that traditional academic pathways often emphasize specialization, which can limit researchers' willingness or ability to engage in interdisciplinary projects. This resistance can slow down the progress of interdisciplinary research projects and reduce the potential impact of collaborative research. Another participant expressed this challenge by saying,

“Many of our researchers are more focused on advancing their own disciplinary expertise, which can sometimes lead to resistance against interdisciplinary initiatives.” (MM#3)

Another participant stated:

“As you know people are different and there those academic staff that feel some problems can be solve by applying only their disciplines “(SM#1)

But also, some respondents (MM#6, MM#9) noted that lack of a specific office dealing with multidisciplinary research at the lower level of the university structure may be a drawback to this practice. While other participants (LM#2, SM#5, MM#8) expressed that the faculty researchers do not understand the practice of interdisciplinary research.

This indicate that implementing interdisciplinary research within the university has faced several significant challenges. One primary issue noted is that researchers often do not fully understand the practical methods of conducting interdisciplinary research. This gap in understanding may come from a lack of training and exposure to interdisciplinary methodologies. This lack of familiarity with interdisciplinary

approaches can inhibit the execution of collaborative interdisciplinary research projects that can be generated from multiple diverse disciplines in the university.

As one participant noted, “Many researchers are not trained to think beyond their specific field, which makes it difficult for them to engage in interdisciplinary work effectively.” (LM#2)

Moreover, the university lacks dedicated interdisciplinary offices within different units that could facilitate and support such research efforts. These offices are essential for providing the necessary infrastructure, resources, and administrative support researchers of interdisciplinary research. One respondent highlighted this by stating, “Without specific offices or structures for interdisciplinary research, it is challenging to coordinate efforts and manage the logistics of such research projects.” (MM#9).

The absence of interdisciplinary offices means that researchers are often left to manage these complexities on their own, which can be a significant barrier to successful collaboration. In summary, the challenges of implementing interdisciplinary research are multifaceted, involving a lack of practical understanding among researchers, the absence of supportive interdisciplinary offices, and researchers that have not yet fully embrace interdisciplinary collaboration. To overcome these obstacles, it will be crucial for the university to provide more training on interdisciplinary methods, establish dedicated offices to support such research, and promote the academic reward system to recognize and value interdisciplinary achievements.

#### **4.3.2.2 Organizing Resourcing of KE**

Responses from the interview suggested that universities are trying to update the research infrastructure however there are still ways the infrastructure could still be updated or renovated to fit the demands for conducting research and innovation required by the market or the industry. As one of the respondents suggested:

“Access to adequate equipment is essential for conducting effective research. However, there are times when we have to rely on other universities or institutions for necessary equipment that we lack in our department. In such cases, we send our students to these institutions, where they sometimes have to pay a fee. For

example, I know of one instance where students were charged 100,000 TZS per session to use the equipment. (MM# 5)”

The findings indicated that the university management support KE through a dual approach of funding that is, internal and external funding. However, findings indicated that the bigger portion of this support primarily comes from external funding. Despite this reliance on external sources, the university is actively working to generate its own funds to boost research output and enhance knowledge creation. As one participant explained,

“Mostly our funding for research and innovation projects comes from external grants and partnerships. These external sources are crucial because they provide substantial financial resources that we might not be able to generate internally.”(SM#5)

Another participant added, “While we do receive external funding, the university is also making efforts to develop internal funding mechanisms. This includes allocating a portion of the university's budget specifically for research activities and seeking donations from alumni and industry partners.” (SM#9)

Additionally, one document read: “Dependence of funding from one source such as the government could highlight the disadvantage in the weak financial sustainability and independence for the university research and innovation projects (U-Research Policy and guideline, 2023)

These findings suggest that while external funding remains a critical component of the university's support for KE, there is a clear and ongoing effort to strengthen internal funding mechanisms. This demonstrates the university's commitment to diversifying its funding sources to support research and knowledge creation. This dual approach aims to ensure sustainable research funding, thereby fostering a robust environment for research and innovation.

Furthermore, the study findings revealed that the university management has established comprehensive financial regulations to support Knowledge Budget (KE) initiatives, particularly in the context of externally funded research projects. These policies confirm that both direct and ancillary costs associated with research are covered. According to the university's policy on guidelines & procedures for

management of research projects & activities funded from exterior sources (2020), "Every cost must be covered including and not limited to indirect prices that will arise during the implementation of all superficially funded research projects unless grounds for exemption have been succumbed and accepted by the Vice Chancellor." (guidelines & procedures for management of research projects & activities funded from external sources ,2020).

Furthermore, the university's Research Policy and Operational Procedures, (2015) mandate that research grants and agreements must include a provision for indirect cost recovery. The policy specifies that "The amount of institutional fees retained within the Department and College/School/Institute that can be spent on remuneration shall not exceed 40% of the total amount." The policy further delineates that "The remaining 60% of the institutional fees shall be used in improving research infrastructure (acquisition and maintenance of research facilities, equipment and supplies) and environment (supporting research groups in proposal writing, publications, dissemination and outreach, capacity building, etc.)." (U-Guidelines & procedures for management of research projects & activities funded from external sources ,2020 and U-Research Policy and Operational Procedures, (2015).

The findings reveal a structured distribution of the external funds generated which ensures that various administrative levels within the university receive adequate funding to support their specific needs and functions. This shows that a significant portion of the funds is allocated towards enhancing research infrastructure and environment. This allocation highlights the university's strategic focus on investing in research facilities and capabilities through external grants. One participant noted, "Limiting the remuneration to 40% ensures that more funds are directed towards important areas such as acquiring new infrastructure, which benefits effectiveness in conducting research and maintaining an effective innovation environment" (SM#6).

Findings showed that despite the detailed funding policies and procedural requirements on external funding there are some administrative delays for instance the need for approvals from the central administration offices, and the fixed allocation percentages for indirect costs, can slow down the research process. One

participant noted, "Going through the administrative requirements can be time-consuming and frustrating." (LM#2)

However, the findings also noted that despite the university management's efforts in strengthening funding mechanisms, significant challenges remain. These challenges hinder the full realization of the university's potential in promoting research and knowledge creation especially concerning comprehensive and extensive research initiatives. As one participant mentioned the following issue;

...There is still a gap between the available funds and the actual financial needs of our research departments. While we do receive funding, it is often insufficient to cover all the funding needs, especially for large-scale projects...(MM#4)

Another participant echoed the following "The competition for external grants is intensive, and not all researchers have the skills or support needed to write successful grant proposals. There is a need for more training and resources to help our faculty secure these competitive funds." (SM#5)

Additionally, the findings also indicated that the university management provides financial support for academic staff to attend conferences, which is crucial for knowledge exchange and professional development. As outlined in the university policy, "The university shall support its academic staff in attending academic conferences by covering 30% of the associated costs."(U-Research Policy and Guideline,2023)

This underscores the institution's recognition of the importance of supporting academic researchers through funding activities such as academic conferences which help in fostering research collaborations and staying updated with the latest developments in various fields of research. However, some participants highlighted challenges associated with this funding policy. One of the middle level managers noted the following,

"While the 30% coverage is helpful, it still leaves a significant portion of the costs to be covered by the staff. For many, this can be a financial burden," (MM#4). This suggests that the current level of support, although beneficial, may not be sufficient for all staff members, especially those at lower salary levels or with additional financial commitments. Another member mentioned, "The process for obtaining this

funding can be quite tiresome. The approval process takes a long time, and sometimes the funds are not released in time for the conference, so this is a challenge "(LM#3). Moreover, another respondent pointed out, "It's great that the university provides some financial support to academic researchers, but there should also be additional incentives or full funding for those presenting their research at these conferences. This would encourage more staff to actively participate and contribute to the research community."(LM#4).

This highlights the administrative barriers that can impede the effectiveness of the funding support, but also emphasizes the benefits of enhancing the funding policy to fully cover costs for presenters, thereby promoting greater engagement and visibility of the university's research output.

Findings also showed that organizing KE resourcing involves technical support especially through the technical support staff in laboratories and ICT infrastructure that support the knowledge economy (KE). These resourceful personnel play vital role in maintaining and troubleshooting laboratory and ICT equipment, ensuring that research activities proceed without unnecessary interruptions. As such, one respondent said;

...The presence of technical support in laboratories ensures that our academic researchers operate equipment because we have the experts required to operate them effectively and the academics staff can carry out research activities without worrying about the equipment operations or even safety issues... (SM #8)

...On the same issue another respondent said; "Technical support staff are important for training our students and academic staff on the latest laboratory techniques... (MM #6)

It shows that technical staff ensure that researchers have access to and can effectively use the latest equipment. They assist with routine tasks such as sample preparation, equipment calibration, allowing researchers to focus on their core activities that leads to increased research productivity and a greater output of high-quality research. With more time for the academic researcher to focus on innovative thinking and complex problem-solving, researchers at the university become better positioned to develop new technologies, methodologies, and solutions. This fosters an environment of innovation, which is a key driver of the knowledge economy.

#### **4.3.2.3 Organizing through Information systems**

Technology that is friendly to execute KE activities Technology was recognized as a catalyst for innovation and efficiency, making it a crucial element in achieving Knowledge Economy initiatives in terms of creation, storage sharing. Its strategic use enhances research capabilities, facilitates interdisciplinary collaboration, supports dynamic curriculum delivery, and positions the institution at the forefront of technological advancements, aligning with the strains of the knowledge economy. Particularly, the findings highlighted Information Systems (IS) identified within one of the selected case studies in the research used in research as a critical aspect in facilitating research activities and promoting a Knowledge Economy (KE) within the university. One senior manager emphasized the importance stating: "Our Research Information System (RIMS) streamlines the process of managing research projects, providing researchers with necessary documents and ensuring transparency in research related issues administration" (SM#3).

In addition, findings showed that Research Information Systems (RIS) often include modules for tracking publications, citations, and research outputs that help in the management functionalities. For instance, as per one of the selected university websites, the Research Information Management System (RIMS) is described as "a web-based platform, serving as a comprehensive portal to oversee research-related activities within the university. It includes modules for various functions such as project registration, research management, maintaining a research repository, facilitating UDSM grant applications, managing research clearance processes, and vetting publications.

This system streamlines the research process by providing researchers with a centralized platform for submitting proposals, managing projects, and ensuring compliance with university guidelines and standards. Therefore, RIS serve as comprehensive platforms for managing and tracking research projects, funding, publications, and collaborations.

#### **4.3.2.4. Organizing through Partnerships and collaborations**

Findings indicated that partnerships and collaborations established in the university between organizations, academia, and industry are important for driving innovation.

This entails joint research initiatives, technology development, or joint marketing efforts. While the partnerships can also help to share resources, expertise, and risks, allowing organizations to leverage each other's strengths and address weaknesses.

Example of statements from respondents:

...Collaboration with industry partners allows us to access cutting-edge technology and expertise that we might not have. This has significantly accelerated our research projects."(SM#2). Another manager highlighted the benefits of joint initiatives, saying, ...Working with external organizations has opened new avenues for funding and resources, which are essential for our innovative projects. For instance, our collaboration with Stockholm university enabled the strengthening of our university research management through capacity building to the staff and supportive environment for the research management ...(SM#1).

Other respondents (MM#6, MM#3, MM#2) highlighted that partnerships can also involve various forms of support for research and innovation. This includes inviting external experts, both local and international, to speak at conferences and provide training. As one respondent noted, "Our unit is holding the 50th annual conference this year on Adult Education, and we have invited speakers from within and outside the country, as well as other guests" (MM#7). Additionally, a press release from 2019/2020 from one of the university emphasized the university's efforts in partnership by conducting seminars on entrepreneurship and inviting facilitators for the seminars from various related institutions, including the Tanzania Bureau of Standards (TBS), Tanzania Revenue Authority (TRA), Business Registration and Licensing Agency (BRELA), Small Industries Development Organization (SIDO), Tanzania Trade Development Authority (TANTRADE), and Kinondoni Municipal.(Press Release, University A,2020).Further in one of the university strategic plan, it targets 20 new collaborative partnerships with industry to commercialize applicable research findings by June, 2025. (Five year rolling action strategic plan 2020/21-2024/25)

These partnerships and collaborations are crucial as they bring diverse expertise and perspectives, enriching the research and innovation landscape. By involving external experts and partnering with various institutions, the university enhances the quality and relevance of its academic and investigation activities. This collaborative

approach not only fosters innovation but also strengthens the university's role in addressing real societal challenges and contributing to the knowledge economy. Overall, the findings highlight the importance of collaborative efforts in the academic and industrial spheres to drive innovation, share resources, and maximize the potential of research initiatives.

#### **4.3.2.5 Organizing through Incubation Programs:**

The findings illustrate that incubation programs can play a vital part in supporting early-stage startups and entrepreneurs by providing them with access to resources, mentorship, and networking opportunities. Incubation programs can help startups to overcome the challenges they face during the early stages of development, such as access to funding, talent, and market validation. By providing a supportive environment, incubation programs can help startups to develop their ideas, build their teams, and scale their operations.

...Our different incubation program has been instrumental in helping us to refine our product idea, and secure funding especially for students and graduates. Example of one of the programs included the contract incubator program that dealt with engineering graduates and the program is 3 years.... (SM#10)

As outlined further in one strategic plan of a university, the university aimed to establish a multidisciplinary incubation center, which was successfully set up by June 2018. This center has been providing multidisciplinary incubation services at since 2016. Additionally, the university facilitated the establishment of spin-off companies to engage in business with strategic partners. By December 2018, one spin-off company was established for this purpose. Notably, student companies such as Guavay Company Limited, founded in 2015 to produce and market industrial-grade NPK organic fertilizer pellets, and Bio Food Tech Enterprises, also recognized in 2015, to advance a unique brand of probiotic and logically nutritious products, were launched as part of this initiative.

The findings from the strategic plan indicates the university's commitment and proactive steps to fostering innovation and entrepreneurship through the establishment of multidisciplinary incubation centers and spin-off companies. This

approach is designed to support graduates in translating research and innovative ideas into viable commercial ventures.

Despite these successes, some respondents feel that the academic research do not receive enough support compared to what is provided to these incubation programs. This shows that One participant expressed,

...While the incubation center is a great initiative especially for the students there is a need to have more support for faculty-led research projects that have the potential for commercialization. My academic staff in the faculty often feel unsupported and lack the necessary resources to advance their research projects... (MM#2).

However, to fully harness the potential of these programs, there needs to be a balanced support system that also addresses the needs of academic researchers. This will ensure that both student-led and faculty-led innovations are adequately nurtured, ultimately driving the university's role in the knowledge economy.

Other participants from the education and social science units claimed that Incubation programs within the university may prioritize research ideas and projects with clear business and commercial potential, sidelining fundamental or exploratory research. We need a more inclusive approach to innovation. For instance, one of the respondents mentioned "In this wide field of research every faculty has unique strengths and ideas that can contribute significantly to different areas if given the chance" (MM#7). This narrow focus might lead to discourage long-term, high-risk, high-reward research projects that don't have immediate market applications but are essential for scientific and technological advancement.

#### **4.3.3: Organizing Communication of research and innovation output**

The findings indicate that the university employs a multi-channel approach to communicate university research output. This approach utilizing various communication channels such as journals, policy documents, social medias exhibitions, trade fairs, conferences, and external consultancies. This strategy ensures the broader reach and engagement of research across different stakeholders. Different participants noted the following:

...We use multiple channels to ensure our research reaches a wide audience. By publishing in journals, presenting at conferences, and participating in

trade fairs, we can engage with both academic peers and industry professional... (MM#1).

...Disseminating research involves showcasing our work at various exhibitions and trade fairs, organized both internally by the university events and external ones. For instance, we participate in the annual Nane-Nane Day, (which is a market day in the country). By sharing our innovations at these events, we demonstrate our research and also have the opportunity to attract potential collaborators and investors....(SM#5)

These channels help bridge the hole between academia and real-world implementation and play a crucial role in translating our research into practical applications. These events provide opportunities for networking and potential commercial partnerships for the university. Analysis also indicated that university managers embrace use of the social media, indicating how in this digital age, social media have become invaluable tools for publicizing research. Findings noted that among the digital platforms like, YouTube, national tv channels stands out as the most common audio-visual tool used for this purpose.

...I strongly encourage the use of WhatsApp group as a platform for sharing and disseminating our research outputs. It's a convenient way for staff to share links to their published papers, making it easier for others to access and stay informed about our latest research.... (MM#6)

...We have seen benefits from using social media especially you-tube channel to publicize our research. These platforms allow us to reach a broader audience quickly and effectively...(SM#4).

Other forms of channels that were mentioned included university websites and presentations which play a role in making research findings accessible to various stakeholders. As one participant pointed out, “Presenting research at international conferences help a researcher to disseminates findings and also receive relevant feedback and enhance global connections with other researchers.” (LM#6)

Further analysis showed that the university management recognizes the importance communicating research output through the use of open access in promoting transparent and accessible scientific knowledge. For example, one of the respondents noted that” The university hosted a workshop organized by the Association of African Universities (AAU) on Advocacy and Capacity Building in Open Access (OA) and Open Science (OS)” (SM#5, August,2022).

However other respondents at the middle level claimed that still some academic staff feel reluctant in publishing their work in open access due to the fact OA do not link with recognition and prestige. As one of the respondent states

...I personally understand the importance of using open access but some of my academic staff worry that or let me say have concerns on the recognition and most still prefer the tradition way of publishing in the renown journals.... (LM#4, November, 2022).

However, some participants argue that publishing within OA can increase the visibility of the university research as one of the respondents stated:

...Publishing our research in open access journals I feel it increases visibility. It allows our findings to be accessed by many people, including researchers, industry partners, and policymakers at national and global level. This enhances our reputation but also fosters greater collaboration and knowledge exchange...(SM#2)

"When our research is published in open access journals, it is more likely to be noticed by potential funders. This can lead to new funding opportunities, which are essential for expanding our research activities. Personally, I encourage OA publication" (SM#5)

This shows that managers advocate for Open access publishing that can act as a catalyst for collaboration both locally and internationally, enhancing the university's role in the national and global knowledge economy. By making research widely accessible, the university attracts partners and collaborators from around the world, fostering a more interconnected research environment. Additionally, publishing in open access journals can help researchers attract more funding, which is vital for continuous growth and innovation. This increased funding supports the development of new projects and initiatives, further driving the university's contributions to the knowledge economy.

Other participants such LM#4; LM#2; MM#6; MM#5 statements further showed the importance of OA publishing to advance KE like academic recognition; university rankings, and even informing policy making. Open access publishing facilitates the direct application of research findings in practice and policy-making. This is important for ensuring that the university's research has a tangible impact on society, aligning with the goals of a knowledge economy. The impact of open access on citation rates and academic recognition is significant. Higher citation rates can

improve the university's ranking and reputation, which are important factors in attracting potential and beneficial partnerships.

Findings revealed that internal university journals play a pivotal role in this strategy, as they serve as a primary channel for disseminating scholarly academia work. Publishing in the university journals allow faculty researchers to connect with experts and practitioners. One of the respondents stated,

"Our university journals produced by different units and department is a resource for disseminating our own research and external research. It is a means to make findings accessible to the academic community but also attracts attention to partners" (SM#1).

Furthermore, the internal university journals provide a platform for peer-reviewed, quality research, which is essential for maintaining academic standards and ensuring the reliability of published work.

Findings revealed Internal smaller Meetings for instance the departmental levels play an essential aspect of sharing and dissemination of academic investigation in the context of a knowledge economy. These meetings provide a platform for researchers to briefly share their latest findings, discuss ongoing projects, and receive feedback from colleagues. By doing so, the meetings encourage collaboration, innovation, and the development of new ideas. For instance, one respondent mentioned,

"In our department, we organize meetings and among the agendas is to facilitate the exchange of ideas and information among staff members on research issues" (MM#8).

Internal meetings which are interactive and inclusive therefore can be strengthened to support the development of a culture of innovation and creativity within university institutions. By fostering a culture of knowledge sharing and collaboration, they can drive and improve faculty members research outputs. During these since the members are working at collegial level and familiar to each other knowledge can freely be shared without members feeling intimidated, and staff members are empowered to build upon each other's work allowing everyone to participate and contribute to the discussion.

#### 4.3.4 Organizing through Leveraging academic staff for KE related activities

Findings indicated that the university is using its professors and researchers to come up with new ideas, make discoveries, and find solutions to important problems, utilizing the expertise of faculty members to generate intellectual property, conduct research, and engage in partnerships that result in innovations, publications, and collaborations with industry.

The findings reveal that the university harnesses the expertise of its academic staff in driving knowledge economy-related activities. It was revealed that faculty members play a crucial role in generating new ideas, making discoveries, and finding solutions to societal problems. Their expertise is instrumental in producing intellectual property, conducting research, and forming partnerships that lead to innovative outcomes, publications, and collaborations with industry stakeholders. In emphasizing the significance of leveraging faculty expertise, the findings showed the role of academic staff in driving knowledge economy (KE) initiatives within the university. As one participant stated,

...Our academic staff and researchers 'ndio wanaongoza '(are at the forefront) of generating new ideas and making discoveries at the university since they have the necessary equipment and aid from the university, which can facilitate their research to be extensive and valuable.so We rely on the expertise of our faculty members to conduct research and form collaborations.... (SM #3)

...Our department has made efforts to foster a culture of knowledge sharing through our weekly research seminars, where experts present on a specific topic and facilitate a dynamic discussion. This allows staff members to draw connections between their own projects and the latest research. For junior staff members in particular, this opportunity to learn from peers has been particularly valuable, enabling them to stay up-to-date and gain insights that inform their own work....(MM# 6)

This highlights the invaluable contribution of academic staff in advancing knowledge creation and innovation through their involvement in producing valuable knowledge. It further reflects the crucial role played by academic staff in forming strategic partnerships and collaborations that contribute to the university's research output and innovation ecosystem. In addition, to leveraging the staff the university provides training and capacity-building programs to equip staff members with the skills and knowledge required to succeed in a rapidly changing knowledge economy. The findings illustrated that training programs that university staff attend is both within

the university and outside the university focusing on topics such as research methodology, data analysis, and use of software in research, among others. By providing these opportunities, the university enables their staff members to stay up-to-date with the latest trends and best practices in their field, thereby enhancing their competitiveness and ability to contribute to the growth of the economy.

Further evidence from the findings, supported by university documents, illustrates how the university leverages its staff expertise to promote the knowledge economy. The university's Five-Year Rolling Strategic Action Plan 2020/2021-2024/2025 (FYRSAP, 2020) highlights several initiatives aimed at building the capacity of academic staff. Specifically, it mentions, "At least 60 academic staff members are taught how to develop research proposals every year. Some members of the academic staff were trained on writing Research Proposals during the Academic Years 2015/16, 2016/17, and 2017/18 respectively." The university documents further emphasize support for initiatives that enhance the visibility of the university as a research institution and a development partner through their staff. For instance, the documents state, "The University continued to support academic staff to attend academic conferences through different sources of funding. Staff are encouraged to register in Google Scholar and use UDSM mail. Research grants are provided through the competitive University call for proposals, and research opportunities are widely disseminated." Moreover, Findings demonstrates the university's commitment to encourage their researchers to showcase and utilizing their expertise outside the university. As the document notes, "The staff members' capacity to carry out consultancy activities is publicized widely twice a year during the Industrialization exhibitions that are held annually." This highlights the systematic strategies the university takes to ensure that staff are well-equipped and visible in their research in their respective disciplines.

The findings also revealed that the university leverage its staff through the peer systems .It was find out that peer systems facilitate knowledge sharing .In the context of university these peer systems include peer to peer mentoring where the senior can mentor the juniors and paired with more experienced colleagues to co-author papers, share responsibilities, or provide mutual support; research seminars that bring together experts to present their work and facilitate discussions among peers, allowing for knowledge sharing and cross-pollination of ideas; collaborative

projects where colleagues work together on projects, sharing skills and expertise to achieve a common goal. This is evident from one of the respondent statements:

...Our department has implemented a way of responding to research calls that relate to our field by forming teams in the department comprising of 4 to 6 members with including assistant lecturers, lecturers, senior lecturers and even professors' staff and a PhD holder is the chairperson to this group, to write high-quality proposals in response to funding opportunities. The groups are responsible for developing the proposal for the call. Funding the process involve with a first-come, first-served approach this is to ensure timely submission.... (MM#9)

This peer system approach allows the university management to capitalize on emerging opportunities and increase chances of securing funding for innovative research projects at the university by leveraging the staff collective strengths. Moreover, the findings emphasize the tangible outcomes of faculty engagement in KE activities. One participant noted,

...Through the efforts of our academic staff, we have seen tangible outcomes such as intellectual property generation, research publications, and collaborations with industry partners, for instance, Investigation of cashew nut farming management has led some staff of the university to come up with Mitigation measures to control the plant pathogens and establishing nutrient management for cashew nut farming this is good for the nation taking into consideration cashew nut production is high in Tanzania.... (SM#5).

This indicates that academic staff's involvement not only drives knowledge creation but also leads to concrete outcomes with potential societal and economic impacts.

Further findings indicate that the university management face some challenges in the process of leveraging the staff due to the staff having extra jobs outside the university. This external engagement often lessens their full participation in academic research and related activities.

One participant stated, "Many of our academic staff are involved in consultancy work or other jobs outside the university. This means they have less time to dedicate to their primary roles here of research work " (MM#3). Another respondent stated, "It's difficult to get staff fully committed to research projects when they have other opportunities outside the university that limit even their presence in the offices, so university need to think of better incentives and support for research activities to keep staff focused and motivated " (MM#5). This reflects the financial motivation

driving faculty members to seek additional employment through external commitments, often at the expense of their research responsibilities at the university and it may compete with the time and effort required for university research and innovation. This results to the impact of divided attention on the overall research productivity and innovation potential of the university.

In conclusion, while the university leverages its staff expertise to promote the knowledge economy, these efforts are challenged by the external engagements of its academic staff. These challenges indicate a need for the university management to create more attractive and supportive conditions for staff to prioritize their academic roles. This suggests that improving internal support structures, financial incentives, and professional development opportunities could mitigate the allure of external jobs.

#### **4.3.5. Summary of the findings**

The university has made notable efforts to organize structures that support the knowledge economy. Through various organizing initiatives such: establishing of Research Information Systems (RIS), incubation centers, build academic staff capacity and improve the visibility of the university research and innovation output through different communication media among others. However, there are evident challenges that need addressing such as Improving interdisciplinary research support, streamlining administrative processes, provision adequate resources, strengthening trainings seminars, workshops topics on current issues such as writing fundable projects, entrepreneur mindset among researchers and so on, and fully leveraging academic staff expertise to support university research and innovation are essential steps for the university to effectively promote a knowledge economy.

#### **4.4. Leading function in promoting Knowledge Economy**

Results revealed that visionary leading, building strategic Relationships, Empowering individual and group innovativeness, adaptive dynamic (personal initiatives /personality) and positional leading (from the office or position) displayed the strongest role of how leading support KE initiatives in universities as described in the following sub sections:

#### 4.4.1 Visionary Leading

The findings indicate that managers within Tanzanian universities exhibit a forward-thinking approach, recognizing the need to transcend traditional boundaries in research and academia. This forward-looking perspective is crucial in aligning strategic plans with the evolving landscape of the knowledge budget. Leaders understand the importance of setting long-term goals that drive research and academic endeavors towards impactful outcomes.

Findings indicated that leading indicates that leaders within the university context embrace a forward-thinking perspective especially the senior managers who are directly involved in the strategic plans of the university. As respondents commented that:

....because of the nature of today's world requires even us academic leaders to think beyond in terms of where we want our research to go "our strategic plans are designed not only to address current challenges but also to anticipate future trends and opportunities in research, the university has also established entrepreneurial and innovation centre ... (SM#1).

...I would like to think that it is through strategic initiative by our leaders that my college is benefiting from the partnerships we have established and for instance, we were able to acquire the additional of buildings in our college... (SM#7).

Further evidence as indicated in one of the university documents, the Fourth University Rolling Strategic Plan (2021/22-2025/26), state that 72 academic staff members attended training on Strategic Academic Leadership and Management, reflecting the institution's commitment to building leadership capacity. Also, another statement of the university vision document, stated It will be underlined by such distinguishing characteristics as visionary leadership (university vision statement,2012). This proactive leading is crucial for positioning the university at the forefront of the knowledge economy.

Findings indicated that leading which is visionary supports relationship-building with external partners which is important element in fostering knowledge economy initiatives within universities. Additionally, the university managers recognized the necessity of leaders being aggressive in establishing strong connections with various investors, including industry partners, management agencies, and other academic institutions. These relationships not only facilitate funding opportunities but also

enable knowledge exchange and resource sharing, ultimately enriching the university's research and innovation endeavors. As one senior manager noted,

...University managers actively seek out and build partnerships with key players in the industry and government sectors that will benefit the university even in future. These relationships are built based on the vision and goals of the university... (SM#2).

Another respondent emphasized the importance of visionary leading and establishing external collaborations, stating, "Our leadership ability to envision beyond the present times enables the university to build strong and meaning relation with the external partners which involves negotiating and 'kuleta hoja amabazo wataalam wa nje watazipokea n kujenga mahusioano na chuo' (produce proposals that will attract and enable the outside expert to accept and build relationship with the university)" (SM#1).

This kind of leading will enable universities to innovate and conduct cutting-edge research that is significantly enhanced by partnerships through gaining access to new ideas, technologies, and funding sources. This illustrate the critical role that visionary and proactive leadership plays in fostering a thriving knowledge economy within universities. By prioritizing and cultivating external relationships, university leaders can secure the necessary resources and support to drive forward their research and academic missions.

#### **4.4.2 Leading through Empowering**

Findings revealed that leadership that is empowering enable individuals and groups to unleash their creative potential and innovation capabilities. Academic leaders emphasize the importance of encouraging staff to explore research areas of their interest, fostering a culture of autonomy and exploration. The findings suggested that university leaders can empower staff by creating an environment that encourages academic freedom and exploration. As one respondent noted, " I have realized when academic researchers are given the freedom to pursue their own research interests, it boosts their motivation and leads to unexpected and innovative outcomes" (MM#4). This sense of autonomy is crucial for fostering a vigorous research culture where new ideas can flourish.

Empowering leaders also recognize the importance of providing financial resources to support research initiatives. One senior manager stated, "Our ability to innovate is directly tied to the availability of funds. By securing and allocating resources specifically for innovative projects, we can significantly enhance our research output, for instance in our university anyone who publishes in a peer-reviewed journal is awarded 1,000,000Tzs this motivates staff to research and publish more" (SM#2). Financial support is essential for translating creative ideas into tangible research outcomes.

This is also linked to rewarding and recognizing the efforts of academic researchers. Recognition empowers academic researchers since it acts as an incentive and a benchmark for other staff members to be encouraged to move towards innovation. As one participant reiterated: "We acknowledge our staff achievement of research and innovation activities through awards and promotions during meeting, by announcing in our unit websites and even wats app group" (SM#4). This shows that recognition and reward do not motivate the staff but also sets a standard for excellence and innovation within the institution. This indicated that university leaders should strengthen awards and recognition that are associated with innovation and research that have a direct impact in the society. By awarding the application of research to the societal relevance and practical applications it can validate the tangible benefits of investing in university innovations. This helps to build trust with stakeholders, raises awareness about the importance of research funding and encourage to stimulate academic researchers to conduct more valuable research that benefits the broader society.

Additionally, several participants MM#8, LM#4, LM#6, LM#2 highlighted the importance of open communication and feedback in encouraging knowledge sharing among academic researchers. They emphasized that when staff feel heard and valued, they are more likely to be free share their ideas, expertise, and experiences with others without feeling judged. For instance, one respondent stated:

...One of the things that I have tried to do is create a culture of open communication especially during meetings, departmental research seminars this is to encourage members to speak up, to share their ideas, concerns, and even critiques .... (MM#8).

This environment of openness encourages academics to discuss their work and explore potential collaboration with others and also, they are more confident to participate in discussion and share their innate knowledge with others. As another participant echoed the following statement:

...As managers in an academic institution we want academic staff to disagree with each other, but constructively of course this is how you produce quality and substantial research through encouraging openness. That is how we grow as individual researchers and as a team...(LM#4).

Additionally, transparency in communication was mentioned as a leading strategy that builds trust among staff members, and essential for effective collaboration. One participant from the low-level management mentioned, "When the central administration leadership of the university is transparent about decisions and policies, it builds trust and encourages us at the lower level to be more open in sharing our views and concerns on policies related to research " (LM#6). Transparency is a fundamental component that empowers individuals to be more proactive and this provides a more effective environment for KE.

Feedback was also seen as a crucial component for the academic researchers to feel empowered. Participants emphasized that regular feedback helps staff feel appreciated, and motivated to contribute to knowledge sharing and is crucial for the continuous improvement of research activities. A respondent stated, "when staff members receive feedback promptly on issues regarding issues such permission to attend conferences, approved funding on their research proposals and ongoing projects it really encourages them " (LM#4). This shows that feedback from management provides valuable insights that can improve the quality and relevance of research, it is also important for maintaining high morale and fostering innovation among academic researchers.

However, the findings also indicated that leaders experience challenges in this empowerment leading. One manager stated, "I have not been able to connect with my staff on one-on-one; I think this could have strengthened individuals to participate more in research this happens when the individual seeks me personally. "(MM#10). This highlights the difficulty in providing personalized, individualized support and mentorship for researchers, particularly those who may be struggling

with personal or professional challenges. However, the findings also recognize the potential benefits of taking the time to understand individual's concerns and address them which can create a more productive and engaging research environment. This shows that understanding in leading, as well as the need for managers to be aware of the broader well-being of their team members is important to support KE initiatives.

#### **4.4.3 Adaptive Leading:**

Effective leadership in promoting knowledge economy initiatives requires adaptability and dynamism. Leaders must be flexible in their communication strategies, accommodating diverse preferences and technological capabilities among staff. Embracing new technologies and responding to changing circumstances are essential for staying relevant and effective in driving knowledge economy initiatives forward. For instance, leaders recognized that staff members have different communication preferences and technological competencies. As one respondent stated .... We have to understand that not everyone is comfortable with the same methods of communication. Some prefer emails, others face-to-face meetings, and some are more comfortable with other ways since there are staff of different age groups. For communication for example I tend to use emails, normal calls, wats app so to accommodate these differences to ensure everyone is informed...(MM#2). By being mindful of these preferences, leaders can foster a more inclusive and collaborative environment.

Findings reflected that adaptive leading entails university leaders responding to changing circumstances. One respondent stated "The academic field is constantly evolving, we need to be competent to adapt quickly and effectively in reply to new challenges and opportunities especially in research and innovation, universities are now competing for funds, and leaders should seek out new knowledge and skills to stay relevant" (MM#8). This includes adapting to shifts in funding landscapes, regulatory changes, and emerging research trends. This indicate that for university leaders to remain effective, they need to continuously update their strategies and approaches in driving knowledge economy initiatives. This ongoing learning for leaders and adaptation are critical for sustaining long-term success and can be attained through capacity building and training.

Findings also indicate that flexibility and adaptability entail leaders also embracing informal settings that enable building strong relationships with the staff, but also for driving innovation and growth in the university. Knowledge economy, involves accessing information and ideas, being open to new perspectives, approaches, and ideas is critical. It allows leaders to be more approachable, relatable to their staff which are essential for building trust and fostering open communication. As a respondent commented,

... I do not fix myself to traditional, formal settings like formal scheduled meetings or scheduled appointments to have talks or share ideas with staff. But i also seek out informal opportunities to connect with my department staff members, whether it's during a casual lunch break, a walk around the office corridors, or even a quick chat. By doing so, I am able to stay connected with my staff on a personal level...(MM#9).

This kind of flexibility in leading enables the leader to create a safe environment for the academic staff can where they feel comfortable sharing their thoughts, ideas, and concerns and such environment encourages collaboration, creativity, and knowledge sharing among members. These informal conversations often lead to breakthroughs and new insights that might not have emerged in a traditional meeting setting. By embracing this kind of flexibility, the leaders are able to tap into the collective knowledge and expertise of academic researchers and drive innovation.

However, findings highlighted challenges related to adapting to new technologies. One leader mentioned, ...I am not very conversant with the technology and the systems, but I have appointed someone competent to help me with these issues. Nowadays, most tasks, including approving staff requests, are computerized and done online...(MM#5). This illustrates the challenge of technological adaptation that university leaders face. As universities increasingly rely on digital platforms for administrative and academic processes, leaders must ensure they can navigate these systems effectively. Recognizing their limitations, some leaders delegate technological tasks to more competent individuals to maintain efficiency and effectiveness in their roles. This approach not only highlights the importance of technological competence in leading KE initiatives.

#### 4.4.4. Collaborative Leading

In the context of promoting knowledge economy initiatives within universities, findings show that collaborative leading plays an important role. This leading emphasizes partnership, teamwork, collegial work, delegating, and the collective pursuit of shared goals, which are crucial for fostering innovation and driving academic and research excellence. As Respondents stated the following:

...I work collegially with my team, often delegating the office tasks. For instance, when I am not around, I delegate someone to the office, and it can be any staff member who is available and capable... (MM#2)

...When we work together as a team, we can produce something much better than we could on our own, when for instance organizing events or conferences, I always involve various staff and even other departments and getting different opinions from people often generate more productive outcome.... (MM#4)

Collaborative leading also promotes collaborative thinking, which can lead to innovative solutions to complex problems. As one respondent stated " I normally maintain open lines of communication across different departments, and with that I find it easy to collaborate with other head of departments in the unit, which enriches our department activities one being the research activities"(MM#7). This shows that collective expertise and resources in leading support KE initiatives by bringing diverse perspectives and expertise together, leading to more comprehensive and innovative findings. However, as much as collaborative leading is implemented within the units, findings indicated that collaborative leading should be enhanced to include collaboration beyond immediate units and extend it to other departments in different units of the university. Therefore, there is a need to push for more cross-departmental collaborations with other units. Cross-departmental collaboration leading can bring in new perspectives and expertise that might not have been there in a given unit. Leaders need to facilitate and encourage these broader collaborations.

Additionally, collaborative leading fosters intellectual stimulation and creativity among academic researchers in the university by creating an environment where diverse ideas and perspectives are valued, shared, and built upon. As one participant stated, " During the seminar discussions and presentation at the department we

normally do not have the same person chairing discussions we select different staff members regardless of whether they hold a PhD or a master and this might encourage one to be more critical and stimulate their thinking “(MM#6). This practice encourages a broader range of perspectives, fostering a more critical and stimulating environment since everyone a chance to lead and contribute, which can really enhance academic staff critical thinking and engagement. This approach also democratizes the discussion process and helps in bringing out diverse viewpoints, making the research discussion sessions more enriching and intellectually stimulating.

#### **4.4.5 Positional Leading:**

Findings illustrated that leading by university managers utilizes formal authority to support knowledge economy initiatives by transactional means, including making decisions, policies, and setting time frames that facilitate the integration of knowledge economy practices within the university. This type of leading involves aligning promotion criteria with the university's goals, issuing directives to meet specific objectives, and ensuring compliance with established guidelines. Positional leadership provides structure and direction, guiding the university towards its objectives in the knowledge economy landscape. To this, one respondent highlighted, "Our university has issued that all faculty members are aware of the promotion criteria, which include among others research publications, books published" (MM#8). Another participant reiterated, "I don't have to push staff too hard to publish because the university's common guideline states that promotion is based on publications, and each staff member has to submit their publications through the OPRAS system." (MM #2). This means that the university issue structured directives for faculty members to meet research and innovation goals and this alignment helps keep everyone focused on the university strategic goals.

Additionally, university documents specify detailed criteria for academic promotions based on scholarly output, including journal papers, books, and patented materials. These criteria show how transactional leading is implemented through formal policies that guide and assess the performance of academic staff. For example, Guidelines & Procedures for the Assessment of Academic Staff Performance, 2020 (U-GAASP, 2020) states; "Journal papers from diversified sources should contribute at least 35% for promotion to Senior Lecturer/Senior Librarian, 40% for promotion to

Associate Professor and 45% for promotion to Professor”. The guidelines serve as a transactional tool where meeting the specified criteria results in rewards, such as promotions to higher academic ranks. For instance: “Patented material in the relevant specialty registered by a duly recognized Patent Office will be considered for promotion to the ranks of Senior Lecturer and above, as long as the patent is reviewed and vetted by a respected senior academic in the relevant field/discipline.” This aligns with the positional leading through the means of transaction of using rewards (e.g promotions) to motivate higher performance.

Furthermore, ensuring compliance with established university guidelines is a crucial aspect of transactional leading involving monitoring progress and provide feedback to academic researchers. "When the situation necessitates for it for instance if a staff member does not deliver, I simply write a formal letter to the staff, setting a deadline for results. If there's a direct order from higher up, such as staff need to attend a seminar, I pass it along to them." (MM #4). Additionally, this leading through formal authority is evident in policy implementation. As one leader explained, "We have set policies that require departments and units to report their progress on research related quarterly. This accountability ensures we are moving in the right direction." (SM#3). Formal authority allows university managers to enforce these guidelines uniformly across the university and this can provide a stable and predictable environment for research and innovation.

Findings revealed that utilizing formal authority in a transactional manner is essential for supporting knowledge economy initiatives. This leadership ensures that decisions, policies, and time frames are effectively integrated into the university's operations, thereby aligning individual efforts of research and innovation activities with the institution's broader goals. On the other hand, focusing on leading through formal authority can have limitations. For example, it may not foster creativity or innovation, as academic researchers may feel constrained by strict guidelines and expectations.

#### **4.4.6 Summary of Leading Function in Supporting Knowledge Economy (KE)**

The findings revealed that visionary leading within the university context is characterized by forward-thinking perspectives, particularly among senior managers directly involved in strategic planning. This supports relationship-building with

external partners, which is crucial for fostering KE initiatives. Furthermore, findings indicated that in university leader’s adaptability and dynamism is important in promoting KE initiatives, through being flexible in communication strategies, embracing informal settings, and accommodating diverse preferences and technological capabilities among staff. For instance, embracing new technologies and responding to changing circumstances are essential for staying relevant and effective in driving KE initiatives forward. Academic leaders also emphasize the importance of encouraging staff to explore research areas of interest, fostering a culture of autonomy and exploration. Collaborative leading fosters intellectual stimulation and creativity among university researchers. By working collegially and delegating responsibilities, leaders can encourage critical thinking and innovation. However, collaborative leading at the university should extend beyond individual units to promote broader interdisciplinary collaboration. While the university demonstrates various leading functions such as visionary, adaptive, empowering, collaborative, and positional leading to support knowledge economy initiatives, there remains a need for continuous improvement. Balancing the different leading approaches and fostering broader collaboration across departments and units at the university to enhance the effectiveness of these initiatives in promoting a strong KE.

#### 4.5 Internal Control mechanisms in supporting Knowledge Economy

Findings showed that control mechanisms for monitoring knowledge economy initiatives in a university involves: setting up performance metrics such as knowledge production output, participation in knowledge sharing platforms, ranking processes; and tracking systems for assessments; review committees; reporting; and frequency.

**Table 4. 8: Internal Control mechanisms in supporting Knowledge Economy**

SN	SUB-THEME	Examples of Codes
1.	Use of research, innovation performance Metrics	<b>Traditional:</b> number of publications (papers, book chapters, books); journals; conference papers and attendance; <b>Contemporary:</b> Funded projects, commercialized products(patents), prototypes, Number of interdisciplinary researches
2.	Tracking processes	Frequency; Data management

3.	Multi-layered review bodies and committees	Procedures; duration; committees at different levels;
4.	Evaluation and Reporting/feedback schedules	Channels for giving feedback; feedback informs planning of KE reporting tools; performance reports; feedback helps in identifying gaps; receiving feedback from the central office; feedback dynamics in the departmental meetings among staff; frequency, quarterly,

*Researcher source,2022*

### 4.5.1 Use of performance metrics

Findings revealed that the universities have established performance metrics as a crucial aspect of monitoring knowledge economy initiatives. These metrics include knowledge production output, participation in knowledge-sharing platforms, and ranking. One of the senior managers actually indicated that:

“Our focus is to know how we are faring on the issue of research, publications output so we consider gathering data for number of projects, journals and others” (SM# 2).

“I am required to collect data after every three months on publications, projects and specific information regarding if an individual researcher is the main author, or co-author, which journal number of attended conference within and outside the country, the funder and then I submit this information to the HoD later is submitted to the College Board (LM#4)

The university documents, including strategic plans and the research agenda policy (e.g UDOM-RSP IV, 2020), further indicate that the following indicators are used for monitoring and evaluating KE-related initiatives:

**Table 4. 9: Research agenda policy (UDOM-RSP IV)**

<p><b>Objective D: Research, innovation, and knowledge exchange enhanced</b></p>	<ul style="list-style-type: none"> <li>✓ Increased quantity and quality of research and innovation programmes</li> <li>✓ Increased volume of publications in peer-reviewed journals</li> <li>✓ Increased volume of consultancy and non-consultancy public services</li> <li>✓ Increased adoption of UDSM research results informing industrial, economic, and social policies in the country</li> <li>✓ Increased funding for UDSM research and knowledge exchange programmes</li> </ul>	<ul style="list-style-type: none"> <li>✓ Number of active research and innovation programmes in a year</li> <li>✓ % of research and innovation programmes competed on time</li> <li>✓ Number of publications in peer-reviewed journals</li> <li>✓ Number of consultancy and non-consultancy public services received in a year</li> <li>✓ % of consultancy and non-consultancy public services competed on time</li> <li>✓ % of government officials satisfied with the usefulness of UDSM research results</li> <li>✓ Amount of new funding mobilised for UDSM research and knowledge exchange in each year.</li> <li>✓ Number of IPs business licenses secured</li> </ul>
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Indicator & Indicator Description	Baseline		Indicator Target Value					Data Collection and Methods of Analysis				Frequency of Reporting	of Data Collection
	Date	Value	2021/22	2022/23	2023/24	2024/25	2025/26	Data Source	Data Collection Methods	Frequency of Data Collection	Means of Verification		
Number of licensed technologies and patents. This indicator measures the number of technologies and patents licensed.	2020/21	0	1	1	1	1	1	College/School/Institute research committees	DRPC research reports	Quarterly	DRPC research reports	Annually	DRPC
Research and consultancy fund generated. This indicator measures revenue generated from research and consultancy annually (TZS Billion)	2019/20	0.38	2.4	2.75	2.75	2.75	2.75	College/School/Institute research committees	DRPC research and consultancy reports	Quarterly	DRPC research and consultancy reports	Annually	DRPC
<b>Strategic Objective 4: Research, Innovation, and Public Services Enhanced</b>													
1 Internal funds generated for research and innovation. This indicator measures internally generated income to fund research (TZS Billion)	2019/20	0.59	0.885	1.18	1.48	2	2	Financial reports	Financial reports	Quarterly	Financial reports	Annually	DoF and DPI
2 Number of peer papers published indicator measures the number of papers published in peer-reviewed journals	2020/21	239	800	880	960	1040	1120	College/School/Institute research committees	DRPC research reports	Quarterly	DRPC research reports	Annually	DRPC
3 Number of peer-reviewed books published. This indicator measures the number of peer-reviewed books published	2020/21	2	2	2	2	2	2	College/School/Institute research committees	DRPC research reports	Quarterly	DRPC research reports	Annually	DRPC
4 Citation index rate. This indicator measures the rate of publication citation index in Google Scholar and Scopus annually	2020/21	0	0	15	0	25		Google Scholar and Scopus	DRPC research reports	Quarterly	DRPC research reports	Annually	DRPC
5 Number of commercialized innovations and prototypes. This indicator measures the number of innovations and prototypes commercialized annually	2020/21	0	1	1	1	1	1	College/School/Institute research committees	DRPC research reports	Quarterly	DRPC research reports	Annually	DRPC

However, findings indicated that the information that is commonly used is the mainly quantitative rather than qualitative for instance information generated to show the depth and quality of relationships established with external partners, feedback on the effectiveness of collaborative efforts. This highlights a reliance on measurable, numeric data while potentially overlooking qualitative aspects of collaborations and partnerships and this could limit the understanding of the impact and effectiveness of these relationships and efforts to solving societal problems. To this, one of the respondents said;

“I mostly collect data inform of numbers and percentages even the excel template that I produce has column for numbers or percentages to fill in specific item” (LM#4).

Other concerns involve the knowledge production indicators: “We are yet to strengthen the recognition of citation index by our researchers far this is not used effectively to show the status of research activities in the university” (MM#5).

However, in the UDOM-RSP IV strategy, citation is considered a key performance indicator. The strategy states: “25% university citations index in Google Scholar and SCOPUS increased per year” (UDOM-RSP IV, 2020). Another major category mentioned within the theme of performance metrics is university ranking. This is one of the ways to demonstrate the university’s engagement in promoting KE initiatives, as most rankings consider aspects such as the volume of research publications, their impact, the number of patents filed, innovations produced, and other issues related to knowledge production and impact.

Despite these metrics, there are concerns about the absence of progress measurement to assess the impact of KE initiatives on innovation, economic value creation, and societal progress and development. Metrics such as the number of startups being incubated, prototype being develop, the patents filed and waiting for approval, and the collaborations being established can provide deeper insights into the effectiveness of monitoring KE initiatives.

#### **4.5.2 Tracking Systems**

The findings reveal weaknesses in the progress tracking systems used for knowledge economy initiatives within the university, impacting the functionality of tracking systems. While software such as Excel and centralized databases such as Research Information Management System (RIMS) used in one of the universities contribute to data storage, and management. One respondent said;

“It is like this: for example, a staff member applying for funds is required to register to the RIMS or even can upload their publications but also the database could reject a paper based where it was published like if its predatory journals the system rejects the paper” (MM#7). This indicates that while the RIMS have some automated features to maintain data quality and credibility, it also suggests a rigid system that might not fully accommodate the diverse needs of researchers.

Another respondent echoed this by stating; ...I mainly use Excel for tracking purposes for the research published, conference attended in the department, which is not ideal for managing large datasets or complex research projects...(LM#3).

The reliance on basic tools like Excel for data management points to a need of advanced, integrated systems that can handle the complexities of tracking research

progress and outcomes of academic staff. Some respondents opined that university should install and upgrade tracking software to maximize the process of research related data storage and organization. On this one respondent stated;

...I believe investing in more advanced software for managing our research output and processes, would improve our ability to manage research data. We need systems that can not only store data but also provide insights and analytics to guide our decision-making...(LM#3).

The current limitations of the tracking systems can hinder the university's ability to monitor and evaluate the impact of its knowledge economy initiatives effectively. This may be challenging to track the progress of research projects, measure outcomes, and identify areas for improvement. This can lead to limited opportunities for establishing gaps for research productivity and innovation. In-depth tracking and data management systems is important for providing a clear and accurate picture of the university's research landscape. They enable better decision-making, resource allocation, and strategic planning, ultimately fostering a more solid knowledge economy. Therefore, addressing the weaknesses in the existing tracking systems and investing in more advanced solutions is imperative for the university to maximize its research potential and drive meaningful innovation.

#### **4.5.3 Through Multi-layered Review University Committees**

Responses showed that review committees at different levels play a central role in evaluating the quality and impact of knowledge economy initiatives:

As indicated in University -Guidelines for the Assessment of Academic Staff Performance (GAASP, 2022) document that;

...Every College/School/Institute/Department/ should form an evaluation team for evaluating publications, research, consultancy and other materials submitted by authors for the purpose of promotion... (U-GAASP, 2022).

The findings revealed that both universities have a single ethics and review committee overseeing research activities. However, the review process is also conducted at the department level through meetings and offices. Notably, one university follows a manual review route, while the other utilizes a database for the same purpose. As one senior manager highlighted the structured process for the review process;

...At our institution the ethical committee dealing with ethics is carried by the central office of the research and publication, but what happens at the lower

level is to review the publications for promotion purposes review starts at the departmental level and they might include even an external reviewer depending then there is a meeting at college board after which the feedback is given to us at the central office for further... (SM #9).

Another respondent from the middle level manager emphasized the initial stages of review process at their level before forwarding to the central committee;

...At this level, we just check if the academic member has met the requirements for promotion, this is done through departmental committee review meetings, because the review and ethical board is central. Now, if the application for promotion is for a professor, we involve an external reviewer, but for a senior lecturer, we just involve two internal reviewers. So, one can be recommended 4 points, but the central committee's decision can give even a feedback of 1 point... (MM #6).

Review committees, through their rigorous processes and control mechanisms, ensure the quality, integrity, and relevance of research activities, which are essential components of a thriving knowledge economy. This rigorous exercise for controlling through committees is to ensure that research proposals, publications, and other research academic outputs meet high ethical and academic standards.

However, some respondents LM#5; LM#2 MM#5 highlighted some challenges of the review committees in relation to delayed feedback. The multi-tiered review process, involving departmental, college board, and central office evaluations, is time-consuming. Each level introduces potential delays, making the entire feedback lengthy. This also means that feedback provided by the central committee can significantly alter initial departmental recommendations.

#### 4.5.4 Evaluation and Reporting schedules

Findings suggested that the frequency of assessments normally follows a quarterly schedule;

"Our approach to quarterly assessment allows for proper adjustments, ensuring our initiatives remain responsive and this also from my experience enables timely identification of challenges that need to be rectified" (SM#2).

"After every three months am required to give progress reports and even the projects funded by university also does a written and oral report after every three months "(MM#2).

Findings revealed that reporting mechanisms have been instituted to communicate the progress, challenges, and outcomes of knowledge economy initiatives.

One of the senior level managers commented: ... We are required to submit reports related to research activities output whether publication, patents, conference either finished or in progress to the directorate of planning office which is responsible to produce a synthesized report of the whole university... (SM#3)

Other participant said the following; "Our university has established regular reporting schedules where departments submit detailed reports on their research activities, including achievements and problems encountered" (SM #3).

Relatedly, the UDSM: FACTS AND FIGURES 2015/16 - 2020/21 June, 2021 document illustrate as follows:

Research Projects Completed or in Progress the number of research projects registered at the UDSM has increased from 145 projects in 2015/2016 academic year to 294 projects in the 2020/2021 academic year.

Journal Articles Published by UDSM Staff: in the 2020/2021 academic year the University published 626 papers in various journals.

Conference Papers Published by UDSM Staff The number of conference papers published by UDSM staff per annum increased from 151 papers in 2015/2016 academic year to 339 papers in 2018/2019 academic year.

As public institutions, both universities are obligated to provide reports both internally and externally. As outline in UDSM-RSPIV, 2019.

#### 4.5.4.1 Internal Reporting Plan

S/N	Type of Report	Recipient	Frequency	Responsible
1	Monthly SP Progress Report	Vice Chancellor	Monthly	Director – Planning & Development
2.	Quarterly SP Progress Report	Council	Quarterly	Director – Planning & Development
3.	Annual SP Progress Report	Council	Annually	Director – Planning & Development

#### 4.5.4.2 External Reporting Plan

**Table 4. 10: UDSM-RSP IV, 2019 External Reporting Plan**

S/N	Type of Report	Recipient	Frequency	Responsible
1.	Quarterly SP Progress Report	MoEST	Quarterly	Council
2.	Annual SP Progress Report	MoEST	Annually	Council
3.	Annual SP Progress Report	Key Stakeholders	Annually	Council

Source: Extract from: (UDSM-RSP IV, 2019).

The quarterly progress reports with defined KPIs ensure that projects are on track and align with the university's strategic goals related to KE. Findings reveal that the reports are not just for internal use; but they are also shared with external stakeholders. Sharing reports with external stakeholders builds trust and demonstrates the university's commitment to accountability in its knowledge economy efforts and it can ensure that stakeholders, partners are informed and can collaborate more effectively. This systematic approach facilitates ongoing monitoring and assessment. Regular reporting schedules create a structured approach to tracking the progress of knowledge economy initiatives. This helps in maintaining a clear record of activities and allows for timely identification and resolution of issues.

#### 4.5.5 Summary of Findings on Control Mechanisms in Supporting Knowledge Economy (KE)

Control instruments play a crucial role in supporting the knowledge economy within organizations, including universities. These mechanisms provide oversight, ensure accountability, and promote effective management of knowledge-related activities. Control mechanisms establish performance measurement and evaluation systems to measure the efficiency of knowledge economy practices. Key performance indicators (KPIs) related to research outputs, innovation, industry collaborations,

technology transfer, and student employability are monitored. These measurements help identify areas of improvement, track progress, and align organizational goals with the knowledge economy. Performance evaluation provides valuable feedback to stakeholders and enables data-driven decision-making.

The findings revealed that the university employs performance metrics to monitor and evaluate knowledge economy initiatives. These metrics include quantitative measures such as citation indices, conference papers, consultancy reports, publication volumes, patents filed, and research grants obtained. Additionally, the findings revealed weaknesses in the tracking systems used for monitoring knowledge economy initiatives within the university. While tools like Excel and centralized databases such as the Research Information Management System (RIMS) aid in data storage and management, their effectiveness is limited by the lack of comprehensive functionality. Further, evaluation and reporting schedule mechanisms have been instituted to communicate the progress, challenges, and outcomes of knowledge economy initiatives. These include regular reporting schedules, quarterly progress reports, and documentation. Also, both universities revealed the approach of multi-layered ethics and review committees of central committees overseeing research activities, with additional departmental level reviews. While the university has implemented strategies to control and support knowledge economy initiatives through tracking systems, review committees, evaluation and reporting schedules, and performance metrics, further improvements are necessary. For instance, there is a need to balance quantitative and qualitative measures to fully capture the impact and effectiveness of these KE initiatives.

Control mechanisms ensure quality declaration and accreditation processes align with the knowledge economy. Standards and benchmarks are established to assess the excellence and relevance of academic programs, research outputs, and industry engagement. Quality control measures ensure that the knowledge imparted in educational programs meets the developing demands of the information economy. Accreditation processes validate the institution's commitment to excellence and provide external recognition of its achievements.

Management of intellectual property (IP) is governed through control mechanism generated within the university institutions. Policies and procedures are established

to protect, commercialize, and license IP assets. These mechanisms ensure proper documentation of inventions and discoveries, facilitate the transfer of knowledge and technology to the market, and safeguard the interests of the organization and its stakeholders. Effective control over IP management maximizes the value derived from knowledge creation and stimulates innovation. Control mechanisms include robust risk management practices to address potential challenges and uncertainties in the knowledge economy. Risk assessment processes identify and analyse risks associated with research projects, technology transfer, industry collaborations, and financial investments. Risk mitigation strategies are developed to minimize the impact of potential risks. By proactively managing risks, organizations can protect their intellectual assets, enhance decision-making processes, and foster a culture of innovation and resilience.

Control mechanisms ensure compliance with legal and ethical standards in the knowledge economy. Policies and codes of conduct are established to govern research ethics, data privacy, intellectual property rights, and industry partnerships. Compliance frameworks promote responsible conduct in research and innovation, protect the rights of stakeholders, and maintain the organization's reputation. Ethical considerations are embedded in decision-making processes, ensuring that knowledge economy practices are conducted with integrity and social responsibility. Control mechanisms encompass financial management systems that support knowledge economy practices. Budgeting and financial planning allocate resources to research and development initiatives, technology infrastructure, industry collaborations, and knowledge transfer activities. Financial controls ensure transparency, accountability, and efficient utilization of resources. Investments in the knowledge economy are monitored, and financial performance is evaluated to optimize resource allocation and achieve organizational objectives.

Effective governance and leadership structures that provide direction and oversight for knowledge economy practices, are through control mechanisms. Clear roles and responsibilities are defined, and decision-making authority is delegated appropriately. Governance frameworks promote transparency, accountability, and stakeholder engagement. Leadership fosters a culture of innovation, knowledge sharing, and collaboration within the organization. Effective governance and leadership enable strategic alignment, drive cultural change, and support the

implementation of knowledge economy initiatives. Control mechanisms encompass knowledge management systems that facilitate the capture, organization, and dissemination of knowledge within the organization. These systems include databases, intranets, and collaboration platforms that enable easy access to relevant information, research findings, and best practices. By implementing effective knowledge management systems, organizations can enhance the sharing and utilization of knowledge, foster innovation, and accelerate learning and decision-making processes.

Continuous learning and development initiatives within university institutions, are ensured through control mechanism. Training programs, workshops, and professional development opportunities are provided to employees to enhance their knowledge and skills relevant to the knowledge economy. These initiatives promote a culture of lifelong learning and encourage employees to stay updated with emerging trends, technologies, and practices. By investing in continuous learning, organizations can ensure the adaptability and competitiveness of their workforce in the knowledge economy. Control mechanisms establish collaboration and communication channels to facilitate knowledge exchange and collaboration among employees, departments, and external stakeholders. These channels can include online platforms, project management tools, and regular meetings or forums for sharing insights, ideas, and experiences. By providing effective channels for collaboration and communication, organizations can foster a culture of open innovation, interdisciplinary collaboration, and idea generation.

Moreover, control mechanisms incorporate performance incentives and recognition programs that reward and recognize employees for their contributions to the knowledge economy. These incentives can include financial rewards, promotions, or public recognition for exceptional performance, innovative ideas, or successful knowledge transfer and commercialization. By aligning incentives with knowledge economy practices, organizations motivate employees to actively participate in knowledge creation, sharing, and application.

Control mechanisms establish feedback loops and continuous improvement processes to enhance knowledge economy practices within organizations. Regular evaluations, surveys, and feedback mechanisms collect insights from employees, stakeholders,

and customers. This feedback is used to identify areas for improvement, refine processes, and implement changes that optimize knowledge economy initiatives. By continuously seeking feedback and fostering a culture of continuous improvement, organizations can adapt to the evolving needs of the knowledge economy. Control mechanisms facilitate external collaboration and partnerships with other organizations, industry players, and research institutions. These collaborations can involve joint research projects, knowledge sharing initiatives, and industry-academia partnerships. Control mechanisms ensure that collaborations align with the organization's strategic goals, protect intellectual property, and enhance the organization's knowledge ecosystem. External collaborations leverage complementary expertise, expand networks, and promote cross-pollination of ideas and knowledge.

Monitoring and benchmarking practices to track the organization's performance and compare it with industry standards and best practices, are achieved through control mechanisms as well. Regular monitoring enables organizations to identify gaps, measure progress, and make data-driven decisions. Benchmarking provides insights into how the organization's knowledge economy practices compare with peers, helping identify opportunities for improvement and innovation. Control mechanisms support cultural alignment and change management efforts required to transition to a knowledge economy. This involves creating awareness, communicating the benefits of knowledge economy practices, and engaging employees in the change process. Control mechanisms ensure that the organizational culture supports knowledge creation, sharing, and innovation. They establish policies, practices, and reward systems that encourage risk-taking, experimentation, and learning.

#### **4.6 Chapter Summary**

Internal university management organizes knowledge economy practices by implementing various strategies and structures that facilitate the integration of the knowledge economy into the institution: Effective leadership and governance are crucial for organizing knowledge economy practices within a university. University leaders, such as the directors, principals, provide vision, strategic direction, and allocate resources to support knowledge economy initiatives. They establish policies and procedures that promote innovation, interdisciplinary collaboration, and

industry partnerships. Additionally, governance structures ensure accountability and transparency in decision-making processes related to the knowledge economy.

Universities often establish departments or units to oversee knowledge economy practices. These units may include offices of innovation and entrepreneurship, research and development, industry engagement, technology transfer, and continuing education. These departments focus on developing and implementing strategies to foster knowledge creation, technology commercialization, industry-academia collaboration, and lifelong learning opportunities. Universities strategize to create interdisciplinary research centers and institutes that bring together faculty members and researchers from various disciplines to address complex challenges of the knowledge economy. These centers facilitate collaboration, knowledge sharing, and joint research initiatives. They often focus on emerging fields, such as artificial intelligence, data science, sustainability, and entrepreneurship. Interdisciplinary centers and institutes play a crucial role in promoting innovation and generating impactful research outcomes.

Internal management is focused on securing strong resourcing in advancing KE. Internal university management seeks funding opportunities and grants to support knowledge economy practices. This includes proactive efforts in applying for research grants from external agencies, forming industry partnerships to finance research projects, and seeking financial support from university alumni to enhance research initiatives. Additionally, universities establish internal funding mechanisms designed to incentivize faculty and researchers to undertake innovative projects and commercialize their intellectual property. Investing in solid technology infrastructure is a critical component of this strategy. Universities allocate resources to provide essential support that facilitates knowledge economy practices, including internet, advanced computing facilities and software tools. Technical support teams play a pivotal role, assisting faculty, staff, and students in effectively utilizing technology for research, collaboration, and innovation. Furthermore, universities offer training programs and workshops to improve digital literacy and technological skills, ensuring that their community members are well-equipped to participate in and contribute to a thriving knowledge economy.

Performance measurement and evaluation systems are established by internal university management to assess the effectiveness of knowledge economy practices. Key performance indicators (KPIs) related to research outputs, industry collaborations, technology transfer, student employability through tracer studies, and community impact are often used. Regular evaluation helps identify areas of improvement, measure the success of initiatives, and align the institution's goals with the knowledge economy.

Internal university management establishes collaboration platforms and initiatives to encourage knowledge sharing and exchange. These platforms can include innovation spaces, research clusters, and collaborative projects that bring together researchers, students, and industry partners. They facilitate the sharing of ideas, expertise, and resources, fostering a culture of collaboration and innovation within the institution. Universities develop mechanisms for managing intellectual property (IP) generated through research and innovation. Internal university management establishes policies and procedures related to IP protection, commercialization, and licensing. Entrepreneurship and incubation of ideas within the institution, include provision of resources, mentorship, and funding opportunities for students, faculty, and outsiders interested in launching their own ventures. The management may also collaborate with external organizations, such as venture capital firms or business accelerators, to provide additional support and networking opportunities for startups.

Internal university management recognizes the importance of continuous professional development for faculty, staff, and researchers. They establish programs and initiatives that promote lifelong learning, upskilling, and staying updated with the latest knowledge and practices in the knowledge economy. This can include workshops, seminars, conferences, and online courses that provide opportunities for professional growth and development.

Internal university management ensures that quality assurance and accreditation processes align with the knowledge economy. They establish assessment frameworks that focus on outcomes, including, industry relevance of research and innovation, and the impact of research outputs. By incorporating knowledge economy indicators into quality assurance processes, universities demonstrate their commitment to

preparing students for the rapidly changing demands of the workforce and the knowledge economy. To enhance partnerships and collaborations that support KE, internal university management actively engages with various stakeholders, including industry partners, government agencies, alumni, and the local community. They establish advisory boards or councils that include representatives from these stakeholder groups. Regular consultations and collaboration with stakeholders help universities stay informed about industry needs, societal challenges, and emerging trends. It also ensures that knowledge economy practices are aligned with the broader goals and priorities of the stakeholders.

The findings from the study offer insights into the extent to which the management functions of planning, organizing, leading, and controlling support the conceptual framework described in the study. This framework describes a dynamic and interactive relationship between these management functions and knowledge economy (KE) initiatives, indicating varying degrees of interaction and reciprocity among these functions. Strategic plans set the overall direction for the university, establishing long-term goals and priorities related to KE initiatives. These plans outline specific objectives such as increasing research output, fostering innovation, and building industry partnerships. To implement strategic plans, organizing approaches are developed, including creating specialized sub-offices for decentralization, KE resourcing to facilitate KE activities. The establishment of incubation programs and internal funding mechanisms are direct outcomes of strategic planning. However, while strategic plans inform organizing approaches, there is limited feedback from organizing structures back to planning processes. For instance, the sub-offices and decentralized units often encounter challenges that are not adequately communicated to the central planning committees, leading to disjointed efforts where the realities of implementation are not fully considered in subsequent strategic plans.

Furthermore, University leaders play a crucial role in translating strategic goals into actionable plans. For instance, visionary leading communicates the institution's KE vision, motivate staff. They ensure that strategic goals are reflected in daily operations and decision-making processes, adapting their strategies based on feedback from evaluations and progress reports to keep strategic goals relevant and achievable. However, not all leaders exhibit the same level of commitment to

strategic goals. Some may lack the necessary skills or adaptability to effectively drive KE initiatives, leading to inconsistencies in how strategic plans are implemented across different departments and units. Evaluation and reporting mechanisms are designed to track the progress of KE initiatives, providing critical feedback that informs future planning efforts. Metrics and performance evaluations highlight areas of success and identify gaps or challenges, allowing for adjustments in strategic plans. However, delayed feedback from review committees can hinder timely adjustments to strategic plans, creating a disconnect between current realities and future planning. Moreover, effective organizing involves establishing structures that empower leaders to make decisions and drive KE initiatives. This includes creating roles such as research coordinators, Knowledge exchange officers who can act as catalysts for KE activities.

Therefore, the findings indicate that there are efforts to align strategic plans with organizing approaches, leading actions, and controlling mechanisms by internal university management. This alignment ensures that all parts of the university are working towards common KE goals. The incorporation of feedback mechanisms into planning and controlling functions allows for continuous improvement and adaptation of KE initiatives. However, there is limited permeability between certain management functions. For example, organizing approaches do not always inform planning processes, leading to a top-down approach that may not fully account for on-the-ground realities. Variability in leading actions and capabilities can lead to uneven implementation of KE initiatives, with some departments or units excelling while others lag behind. In summary, the integrated framework of planning, organizing, leading, and controlling within university management enhances interactive and reciprocal relationships by establishing continuous feedback loops, promoting collaboration, ensuring alignment of goals and actions, and fostering a culture of continuous improvement. This holistic approach not only drives the success of KE initiatives but also ensures that the university remains adaptable and responsive to the evolving demands of the global knowledge economy. Further improvements are required to fully realize the potential of this framework, particularly in enhancing permeability and reducing delays in feedback mechanisms.

To connect the overall findings with the study's theoretical framework, the results illustrate that Henri Fayol's management functions are indeed relevant to the

internal management of universities in promoting a knowledge economy. The university's strategic plans, organizational structures, leading practices, and control mechanisms align with Fayol's management function framework. For example, the development of the Five-Year Rolling Strategic Action Plan (FYRSAP) demonstrates the university's commitment to strategic planning, setting specific goals and targets for research and innovation activities. Organizing structures and processes support research and innovation activities, including the implementation of the Research Information Management System (RIMS) for managing research projects and grant applications. Leading practices such as visionary within the university, where leaders embrace a forward-thinking perspective, is emphasized. Additionally, research activities are monitored and evaluated through regular reporting and dissemination of research opportunities.

Adopting a system thinking approach to university management in supporting KE involves understanding the intricate relationships among various components such as faculty, policies, funding, research thematic areas, and infrastructure. This approach is evident in the findings. For example, the strategic plans and policies highlight the university's effort to integrate various components to support the knowledge economy, emphasizing building academic staff capacity, supporting research proposals, and enhancing the university's visibility as a research institution. The establishment of RIMS shows an effort to streamline research management processes, indicating a systems approach to handling research data and projects. However, significant areas for improvement remain. By adopting a more comprehensive and integrated perspective, the university can better align its various components to support the knowledge economy. This involves breaking down disciplinary silos, streamlining administrative processes, and providing holistic support to faculty and researchers.

The Technology-Organization-Environment (TOE) framework reveals the presence of certain elements and significant gaps within each context of the framework from the study findings. In the technological context, the internal university's management efforts to integrate technology in research activities are evident through their attempts to establish licensing policies and collaborations that support technological innovation. Mentions of using certain technologies for administrative purposes, such as the online approval of staff requests, were noted. However,

insufficient and outdated technological infrastructure within the university prevents research activities and the advancement of technological innovation. Organizational context of the framework shows efforts by internal university management to enhance the capacity of academic staff members to develop research proposals and attend academic conferences. However, challenges with interdisciplinary collaboration due to rigid disciplinary boundaries and lengthy administrative processes hinder research activities. In the environmental context, the universities engage with external partners, such as industry and government agencies, to facilitate knowledge exchange and resource sharing. The use of IPR policies to manage and commercialize research outputs, particularly in science disciplines, is also noted. However, limited awareness and utilization of external engagement strategies among faculty members outside of the science disciplines is a challenge.

Overall, the study shows that while universities have implemented strategies to support KE initiatives, further improvements are required. Enhanced technological infrastructure, better interdisciplinary collaboration, and more comprehensive external engagement strategies are needed to fully realize the potential of the knowledge economy framework within university management.

## CHAPTER FIVE

### DISCUSSION OF FINDINGS

#### 5.1 Introduction

The determination of this study was to explore the internal managerial practices of university institutions in promoting knowledge economy in Tanzania. Therefore, this chapter discusses the study findings in each research objective, to explore how university management integrates aspects of knowledge economy in their planning, investigate how university management organizes the knowledge economy practices, to establish how control mechanisms support knowledge economy, to determine how leading in the university shows a role in the development of knowledge budget.

#### 5.2 Incorporation of the aspects of Knowledge Economy in Planning by Internal University Management

The outcomes illustrate that internal university management integrates aspects of the knowledge economy (KE) into their strategic planning and strategic direction. University managers within universities are instrumental in setting a clear vision that emphasizes the importance of fostering innovation, research excellence, and collaboration both within and outside the institution. This strategic direction approach is evident in how universities articulate their long-term goals and objectives, aligning them with the principles of the knowledge economy. Universities emphasise the strategic direction of promoting interdisciplinary research, leveraging technology for innovative solutions, and engaging in partnerships with industry and government agencies. This strategic direction is often outlined in documents such as strategic plans, university visions, research agenda & policies where KE-related initiatives are featured as key priorities for the institution. For instance, university strategic plans outline goals to increase research funding, enhance technology infrastructure, and promote entrepreneurship among university academic staff and students.

The findings of this study align with Sidney (2017), who demonstrated that the Tanzanian higher education policy context has feasible policies and plans supporting the development of research in the country's universities. The data indicate that university leaders play a pivotal role in communicating and reinforcing the vision of

the knowledge economy (KE) throughout the institution. The strategic direction fosters a culture of creativity in research, and entrepreneurship among academic staff and students. This involves setting strategic goals and resources in their policies that support, and enable faculty and researchers to pursue innovative projects, secure funding, and commercialize their research outputs.

Moreover, the integration of KE into university planning through strategic direction links to wider national Tanzanian policies, ensuring that universities are well-positioned to adapt to the developing demands of the global knowledge economy. By planning the internal university environment that values innovation, collaboration, and impactful research, these institutions aim to maximize their contribution to Tanzania's societal development and economic growth. These findings align with research by Marginson (2007, 2022) and Fumasoli, Barbato, and Turri (2020), which highlight that under the weight to participate in the building of the 'knowledge society,' universities have experienced several reforms aimed at making them more efficient, effective, and maintainable to compete globally. Universities are required to diversify their funding streams to counteract stagnating or shrinking public resources and to act more integratively to compete appropriately (Fumasoli, Barbato, and Turri (2020)). The findings also resonate with the idea that universities are developing organizational capabilities that allow the selection of a course of action due to the expanded scope for relationality, including world-spanning systems such as science, cross-border connections, and the global diffusion of ideas and models (Marginson, 2022). Consequently, university positioning through strategic plans and policies has become a central issue for higher education researchers, policymakers, and institutional leadership. This alignment underscores the importance of strategic direction in integrating KE principles within university management and highlights the critical role of higher education institutions in adapting to global and national demands for knowledge-based economic development

However, these findings contrast with those of Kahangwa (2014), who argued that the Knowledge-based economy framework has continued to link higher education to foreign agendas and interests. According to Kahangwa, higher education policies have largely served the neo-liberal interests embedded in these foreign agendas, which conflict with the broader social, political, and economic interests of

Tanzanians. This discrepancy suggests that while university leaders in Tanzania are working to align their strategic goals with national policies and KE principles, there are underlying tensions between these efforts and the broader influence of international neo-liberal agendas on higher education.

The study found that internal university management incorporates information and communication technology in their planning through purchasing of ICT Equipment, training on the use of ICT facilities. The study findings imply that ICT has become key factor contributing to knowledge economy in the universities. ICT as reviewed in chapter of the study by different KE models such as World Bank (WB,2007; ADB,2014; Utz,2006) has been mentioned to be one of the key dimensions of KE. Information circulates at the international level through trade in goods and services, direct investment and technology flows, and the undertaking of people. Information and communication technologies (ICT) have been at the heart of economic changes for more than a decade (Memba and Feng, 2016). ICT sector plays an important role, particularly by contributing to rapid technical progress and productivity growth. Firms use ICTs to organize transnational networks in response to international competition and the increasing need for strategic interaction. As a result, multinational firms are a primary vehicle of the overspreading process of globalization. New technologies and their application in productive activities are changing the economic structure and contributing to productivity increases in OECD economies. Economic affordability depends on productivity level and in the knowledge economy, ICT sectors determine the efficiency level. As a result, we can say that the power of economic competitiveness of a country depends on the productivity of its ICT sector (Naser et al., 2016).

The study also found that internal university management incorporates Training and Development Programmes in their Planning through having plan for Training design, plan for mode of training (off job/on job training), planning for Training Need Assessment (TNA) and the universities have plan for Performance Measurement. The findings implying that as a result of the knowledge economy, the skills required in the workplace are constantly changing. New skills such as data science, artificial intelligence and machine learning are in high demand. According to the World Economic Forum (2021), this burst in innovation is going to be the fourth Industrial Revolution. As a result, in this shift to the knowledge budget, skills development has

become more important than ever. In a corporate environment, employees are no longer expected to application on one area and are being continually challenged to advance their skills more quickly. In conclusion, the variations in workforces due to the knowledge economy will continue to give rise to a higher reliance on lifelong learning. Rather than this being a formal process in the corporate learning environment, teams will be expected to share and curate their knowledge to increase (Bacud, 2020).

The study found that Internal University Management Incorporate Research and Innovation Programs in their planning through availability of fund to support research and innovation, and identifying the right expert for research and innovation. The findings implying that Universities as other organizations looking for to develop a knowledge economy which is deeply dependent research and innovation (Kahangwa, 2017). Research and innovation is a driver of development as have seen in the developing centuries. Many universities have invested in research as the way to improve their knowledge economy. Natural resources alone are not enough for countries to develop, the case be of the Universities with resources but poor in the area of greater impotence which is research and innovation. (Moyo and McKenna, 2021). Thus, the engine of knowledge economy is driven by research and innovation. The university research councils have to advance incentive scheme to foster research excellence, by rewarding researchers through an open funding tied to their output. The findings also suggesting that universities recognize that knowledge economy is a central feature of their development. The role of research in knowledge economy for the universities have become the important driving force for growth (Lafayette, Curtis, Bedford & Iyer, 2019).

The study found that the internal universities' management have been incorporate strengthening of innovation in the strategic planning through competitive remuneration of academic staff improvement. The findings implying that the universities recognized the talented academic staff are the most important corporate resource over the next twenty years and a competitive compensation system, good working environment and adequate teaching and learning resources are important tools in attracting and retaining talent. Therefore, universities should have aspects of an intelligent remuneration system that align to the added value of research which may unleash the full potential of the academic staff. Universities

need to strategically return on invested of personal human capital consisting of both tangible and intangible compensations in order to enhance the mind value added (Taborga, 2011).

The study found that internal university management incorporates consultancy program through planning to have expertise on consultation, plan for advertising consultancy services and university plan for specific theme or specific area for consultancy. The findings implying that consultancy is an important channel through which knowledge and expertise can flow to and from businesses and other external agencies and therefore contributes to the development of and productive relationships between the universities and the community (Chun et al., 2008). The study findings also implying that consultancy is the principal devices by which universities and colleges transfer knowledge to public, private and third sector groups, and contribute to knowledge economy and to the needs of society more generally. The provision of expert advice to external clients by university staff is a prominent example of 'third mission' activity, through which higher teaching institutions encourage and support productive communication with business and industry. Consultancy services might include: offering specialist opinion, advising on technical issues, or solving problems for firms (Taborga, 2011).

Bolisani and Bratianu (2017)'s study delves into the impact of uncertainty and environmental turbulence on knowledge strategy planning. Their research utilizes a mixed methodology, combining extensive surveys with an original re-elaboration in its design. The outcomes reveal a need for a critical examination of existing literature. Additionally, the study suggests an integrated approach, conceptualizing planning as an ongoing process of learning and adaptation to the evolving needs and opportunities arising from daily practices. In contrast, the current study employed a qualitative research approach based on the internal management of university in promoting knowledge economy in Tanzania. Moreover, Bolisani and Bratianu (2017;2018) pointed out that that in a new knowledge networked era extended strategic management is required that shifts beyond mechanistic approaches to strategy making and implementation.

Jami Pour et al. (2018)'s research in Iran focused on devising an integrated methodology for knowledge management (KM) strategic planning to achieve

strategic alignment. Their study utilized a mixed research approach, incorporating semi-structured interviews with KM experts and employing thematic analysis to analyse the gathered data. The study identified key phases in the KM strategic planning methodology, including strategic review, strategic orientation, implementation, and evaluation. However, a limitation was noted, as the study solely relied on interviews for data collection within its mixed research framework. In contrast, the current study aimed to address how university management integrates aspects of knowledge economy in their planning.

Vadera et al. (2021)'s study in the Kingdom of Saudi Arabia explored the implications of the Knowledge Economy. The research incorporated various data collection methods, focusing on primary data obtained through a pilot project based on Saudi Aramco's best practices in knowledge economy. The study primarily adopted a quantitative research method, employing a numerical approach and utilizing surveys with questionnaires as the chosen tool. The primary data, collected by the researcher, involved 60 employees of Saudi Aramco. The research revealed that effective Knowledge Management (KM) implementation in organizations yielded numerous benefits, including employee development, fostering an innovation culture, enhancing research and development, improving information collection, processing, and delivery, integrating ICT into business processes, facilitating effective communication, enabling faster decision-making, enhancing work quality, improving customer focus, boosting competitive advantage, refining repository management, and managing intellectual property effectively. In contrast, the current study based on how university management integrate the aspects of knowledge economy in their planning.

Asong et al. (2017)'s research, conducted in Cameroon, explored the landscape of the Knowledge Economy in Africa using a qualitative research approach. The study sampled data from 53 African countries, utilizing information from the World Governance Indicators, the World Growth Indicators, and Principal Component Analysis (PCA) spanning the years 1996-2010. The findings highlighted a shift in African governance around 1998, marked by discouragement of military intervention and encouragement of private sector investment. This shift facilitated investments in innovation, education, and information and communication technology (ICT). The study recommended four key measures to consolidate innovation and quality

education, including the promotion of technical education, support for investigation and development (R&D), fostering a lifelong learning culture, and a continual shift from traditional PhD programs to PhD by publication schemes. However, a limitation of the study was identified, as it collected data from numerous countries, raising concerns about the validity of the results. In contrast, the current study aimed to address how university management organizes the knowledge economy practices.

Universities are identified as key drivers of the knowledge economy as a result of policy and system reforms. As Ruxandra and Ştefan (2017) maintain that the fundamental change of the universities' role has been timely stated and approached throughout the World Bank's policy which identified four essential functions of higher education in supporting knowledge-driven economic growth. One is the capacity to train a capable and adaptable labor force - including high-level scientists, professionals, technicians, teachers for basic and secondary education, as well as future government. Two, is the capacity to make new information. Three, is the capacity to access existing stores of global knowledge and adapt it to local use. Last, is the transmission of norms, values, attitudes, and morals as the foundation of the social capital essential to construct healthy civil societies and cohesive cultures, which are essentials for a better government and governmental democracy. Also, Bratianu (2014) states that "the centrality of universities strengthens with the emergence of the information economy and the knowledge society".

Many nations concerned with the development of knowledge economy have placed an emphasis on their higher education institutions to support a knowledge economy through their government policies for instance Moiseev, Komarova, Karelina, & Karelina (2019) argue that the change in the role and place of higher education in knowledge economy in Russia at the present stage is expressed in a significant increase in the number of higher educational institutions and the number of students studying. In 2000 there were only 965 universities while by 2017 their number had exceeded 2660 universities, having increased by almost 3 times in 16 years. All national and federal universities, ancillary universities with a military department and other higher educational institutions of the country were previously training more than 5.5 million students. Though, the literature seems to perceive knowledge economy from the quantitative perspective than the qualitative side.

Higher education policies have interpreted KE as combination of research, innovation and use of ICT. Salem (2014) contends that universities are the basis of asset in the knowledge-based economy of the twenty-first century. Also, they are increasingly viewed as key drivers of invention and major agents of economic growth subsequent many policymakers to view research universities as factories of knowledge for the new economy with largely unexploited reservoirs of potentially commercialize knowledge waiting to be taken up by firms. However, this overly mechanistic view of the process by which basic scientific investigation is transformed into economically viable products establishes not only a misunderstanding of the commercialization process itself, but also of what universities can and should be expected to do. Salem (2014) concurs with (Wolfe, 2005) that universities are more of followers of technological innovation than leaders.

It appears therefore that universities are expected to progress in integrating aspects of knowledge economy in their plans in the effort of transforming their countries into knowledge-based frugalities. Motivating this discussion, a study on innovative Asia by Asian Development Bank listed ways in which economies can pursue knowledge-based economic development through establishing university with greater financial and administrative autonomy, higher education clusters to serve the needs of specific industries, universities to set leading research labs while establishing industry-university collaborations, universities should expand the use of ICT to transform teaching and training to enhance student-centered pedagogy and creativity, develop training that is responsive to the changing market needs, matching human resource development with economic and industrial competitiveness, developing centers of excellence in major disciplines in the university among others. As Teece (2000) further asserts the determinants of a firm's innovative capacity are rooted in structural design, incentives, human resources, interior culture, and external linkages.

Furthermore, knowledge is viewed as a fundamental resource in the knowledge economy, and because universities are regarded as engines of knowledge, universities are initiating knowledge management, as Sangeeta (2015) emphasizes the importance of developing internal and external organizational systems to support knowledge management. He adds that although Knowledge Management practice is helpful to all institutes, college authorities do not yet practice including

academia. From this argument it is crystal clear that, there is need to create knowledge sharing culture amongst the staff and students. Use of ICT and development of advanced skills in teaching professionals for contributing, communicating, capturing, recording and sharing knowledge is lacking. A suitable policy need to be designed regarding the information and knowledge taking and sharing among the academic specialists within organizations using intranet or extranet for group of branches situated at different places under the same management.

Infrastructure and technical help from ICT managers, network managers is necessity to all academics. Moreover, the educational system is today becoming market oriented for student's and staff's achievements (ibid). This implies that, there should be inspiring environment among instructive institutes so as to combat contemporary pressures of globalization, extracurricular activities, research, interdisciplinary subjects and difficulty of global education market. Gibb (2005) contends that educational institutes are now becoming entrepreneurs to handle different pressures. Gibb adds that global competition pressures are spread in three categories Individual response, Organizational response and Social response. New demands from educational institutes are preparing students for lifelong learning, distance learning and short educational as well as professional courses and training, global mobility, adaptation of different cultures, part-time job, work in different organizations, growing employability of graduates so that they will able to take family as well as social responsibilities, giving them value teaching. For all these to happen, universities should have real and good organization of internal systems for efficient knowledge budget.

### **5.3 The role of Internal University Management Organize the Knowledge**

#### **Economy Practices**

The study found that the internal universities' management has been organizing consultation Practices through consultancy Bureau (UCB), specific areas for providing consultancy services, creating a schedule for providing consultancy services to community and informing the community kind of consultancy services provided. The findings implying that the universities have been systematically organizing consultation practices, thus a consultancy services might have been greatly contributing to university's knowledge economy (Shattock, 2009). Academic

staff can use consultancy to generate additional income, and to involve with new or existing partners. This can be done either in the individual's capacity as a member of University staff or as a private individual. However, in either case there are a number of deliberations that need to be spoken prior to attractive in the consultancy so the academic and the University are not visible to undue monetary and other risks, such as conflicts of interest. Therefore, the University can derive valuable benefits by offering consultancy services, including: generating external income, enriching the experience of staff and contributing to teaching and research (Chun et al., 2008; (Marginson, 2019)

The study found that the internal universities' management has been organizing Research Practices through research sub offices, Sustainable research funding, Research information management system and that universities organizes researches under research, innovation and knowledge exchange department. The findings implying that centers secure research resources and provide research support. Another benefit of research sub-offices and centres is their ability to obtain specialized services and equipment. For example, faculty members may form centers to apply for and obtain funding such as a Center Core. The grants support centralized facilities and resources that are shared by detectives who already have existing funded individual research projects. These types of grants do not fund research itself, but rather the expensive arrangement, facilities, services, and managerial functions that facilitate research. A center may be formed, then, with the explicit mission of securing funding for investigation resources such as expense instrumentation, managerial support, and core facilities (Dědečková, 2020).

The study found that the internal universities' management supports KE through its organizing structures. For instance, University management has recognized the importance of resourcing KE initiatives adequately and seeking diverse funding opportunities and grants to support KE practices. This includes applying for research grants from governmental agencies, industry partnerships, and philanthropic support. This includes establishing incubation programs that support the commercialization of research outputs. But, findings noted that the bureaucratic procedures involved in research proposal approvals and funding allocations often result in delays which can impede the support of KE initiatives within universities. Unger et al. (2020) emphasize the importance of integrating academic education,

research, and innovation within the knowledge triangle framework, while Lehmann et al. (2020) further discuss the need for improved internal structures and external conditions to strengthen the entrepreneurial ecosystem within HEIs.

Balozi et al. (2014) a study, conducted in Tanzania, aimed to construct theory with immediate significant outcomes, focusing on the development of theory within the Tanzanian context and its potential contribution to global knowledge economy. The study underscored the importance of investigating the applicability and performance of theory in Tanzania, drawing comparisons with developed countries. It specifically examined the theory of planned behaviour (TPB) as the foundational theory for understanding knowledge sharing in the Tanzanian context. The study identified key propositions crucial for the development of the theory of planned behaviour when studying knowledge sharing in Tanzania. A limitation of the study was noted, as it concentrated solely on one theory during the analysis phase, in contrast to the current study aims to address how leading university play a role in the growth of knowledge budget.

Rivera et al. (2022) conducted a study on knowledge management models in Mexico, employing a model comprising six key factors: leadership, culture, structure, human resources, information technology, and measurement. These factors were identified as crucial for the creation, storage, transfer, and application of knowledge. The authors crafted a 53-question survey administered to 36 individuals involved in knowledge management throughout the growth and implementation phases. The findings highlighted the significance of cultural, human, and physical aspects in shaping knowledge organization models within university settings. However, the study's limitation lies in its sole reliance on a survey methodology, potentially restricting the depth of understanding. Therefore, the current study aims to establish how control mechanisms support knowledge economy.

Ruxandra (2016) conducted study in Germany focused on universities as learning administrations in the knowledge economy. The study employed qualitative research approach while 26 were sampled universities involved in the study. Case study was employed as qualitative research, meanwhile, data were collected through interview and Focus Group Discussion (FGD) while analysed through thematic analysis. The findings found that universities have both opportunities to adapt

practices associated with the idea and the concept of learning organization. The study recommends learning institute must be re-designed in order to become fully relevant to public organizations, safety organizations, human service administrations and knowledge-intensive organizations. In contrast, the current study focused on how university management integrates aspects of knowledge economy in their planning.

Brostom et al. (2021) conducted study in Ethiopia focused on the knowledge economy, invention and the new challenges to universities. The study employed qualitative research approach and case study as a research design. Interview, Focus Group Discussion (FGD) and documentary review were the main data collection tools, also, analysed through content analysis. The findings found that university has become a key player in the knowledge economy and responding to stakeholders' expectations by taking new mission in research. Internal university management actively seeks diverse funding opportunities and grants to support KE practices. This includes applying for research grants from governmental agencies, industry partnerships, and philanthropic support. Universities also establish internal funding mechanisms to encourage faculty and researchers to pursue innovative projects and commercialize their intellectual property. The findings of Hassan & Ahmed (2024) indicated a agreement among respondents on the importance of public-private partnerships (PPPs) and government acknowledgment of the significance of higher education institutions (HEIs). A survey revealed a significant correlation between institutional capacity, human resources, and infrastructure with fruitful PPP implementation. However, progress is hindered by institutional barriers such as unreliable risk-sharing mechanisms, differing structural cultures, and a lack of supportive institutional environments. The investigation underscores a strong agreement among stakeholders about the crucial role of PPPs in securing government support and advancing a knowledge-based economy for HEIs.

#### **5.4 University Internal Control Mechanisms Work to Support Knowledge Economy**

The Researcher found that university internal control mechanisms work to support knowledge economy the review and adjust goals and objectives of the universities, through guided by goals setting criteria (rules), through having quality control and assurance measures that are designed to identify errors or irregularity, and through

the quality control Bureau and committee. The findings implying that the universities' internal control mechanism has helped to improve quality of teaching, research and consultations. Thus, the universities have been providing quality services which improved the outcome of knowledge economy in the universities. Organizations are required to track their progress so as to check and measure accomplishments against standards to ensure achievement of goals that connect to their nation economy. As the nature of work is changing, the purposes of managing work must also alteration, as well as methods to education and educational organizations, through a thorough exploration of the purposes and structures required to adapt to this change (Lafayette et al 2019). The controlling function of management in knowledge economy basically assesses accomplishments and enables adjustments, Janus (2016) Considers monitoring and estimation a critical aspect of knowledge sharing that greatly contributes to long-term success by providing (1) the responsibility for resources spent, (2) the basis for practical development in knowledge sharing, and (3) the validation of the learning accomplished (Marginson, 2019).

The study found the Universities have Performance control Measures for their Academic Staff; quality insurance bureau to ensure better employees' performance, established standards for work performance, uses of monitoring and evaluation mechanism to improve employees' performance and universities uses performance measurement tools to identify employee performance. Effective reporting mechanisms have been instituted to communicate the progress, challenges, and outcomes of KE initiatives. These include regular evaluations and feedback loops that help in assessing the impact of various projects. However, a notable gap is the over-reliance on quantitative metrics, such as publication counts and citation indices, while qualitative metrics that assess the depth and quality of research collaborations and stakeholder engagement are less emphasized. The study implying that the Universities' Performance control mechanism supporting knowledge economy; in order to adapt to changed external circumstances the universities use varieties of control mechanisms to track their performance and to minimize the negative effects arising from the external and internal environment. Further the findings implying that that the techniques and tools used by the university management control are adapted to the specific purpose and are not subjected to

any generally accepted standards. Marginson (2009) argued that research universities have emerged as key sites in the knowledge economy while becoming locked in by contrasts that reference them on a global scale and mark them with values readily comprehended by the many investors in information and only partly internal to the institutions themselves. Thus, research universities are subject to two systems for regulating value, operating alongside each other, sometimes intersecting: the economic value of commercial information as represented by intellectual property and commercial information products; and the status value of public good knowledge as determined by university rankings, investigation and publication metrics, and probably also by knowledge outcomes in future (Taborga, 2011).

The study found that universities have been using Internal Control Mechanisms to Support Knowledge Economy through cooperating with foreigner universities for supporting training, Universities academic staff are funded to attend long-term training, and universities provide opportunity for on job training, and the Universities provides ICT facilities for training. The findings implying that academic staff in the surveyed universities have been provided with training opportunities that enabled them to be competent and competitive, this is consistent with (Memba and Feng, 2016).

The study found that the universities have Internal Control special committee to review academic staff research activities. The findings implying that the surveyed universities are capable of attaining high-performing research output that have added value to the university in terms of university ranking, commercialization and contribution to solving societal problems. A review can help university assess if the KE related activities such as innovation are in streak with university standards. It can also help you assess your company's training and development opportunities and identify areas for improvement. An established review process makes dialogue and open channels of communication between managers and your employees. Effective reviews can university to improve team morale. By rewarding accomplishments, you can also encourage proprietorship and self-improvement (Sljivic, Skorup and Vukadinovic, 2015).

The study by Bratianu (2018) on universities as learning organizations: Challenges and strategies conducted in Bucharest, Romania. Study revealed that university can become a learning organization if and only if its management creates strategies for renovating local and spontaneous organizational learning into a generic and organization wide process based on clearly defined strategies. The university governance should become a planned driving force and information management should replace the traditional government management. Universities in the knowledge economy need to create and disseminate new knowledge and to add through research and innovation to the public development. Thus, the vision and mission of the university should incorporate new attributes and the academic leadership should be able to implement all of these changes in the operational academic management. The organization used in this paper was based on literature review and a conceptual analysis concerning the challenges of the university for the 21st century. The results showed that universities can become knowledge organizations if and only if their leadership create a set of specific conditions and all the members of the academic community share the new dream and mission developed by the university leaders. In contrast, the current study addressed how university management organizes the information economy practices.

Naser et al. (2022) on Studies of the growth of the knowledge management model at Al-Azhar universities and Al-Quds open universities in the Gaza Strip, Palestine. To verify the idea, the study used multi-criteria assessment of countries by the mixed method and a subsequent regression model. Their overall findings show that the process, leadership, people, and results of knowledge administration affect the efficiency of scientific research. Thus, the description of the multi-criteria appraisal and subsequent regression model is brief, and the study lacks detailed information about the specific criteria used, the selection process, and the variables included in the regression model. Providing a more comprehensive methodological description would enhance the transparency and replicability of the study, allowing other researchers to assess and potentially replicate the methods employed.

Al-Shobaki (2022) study investigating the relationship between administrative performance effectiveness and the utilization of decision provision systems at Al-Azhar University in Gaza, a total of 61 academics in administrative roles participated. Employing a descriptive analytical approach, secondary data were

gathered through a comprehensive inventory survey distributed to the entire research community. The study achieved a recovery rate of 65.6%, with 40 completed questionnaires retrieved. However, it is crucial to acknowledge that this participation rate may introduce response bias, potentially leading to differing perspectives among participants and non-participants. A comprehensive examination of these potential biases and their implications for the study's outcomes should be addressed thoroughly in the discussion section. The findings of the research highlight a statistically important direct relationship between the effectiveness of administrative presentation and the use of decision support systems at Al-Azhar University in Gaza, emphasizing the substantial impact of administrative effectiveness on the adoption of such systems.

Organizations are required to track their progress so as to check and measure accomplishments against standards to ensure achievement of goals that connect to their nation economy. As the nature of work is varying, the purposes of managing work must also change, as well as approaches to education and educational organizations, through a thorough consideration of the functions and constructions required to adapt to this change (Lafayette, Curtis, Bedford&lyer, 2019). The controlling function of management in knowledge economy basically assesses accomplishments and enables adjustments, Janus (2016) Considers monitoring and evaluation a critical aspect of knowledge sharing that greatly contributes to long-term success by providing (1) the accountability for resources spent, (2) the basis for practical improvement in knowledge sharing, and (3) the validation of the learning accomplished. These contributions prove vital for sustaining the growth of knowledge sharing and its increasing visibility in the agendas of national and international policy makers. Some of the measures used in nursing will provide quantitative, "hard" indicators, such as how often knowledge sharing processes work, while other, subjective judgments signify the qualitative, "soft" measures produced by asking people about their attitudes toward the activity. Also, Dědečková (2020) emphasize that in the business environment in which companies compete for competitive advantage is constantly changing and evolving, therefore managers should ensure that the plans are carried out to make sure that people are doing what needs to be done to meet the objectives.

In connection to university control system in supporting knowledge economy, modern organizations should put in place control mechanisms that fit with the emergent changes of the economy as Sljivic, Skorup & Vukadinovic (2015) comments that organizations that are looking for new business models, based mainly on innovations, in order to adapt to changed external circumstances use varieties of control mechanisms to track their performance and to minimize the negative effects arising from the external and internal environment. Further they point out that the techniques and tools used by management control are adapted to the specifics of each organization and are not subjected to any generally accepted standards. Marginson (2009) put it that research universities have emerged as key sites in the k-economy while becoming locked in by comparisons that reference them on a global scale and mark them with values readily comprehended by the many investors in knowledge and only partly internal to the institutions themselves. Thus, investigation universities are subject to two systems for adaptable value, operating alongside each other, sometimes intersecting: the economic value of commercial knowledge as represented by knowledgeable property and commercial knowledge products; and the status value of public good knowledge as determined by university rankings, research and publication metrics, and probably also by learning outcomes in future.

### **5.5 Leading in the University Play a Role in the Knowledge Economy**

The study found the use of Information and Computer Technology (ICT) in sharing of knowledge and information it also creates new jobs that were not existed previously, like software engineers, app creation, and information systems management center, all these go into the information age and create effective communication. The study findings imply that the application of knowledge is now recognized to be one of the key sources of growth in the global economy. This 'knowledge revolution' manifests itself in many different ways: there are closer links between science and technology; invention is more important for financial growth and competitiveness; there is increased importance of education and life-long learning; and more asset is undertaken in intangibles (R&D, software and education) which is even greater than savings in fixed capital. And of course, there is the Information and Message Technologies (ICT) explosion which brings worldwide interdependency and connectivity (Taborga, 2011).

The study found that universities support research and innovation through multiple mechanisms, including mentoring junior researchers, providing research funding for staff, adopting research policies, and facilitating publications in both local and international journals. These practices demonstrate that universities not only transmit existing knowledge but also actively contribute to the creation of new knowledge through investigation. This continuous process of inquiry enriches teaching by ensuring that learning is grounded in both established and emerging knowledge. Consequently, (Dědečková, 2020) agrees that faculty members are expected to engage as much in research as in teaching. Systems that privilege one activity at the expense of the other risk undermining the holistic role of the university, as research and teaching are mutually reinforcing dimensions of academic excellence.

The study also found that universities actively support academic staff through training and development initiatives, with a strong emphasis on maintaining quality standards. These findings suggest that training positively influences staff performance by improving job satisfaction, professional engagement, and retention rates. As highlighted by Naser et al. (2016), structured training and development programs reduce turnover and enhance institutional stability, thereby strengthening the capacity of universities to achieve their objectives such as innovation and commercialization.

In addition, the study revealed that universities are investing significantly in Information and Communication Technology (ICT). This includes establishing ICT centers to address operational challenges, employing ICT experts to provide technical support, developing institutional ICT policies, and strengthening infrastructure for digital resources and security. Such efforts indicate a deliberate commitment to embedding ICT in the daily operations of universities such as in research. The findings imply that ICT not only facilitates access to advanced educational resources but also rejuvenates research and innovation methods. This integration creates more interactive environments, fosters stronger research engagement, and equips staff with essential technological competencies and outcomes that Marginson (2019) identifies as critical for higher education institutions in the knowledge economy.

## CHAPTER SIX

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 6.1 Introduction

This chapter presents the summary, conclusion and recommendations based on the specific objectives as indicated under the subsequent subheadings.

#### 6.2 Summary

The determination of the study is to explore the internal managerial practices of university in promoting knowledge economy in Tanzania. Specifically, the study was used by the researcher to explore how university management integrates aspects of knowledge economy in their planning, investigated how university management organizes the knowledge economy practices, established how control mechanisms support knowledge economy, and determined how leading in the university plays a part in the growth of knowledge economy. The study employed documentary review, survey and interview as methods for data collection from 54 respondents

##### 6.2.1 Planning Aspects of Knowledge Economy Initiatives

Strategic planning and vision play a vital role in integrating the knowledge budget into university management planning. Universities need to align their long-term goals with the evolving demands of the knowledge economy. This requires a comprehensive understanding of market trends, technological advancements, and societal needs. Strategic planning involves identifying key focus areas, setting clear objectives, and formulating strategies to achieve them. The vision should emphasize the development of knowledge-intensive programs, interdisciplinary collaborations, and fostering innovation and entrepreneurship. By incorporating elements of the knowledge economy into their strategic plans, universities can position themselves as hubs of knowledge creation and distribution.

Research and development play an essential role in integrating the knowledge economy into university management planning. Universities should foster a research culture that encourages knowledge creation, innovation, and technological advancements. This includes establishing research centers, institutes, and partnerships with industry and other academic institutions. By promoting interdisciplinary research, universities can address complex societal challenges that

require cross-disciplinary expertise. Moreover, universities should emphasize applied research, technology transfer, and the commercialization of intellectual property. This can involve establishing technology transfer offices, promoting entrepreneurship, and supporting startups based on university research. By actively engaging in research and development activities, universities can contribute to economic growth and societal well-being. Research and development (R&D) are integral to the integration of the knowledge economy into university management planning. Universities must foster a research culture that promotes knowledge creation, innovation, and technological advancements. This involves establishing research centers, institutes, and collaborations with industry partners and other universities. By encouraging interdisciplinary research and promoting collaboration across disciplines, universities can address complex societal challenges and contribute to economic growth. R&D activities should focus on applied research, technology transfer, and commercialization of intellectual property. Universities should also seek funding opportunities from both governmental and private sources to support research endeavors.

Collaboration between universities and industries is a key driver for integrating the knowledge economy into university management planning. Universities should establish strong partnerships with industries to link the gap between academia and the real-world application of knowledge. This can take the form of joint research projects, internships, cooperative education programmes, and industry-sponsored laboratories. Such collaborations provide students with practical exposure, industry-relevant skills, and networking opportunities. Universities can benefit from industry insights, funding, and access to the latest technologies. Collaborative initiatives also facilitate knowledge exchange, promote innovation, and improve the employability of graduates.

Technological infrastructure plays a vital part in integrating the knowledge economy into university management planning. Universities need to participate in state-of-the-art information and communication technology (ICT) infrastructure to support teaching, learning, research, and administrative processes. Robust networks, high-speed internet, and advanced computing facilities are essential. Universities should adopt learning management systems, virtual collaboration tools, and online platforms to facilitate remote learning, research collaboration, and knowledge

sharing. Additionally, investments in developing technologies such as artificial intelligence, big data analytics, and virtual reality can enhance the learning experience and promote innovation in the knowledge economy.

Human resource development is a critical component of integrating the knowledge economy into university management planning. Universities need to attract, develop, and retain a varied and talented faculty and staff. This involves recruiting experts in emerging fields, fostering a supportive and inclusive work environment, and providing professional development opportunities. Universities should encourage faculty to engage in industry collaborations, entrepreneurship, and research commercialization. Moreover, universities should prioritize continuous learning and upskilling for faculty and staff to keep pace with the rapidly evolving knowledge economy. By investing in human capital, universities can drive innovation, enhance teaching quality, and establish a competitive edge in the knowledge budget.

In summary, integrating the knowledge economy into university organization planning requires a multidimensional approach. Strategic planning and vision, curriculum development and delivery, research and development, industry-academia collaboration, technological infrastructure, and human resource development are key areas that university management must address. By effectively incorporating these aspects, universities can position themselves as drivers of knowledge creation, innovation, and economic growth in the knowledge budget.

### **6.2.2 Internal university management organization of knowledge economy practices**

Internal university management organizes knowledge economy practices by implementing various strategies and structures that facilitate the integration of the knowledge economy into the institution: Effective leadership and governance are crucial for organizing knowledge economy practices within a university. University leaders, such as the president or vice-chancellor, provide vision, strategic direction, and allocate resources to support knowledge economy initiatives. They establish policies and procedures that promote innovation, interdisciplinary collaboration, and industry partnerships. Additionally, governance structures ensure accountability and transparency in decision-making processes related to the knowledge economy.

Universities often establish dedicated departments or units to oversee knowledge economy practices. These units may include offices of invention and free enterprise, research and development, industry engagement, technology transfer, and permanent education. These departments focus on emerging and implementing strategies to foster knowledge creation, technology commercialization, industry-academia collaboration, and lifelong learning opportunities.

Universities create interdisciplinary centers and institutes that bring together faculty members and researchers from various disciplines to address complex challenges of the knowledge economy. These centers facilitate collaboration, knowledge sharing, and joint research initiatives. They often focus on emerging fields, such as artificial intelligence, data science, sustainability, and entrepreneurship. Interdisciplinary centers and institutes play a crucial part in promoting invention and producing impactful investigation outcomes.

Universities should invest in robust technology infrastructure and provide necessary support to facilitate knowledge economy practices. This includes high-speed internet, advanced computing facilities, software tools, and learning management systems. Technical support teams assist faculty, staff, and students in utilizing technology effectively for teaching, research, collaboration, and innovation. Universities may also offer training courses and workshops to improve digital literacy and technological skills among their community members.

Internal university management actively seeks funding opportunities and grants to support knowledge economy practices. This includes applying for research grants from governmental agencies, industry partnerships for funding research projects, and seeking philanthropic support. Universities also establish internal funding mechanisms to encourage faculty and researchers to pursue innovative projects and commercialize their intellectual property.

Internal university management establishes performance measurement and evaluation systems to assess the effectiveness of knowledge economy practices. Key performance indicators (KPIs) related to research outputs, industry collaborations, technology transfer, student employability, and community impact are often used. Regular evaluation helps identify areas of improvement, measure the success of initiatives, and align the institution's goals with the knowledge economy.

Internal university management establishes collaboration platforms and initiatives to encourage knowledge exchange and interdisciplinary collaboration. These platforms can include innovation spaces, research clusters, and collaborative projects that bring together researchers, students, and industry partners. They facilitate the sharing of ideas, expertise, and resources, fostering a culture of collaboration and innovation within the institution. Universities develop mechanisms for managing intellectual property (IP) generated through research and innovation. Internal university management establishes policies and procedures related to IP protection, commercialization, and licensing. Technology transfer offices or similar units assist faculty members and researchers in identifying patentable inventions, securing IP rights, and exploring commercialization opportunities. These efforts ensure that valuable information and inventions are effectively moved to the market and contribute to the knowledge economy.

Internal university management promotes entrepreneurship and supports the development of startups within the institution. This can involve establishing entrepreneurship centers or incubators that provide resources, mentorship, and funding chances for students, faculty, and staff interested in launching their own ventures. The management may also collaborate with external organizations, such as venture capital firms or business accelerators, to provide additional support and networking opportunities for startups.

Internal university management recognizes the importance of continuous professional development for faculty, staff, and researchers. They establish programs and initiatives that promote lifelong learning, upskilling, and staying updated with the latest knowledge and practices in the knowledge economy. This can include workshops, seminars, conferences, and online courses that provide opportunities for professional growth and development.

Internal university management ensures that quality assurance and accreditation processes align with the knowledge economy. They establish assessment frameworks that focus on outcomes, including the employability of graduates, industry relevance of programs, and the impact of research outputs. By incorporating knowledge economy indicators into quality assurance processes, universities demonstrate their

commitment to preparing students for the rapidly changing strains of the workforce and the knowledge economy.

Internal university management actively engages with various stakeholders, including industry partners, government agencies, alumni, and the local community. They establish advisory boards or councils that include representatives from these stakeholder groups. Regular consultations and collaboration with stakeholders help universities stay informed about industry needs, societal challenges, and emerging trends. It also ensures that knowledge economy practices are associated with the broader goals and priorities of the stakeholders.

Internal university management leverages data analytics and decision support systems to inform strategic decision-making related to the knowledge economy. By collecting and analyzing data on student outcomes, research performance, industry collaborations, and technology transfer, universities gain insights into the effectiveness of their knowledge economy creativities. This data-driven approach helps identify areas for improvement, allocate resources efficiently, and make informed decisions to further integrate the knowledge economy into university management planning.

### **6.2.3 University Internal Control Mechanisms Work to Support Knowledge Economy**

Control devices play a crucial role in supporting the knowledge economy within organizations, including universities. These mechanisms provide oversight, ensure accountability, and promote effective management of knowledge-related activities. Control mechanisms establish performance measurement and appraisal systems to assess the effectiveness of knowledge economy practices. Key performance indicators (KPIs) related to research outputs, innovation, industry collaborations, technology transfer, and student employability are monitored. These measurements help identify areas of improvement, track progress, and align organizational goals with the knowledge economy. Performance evaluation provides valuable feedback to stakeholders and enables data-driven decision-making.

Control mechanisms ensure quality assurance and accreditation processes align with the knowledge economy. Standards and benchmarks are established to assess the quality and relevance of academic programs, research outputs, and industry

engagement. Quality control measures ensure that the knowledge imparted in educational programs meets the evolving demands of the knowledge economy. Accreditation processes validate the institution's commitment to excellence and provide external recognition of its achievements.

Control mechanisms govern the management of intellectual property (IP) generated within the organization. Policies and procedures are established to protect, commercialize, and license IP assets. These mechanisms ensure proper documentation of inventions and discoveries, enable the transfer of knowledge and skill to the market, and safeguard the interests of the organization and its stakeholders. Effective control over IP management maximizes the value derived from knowledge creation and stimulates innovation. Control mechanisms include robust risk management practices to address potential challenges and uncertainties in the knowledge economy. Risk assessment processes identify and analyse risks associated with research projects, technology transfer, industry collaborations, and financial investments. Risk mitigation strategies are developed to minimize the impact of potential risks. By proactively managing risks, organizations can protect their intellectual assets, enhance decision-making processes, and foster a culture of innovation and resilience.

Control mechanisms ensure compliance with legal and ethical standards in the knowledge economy. Policies and codes of conduct are established to govern research ethics, data privacy, intellectual property rights, and industry partnerships. Compliance frameworks promote responsible conduct in research and innovation, protect the rights of stakeholders, and maintain the organization's reputation. Ethical considerations are embedded in decision-making processes, ensuring that knowledge economy practices are conducted with integrity and social responsibility. Control mechanisms encompass financial management systems that support knowledge economy practices. Budgeting and financial planning allocate resources to research and development initiatives, technology infrastructure, industry collaborations, and knowledge transfer activities. Financial controls ensure transparency, accountability, and efficient utilization of resources. Investments in the knowledge economy are monitored, and financial performance is evaluated to optimize resource allocation and achieve organizational objectives.

Control mechanisms include effective governance and leadership structures that provide direction and oversight for knowledge economy practices. Clear roles and responsibilities are defined, and decision-making authority is delegated appropriately. Governance frameworks promote transparency, accountability, and stakeholder engagement. Leadership promotes a culture of innovation, knowledge sharing, and collaboration within the organization. Effective governance and leadership enable strategic alignment, drive cultural change, and support the implementation of knowledge economy initiatives. Control mechanisms encompass knowledge management systems that enable the capture, organization, and dissemination of knowledge within the organization. These systems include databases, intranets, and partnership platforms that enable easy access to relevant information, research findings, and best practices. By implementing effective knowledge management systems, organizations can enhance the sharing and utilization of knowledge, foster innovation, and accelerate learning and decision-making processes.

Control mechanisms support continuous learning and development initiatives within organizations. Training programs, workshops, and expert development opportunities are provided to employees to enhance their knowledge and skills relevant to the knowledge economy. These initiatives encourage a culture of lifelong learning and encourage employees to stay updated with emerging trends, technologies, and practices. By investing in continuous learning, organizations can ensure the adaptability and competitiveness of their workforce in the knowledge economy. Control mechanisms establish collaboration and communication channels to facilitate knowledge exchange and collaboration among employees, departments, and external stakeholders. These channels can include online platforms, project management tools, and regular meetings or forums for sharing insights, ideas, and experiences. By providing effective channels for collaboration and communication, organizations can foster a culture of open innovation, interdisciplinary collaboration, and idea generation.

Control mechanisms incorporate performance incentives and recognition programs that reward and recognize employees for their contributions to the knowledge economy. These incentives can include financial rewards, promotions, or public recognition for exceptional performance, innovative ideas, or successful knowledge

transfer and commercialization. By aligning incentives with knowledge economy practices, organizations motivate employees to actively participate in knowledge creation, sharing, and application.

Control mechanisms establish feedback loops and continuous improvement processes to enhance knowledge economy practices within organizations. Regular evaluations, surveys, and feedback mechanisms collect insights from employees, stakeholders, and customers. This feedback is used to identify areas for improvement, refine processes, and implement changes that optimize knowledge economy initiatives. By continuously seeking feedback and fostering a culture of continuous improvement, organizations can adapt to the evolving needs of the knowledge economy. Control mechanisms facilitate external collaboration and partnerships with other organizations, industry players, and research institutions. These collaborations can involve joint research projects, knowledge sharing initiatives, and industry-academia partnerships. Control mechanisms ensure that collaborations align with the organization's strategic goals, protect intellectual property, and enhance the organization's knowledge ecosystem. External collaborations leverage complementary expertise, expand networks, and promote cross-pollination of ideas and knowledge.

Control mechanisms involve monitoring and benchmarking practices to track the organization's performance and compare it with industry standards and best practices. Regular monitoring enables organizations to identify gaps, measure progress, and make data-driven decisions. Benchmarking provides insights into how the organization's knowledge economy practices compare with peers, helping identify opportunities for improvement and innovation. Control mechanisms support cultural alignment and change management efforts required to transition to a knowledge economy. This involves creating awareness, communicating the benefits of knowledge economy practices, and engaging employees in the change process. Control mechanisms ensure that the organizational culture supports knowledge creation, sharing, and innovation. They establish policies, practices, and reward systems that encourage risk-taking, experimentation, and learning.

Internal control mechanisms help protect intellectual property generated within the university. They establish policies and procedures for identifying, assessing, and

protecting intellectual property rights. This ensures that faculty, researchers, and students are encouraged to innovate and create new knowledge, knowing that their intellectual property will be safeguarded. Effective intellectual property protection fosters a supportive environment for knowledge creation, commercialization, and technology transfer. Internal control mechanisms facilitate the transfer of knowledge and technologies from the university to the marketplace. They establish processes for evaluating and selecting technologies with commercial potential, negotiating licensing agreements, and managing spin-off companies. These mechanisms ensure that university inventions, innovations, and research outcomes can be effectively commercialized, leading to economic development and the creation of new businesses and jobs. Internal control mechanisms govern the allocation and management of research funding and grants. They establish procedures for identifying funding opportunities, submitting proposals, and ensuring compliance with funding agencies' requirements. Effective control mechanisms in this area ensure transparency, accountability, and responsible financial management, allowing researchers and faculty to secure funding for their knowledge economy-related projects.

Internal control mechanisms support the establishment and management of industry collaborations and partnerships. They facilitate the negotiation and execution of research agreements, contracts, and consortiums with industry partners. These mechanisms ensure that collaborations are structured and managed effectively, enabling the exchange of knowledge, resources, and expertise between the university and external stakeholders. Industry collaborations contribute to the development of innovative solutions, the transfer of technology, and the commercialization of research outcomes. Internal control mechanisms ensure that the university adheres to legal and ethical standards in knowledge economy-related activities. They establish policies and procedures for research integrity, conflict of interest, and ethical conduct. These mechanisms promote responsible research practices, protect the rights of research participants, and maintain the integrity of the knowledge creation process. Compliance with ethical standards enhances the reputation of the university and builds trust among stakeholders, facilitating effective engagement in the knowledge economy. Internal control mechanisms support effective knowledge management and sharing within the university. They

establish systems for organizing, storing, and disseminating knowledge assets, including research publications, datasets, and patents. These mechanisms promote the accessibility and visibility of knowledge generated within the university, facilitating collaboration, innovation, and the transfer of knowledge to external stakeholders. Effective knowledge management enhances the university's contribution to the knowledge economy by maximizing the impact of research outcomes.

#### **6.2.4 Leading in the University's Role in the Knowledge Economy**

Leadership in the university plays a crucial part in driving the growth of the knowledge economy. University leaders provide a clear vision and strategic direction that aligns with the principles of the knowledge budget. They articulate the university's mission and goals, emphasizing the importance of innovation, research excellence, and industry collaboration. Leaders set strategic priorities and allocate resources accordingly, ensuring that the institution's activities and investments contribute to the growth of the knowledge budget. Effective university leaders foster a culture of innovation among faculty, researchers, and students. They encourage creativity, risk-taking, and entrepreneurial thinking, promoting an environment that supports the generation of new knowledge and ideas. Leaders establish policies and practices that encourage interdisciplinary collaboration, promote the transformation of research into applied applications, and recognize and reward innovation and entrepreneurship.

University leaders play a key part in establishing and nurturing partnerships with industry and other external stakeholders. They engage in relationship-building with industry leaders, government officials, and community organizations to foster collaboration and knowledge exchange. Leaders create platforms and initiatives that facilitate industry engagement, such as joint research projects, technology transfer programs, and internship opportunities. These partnerships enhance the relevance of university research, promote industry-driven innovation, and support economic development.

Leaders in the university support and promote entrepreneurship and commercialization activities. They establish programs and resources to support faculty, researchers, and students in identifying commercialization opportunities for

their innovations and research outcomes. Leaders provide guidance on intellectual property protection, technology transfer, and startup creation. They also foster an entrepreneurial ecosystem within the university, connecting innovators with mentors, investors, and business development support.

University leaders prioritize the growth of talent and skills required for the knowledge economy. They invest in faculty and staff development programs that enhance teaching, research, and leadership capabilities. Leaders foster a culture of continuous learning, promoting professional development opportunities and providing support for acquiring new skills, such as data analytics, digital literacy, and entrepreneurship. By nurturing talent and skills, leaders ensure that the university produces graduates and researchers who are well-equipped to thrive in the knowledge economy. Leaders in the university act as advocates for the knowledge economy at the institutional, regional, and nation-wide levels. They engage in policy discussions, collaborate with government agencies and industry associations, and contribute expertise to shape policies and strategies that support the knowledge economy. Leaders leverage their positions to influence decision-making, secure funding, and create an enabling environment for knowledge-driven invention and economic growth. Overall, leadership in the university is important for driving the development of the knowledge budget. Effective leaders provide vision, foster a culture of innovation, facilitate industry partnerships, support entrepreneurship, develop talent and skills, and advocate for policies and resources that promote the knowledge economy. Through their strategic actions, leaders shape the institution's contribution to economic development, innovation, and societal impact.

### **6.3 Conclusion**

This study made conclusions systematically, guided by each of the specific objectives. The conclusions are therefore presented reflecting on how planning, organizing, controlling, and leading functions of internal university management facilitate the promotion of knowledge economy initiatives in Tanzanian public universities as follows: -

The study concluded that internal university management incorporates information and communication technology in their planning through purchasing of ICT

Equipment, exercise on the use of ICT facilities, certifying availability of internet, and providing alternative power for supporting ICT. The study also concluded that internal university management incorporate Training and Development Programs in their Planning through having plan for Training design, plan for mode of training (off job/on job training), planning for Training Need Assessment (TNA) and the universities have plan for Performance Measurement. In addition, the study concluded that Internal University Management Incorporate Research and Innovation Programs in their planning through availability of fund to support research and innovation, and identifying the right expert for research and innovation. Furthermore, the study concluded that the internal universities' management have been incorporate teaching improvement in the strategic planning through competitive remuneration of academic staff, improvement of learning Infrastructures, availability adequate teaching and learning resources and availability of adequate number of academic staff. Lastly, the study found that internal university management incorporates consultancy program through planning to have expertise on consultation, plan for advertising consultancy services and university plan for specific theme or specific area for consultancy.

The study concluded that the internal universities' management has been organizing consultation Practices through consultancy Bureau (UCB), specific areas for providing consultancy services, creating a schedule for providing consultancy services to community and informing the community kind of consultancy services provided. In addition, the study concluded that the internal universities' management has been organizing Research Practices through research center and research policy, Sustainable research funding, Research information management unity and that universities organizes researches under research, innovation and knowledge exchange department. Furthermore, the study concluded that the internal universities' management has been organizing training Practices, universities on research and technical skills.

The study concluded that university internal control mechanisms work to support knowledge economy to review, adjust goals and objectives of the universities, guided by goals setting criteria (rules), through having quality control and assurance measures that are designed to identify errors or irregularity, and through the quality control Bureau and committee. The study also concluded that the Universities have

Performance control Measures for their Academic Staff; quality insurance bureau to ensure better employees' performance, established standards for work performance, uses of monitoring and evaluation mechanism to improve employees' performance and universities uses performance measurement tools to identify employee performance. In addition, the study concluded that universities have been using Internal Control Mechanisms to Support Knowledge Economy through cooperating with foreigner universities for supporting training, Universities academic staff are funded to attend long-term training, and universities provide opportunity for on job training, and the Universities provides ICT facilities for training. Moreover, the study concluded that the universities have Internal Control Mechanisms to review academic staff remuneration which have led the universities to provide competitive remuneration, to provide timely payment of remuneration to staff, and university staff members have been compensated according to their remuneration scales and the Universities have special committee to review employee's remuneration.

The study concluded that the consumption of Information and Computer Technology (ICT) simplifies the sharing of knowledge and information it also creates new jobs that had not existed previously in the universities, like software engineers, app creation, and evidence systems management center. The study also concluded that the universities are supporting research and innovation through junior researcher's carrier guidance and advice in research and innovation, support research with staff with funding, the Universities has data protection policy and the Universities support researchers in publications in both internal and international journals. In addition, the study concluded that the universities are supporting academic staff with training and Development, there is also strong emphasis on quality training. Lastly, the study concluded that the universities have been supporting information and Communication Technology (ICT), advancing in and management of modern and efficient communications facilities, the universities has ICT center for providing solution to challenges relating to ICT facilities, universities has ICT experts to provide technical support and use of ICT facilities, universities has developed ICT policy to guide its operational and universities has strengthening ICT infrastructures resources and security.

### 6.3 Recommendations

Based on the outcomes, this study offers several key references to enhance the knowledge economy (KE) within university management. The recommendations of the study, therefore, are hereby based on the specific objectives as follows: -

**Systematize Innovation Transfer:** Strengthen the link between industry and the university to create a seamless pathway for innovation transfer. This can be achieved by establishing formal partnerships, collaborative research projects, and joint ventures. Regular industry engagement through workshops, seminars, and innovation fairs will facilitate the exchange of ideas and a technology, ensuring that academic research translates into real-world applications and benefits.

**Expand internal funding mechanisms** specifically aimed at supporting KE initiatives. Create grant programs, seed funding, and innovation awards to incentivize faculty and researchers to pursue groundbreaking projects. Providing financial support for early-stage research and development can significantly boost the university's innovation capacity and entrepreneurial activities. Internal funding programs should be typically designed to align with the strategic goals and priorities of the university. This allows the institution to prioritize research that directly addresses local challenges and needs; ensuring that the funded projects are highly relevant to the community the university serves.

**Establish Mentoring Policies:** Implement structured mentoring programs to foster collaboration and knowledge sharing between junior and senior faculty members. Mentoring should focus on innovation capabilities, research guidance, and academic growth. Senior faculty can provide invaluable insights and support to their junior counterparts, thereby enhancing research quality and supporting KE within the university.

**Strengthen Interdisciplinary Research:** Create interdisciplinary offices dedicated to promoting and managing cross-disciplinary research initiatives across different units in the university. These offices should facilitate collaboration among different academic departments, providing resources and support for interdisciplinary projects. By breaking down silos and encouraging diverse perspectives, the university can tackle complex global challenges more effectively and drive innovative solutions that contribute to the knowledge economy.

University management can develop flexible and adaptive organizational structures that can respond quickly to emerging opportunities and challenges in the knowledge economy. This includes creating cross-functional teams, temporary task forces approach that will enable the university to be more responsive and innovative in its KE activities.

**Strengthen Technological Infrastructure:** Invest in advanced technological infrastructure, such as high-speed internet, modern computing facilities, up to date laboratory facilities and research management software. Up-to-date technological tools and resources are crucial for supporting research and innovation activities.

**University management develop Comprehensive Evaluation and Feedback Mechanisms:** Implement solid evaluation and feedback mechanisms to track the progress and impact of KE initiatives. Regularly assess research outputs, innovation activities, and industry collaborations through both quantitative and qualitative metrics. Timely feedback from these evaluations should be integrated into strategic planning processes to ensure continuous improvement and alignment with the university's KE goals.

University management should prioritize leadership development programs that equip leaders with the skills and knowledge required to drive the growth of the knowledge budget. This includes providing training and support for leaders to understand the principles and practices of the knowledge economy, development a culture of invention and entrepreneurship, and promoting interdisciplinary collaboration. Management should also encourage leaders to engage in continuous learning and professional growth to stay abreast of the modern trends and advancements in the knowledge economy.

Overall, the recommendations emphasize the importance of integrating the knowledge economy into university planning, organizing supportive structures and mechanisms, establishing control mechanisms, and developing effective leadership practices. By implementing these recommendations, university management can effectively promote knowledge economy initiatives in Tanzania, fostering innovation, research excellence, industry collaboration, and economic development.

## **6.4 Research Agenda**

Building on the findings of this study, several related research areas emerge that provide further investigation:

- i. **External Influences on Knowledge: Economy Initiatives:** Future studies could investigate the role of government policies, regulatory frameworks, and funding mechanisms in shaping how universities promote the knowledge economy.
- ii. **University-Industry Partnerships:** Research could examine the depth and effectiveness of collaboration between universities and industries in Tanzania, with a focus on commercialization, innovation uptake, and graduate employability.
- iii. **Comparative Studies Across Regions:** Since this study was limited to Tanzanian 2 public universities, comparative private and cross-country research for instance within East Africa or other developing contexts could highlight similarities, differences, and lessons for policy and practice.
- iv. **Quantitative Approaches to internal Managerial Practices:** A large-scale survey across multiple universities could complement qualitative insights by providing measurable indicators of how managerial functions contribute to knowledge economy performance.
- v. **University Knowledge Asset Management:** further studies required on strategies to measure, manage, and leverage intangible assets (intellectual property, research outputs, patents, tacit knowledge) within higher education institutions.

## **6.5 PhD Contribution**

### **(i) Theoretical Contribution**

This study extends the application of systems theory, management functionalism and Technology-Organization -Environment (TOE) to the university sector by linking the four classical management functions (planning, organizing, leading, controlling) directly with knowledge economy imperatives. It contributes to the discourse by

showing how these functions, traditionally inward-looking, can be reframed as drivers of innovation, research commercialization, and intellectual capital development.

#### **(ii) Methodological Contribution**

The use of a qualitative multi-case study design with triangulated methods (interviews, document review, and thematic analysis) provides a methodological framework for exploring complex managerial practices in higher education. This approach demonstrates the value of interpretive, context-specific inquiry in capturing subtle dynamics of planning, organizing, controlling leadership, governance, and innovation within Tanzania public universities.

#### **(iii) Policy Contribution**

Findings underscore the need for higher education policy in Tanzania to strengthen qualitative dimensions of research evaluation, promote interdisciplinary collaboration, and provide incentives for research commercialization. The study highlights gaps in existing policies that overly emphasize publication metrics while neglecting innovation, societal impact, and industry linkages.

#### **(iv) Practical Contribution**

The study provides actionable recommendations for university administrators, including the integration of situational analysis into strategic planning, initiating mentoring policy, strengthening consultancy and incubation structures, fostering ethical and visionary leadership, and prioritizing stakeholder feedback in quality assurance. These insights equip universities with practical pathways to align internal management practices with the demands of the knowledge economy.

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## APPENDICES

### APPENDIX I: INTERVIEW GUIDE FOR DEANS/PRINCIPALS/DIRECTORS

GENERAL INFORMATION					
Date:	<input type="text"/>	Job title:	<input type="text"/>		
School/Faculty/College:	<input type="text"/>				
Director/Deans/Principals :	<input type="text"/>				
Years at current position:	<input type="text"/>	Duration of interview:			
		Start	<input type="text"/>	End	<input type="text"/>
		:		:	
Qualification	<input type="text"/>				
n					
<b><u>Questions</u></b>					
i. How do you participate in the planning process of university activities?					
ii. What are the things that are prioritize in the planning process of the university activities and why?					
iii. How are issues such as research, innovation reflected in university plans?					
iv. How do you respond to wider plans of the university through the unit plans?					
v. How does the university ensure the integration of knowledge creation, sharing?					
vi. What strategies are in place to ensure that knowledge economy practices are incorporated within the university plans?					
vii. How do you allocate resources related to knowledge creation activities across the unit?					
viii. In what ways do the institutional organization structures promote knowledge economy activities in the unit?					
ix. How do you constantly review and adjust goals and objectives of the university?					
x. In what way do your school/faculty /college measure its performance? for instance considering issues related to innovative ideas?					
xi. How does the feedback mechanism used to improve and adapt to knowledge economy practices?					
xii. How do you view the role of leadership in fostering a culture of knowledge sharing, transfer, and innovation?					
xiii. In what ways do you lead to support research/innovation-related activities?					
xiv. How do you convey clear vision of research /innovation/goals and objectives of the faculty?					

- xv. How do you consider the following aspects of leadership to ensure practices of knowledge economy among the staff? For instance
- a. Intellectual stimulation e.g., creativity
  - b. Use of formal authority
  - c. Motivation
  - d. Influence e.t.c

## APPENDIX II: INTERVIEW GUIDE FOR HEAD OF DEPARTMENTS

GENERAL INFORMATION					
Date:	<input type="text"/>	Job title:	<input type="text"/>		
School/Faculty/College:	<input type="text"/>				
Department:	<input type="text"/>				
Years at current position:	<input type="text"/>	Duration of interview:			
		Start	<input type="text"/>	End	<input type="text"/>
		:		:	
Qualification	<input type="text"/>				
n					
<b>Questions</b>					
i. What activities are prioritized in the university plans and how do you implement them within your department?					
ii. How do you arrange research-related /knowledge production/innovation activities, resources and processes at the department?					
iii. How are the processes of academic staff development in the university?					
iv. How do you capture, preserve, distribute, and manage departmental knowledge related data/progress information?					
v. What are the strategies for encouraging research and innovation activities at the university? For instance, research collaboration?					
vi. How does the department promote exchange of information and collaboration?					
vii. How do you measure the progress of the department towards the university goals?					
viii. Which systems does the department use to show that work such research work is progressing?					
ix. How does the department adopt their research/innovation activities to changes (whether internal or external)?					
x. How is the regularity of communication with your subordinates?					
xi. How are you able to influence and inspire your staff at different levels in the department?					
xii. In what way do leading in your department/unit encourage the following activities?					
a) staff motivation in writing articles for publications					
b) Academic staff willingness to share knowledge					
c) Discussion and feedback from staff					
d) Consultation services					
e) Staff voicing ideas					
f) Innovation and creativity from staff					
a. Integration of technology					

### APPENDIX III: INTERVIEW GUIDE FOR CO-ORDINATORS

GENERAL INFORMATION			
Date:	<input type="text"/>	Job title:	<input type="text"/>
Name of department:	<input type="text"/>		
Years at current position:	<input type="text"/>		
Specific unit of coordination			
Qualification	<input type="text"/> <input type="text"/>		
<b><u>Questions</u></b>			
i. What do you consider as priorities within the university planning? What initiatives have been taken to in your area of responsibility to incorporate the above plans?			
i. Can you describe the sources for Planning KE related activities in your area of coordination?			
ii. What are the ways in which technology is integrated within the university research/innovation activities of your area of responsibility?			
iii. How can you describe the channels used for communicating and sharing research/innovation output in the department?			
iv. What indicators are used for reviewing of goals and activities within your area of responsibility?			
v. In what ways do the internal control mechanisms contribute to the overall success of the university goals? Such as research? innovation?			
vi. How would you describe leadership in fostering knowledge sharing culture?			
vii. In what ways does your leading encourage implementation of research/innovation activities in your area of responsibility?			

### **DOCUMENTS**

- STRATEGIC PLANS
- PROSPECTUS
- UNIVERSITY QUALITY ASSUARANCE HANDBOOK AND GUDELINES
- POLICIES

### **MEDIA SUCH AS: University Websites**

## APPENDIX IV: INTRODUCTORY LETTER



7<sup>th</sup> March, 2022

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

**RE: INTRODUCTORY LETTER FOR MARTHA MKASAFARI SHIO**

Warm greetings from Uganda Christian University!

This serves to introduce the above named; **Martha Mkasafari Shio**, as our student registered number **RM/P02/006** pursuing a Doctoral of Philosophy (PhD) in Education Management and Administration.

Martha is conducting a research as a requirement for the award of the above mentioned degree entitled; *Exploring Higher Education Institutions Management in the Promotion of Knowledge Economy*.

She has fulfilled all clearance requirements such as getting Research Ethics Approval from UCUREC which is accredited and regulated by Uganda National Council for Science and Technology (UNCST).

Any assistance given to her in achieving this goal will be highly welcome.

Thank you so much.

Yours faithfully,

Dr. Owor Joseph Jakisa  
Directorate of Postgraduate Studies,  
Uganda Christian University  
[jowor@ucu.ac.ug](mailto:jowor@ucu.ac.ug)



cc. Executive Secretary, Uganda National Council Science & Technology

A Complete Education for A Complete Person

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Tel: +256 101 31 235 0800, Web: [www.ucu.ac.ug](http://www.ucu.ac.ug) UgandaChristianUniversity @UCUniversity  
Founded by the Province of the Church of Uganda. Chartered by the Government of Uganda

## APPENDIX V: CONSENT FORM



**Research Title:** INTERNAL MANAGERIAL PRACTICES OF UNIVERSITY IN PROMOTING KNOWLEDGE ECONOMY INITIATIVES IN TANZANIA.

**Research Objectives:** To explore how university management integrates aspects of knowledge economy in their planning; To investigate how university management organizes the knowledge economy practices; To establish how control mechanisms support knowledge economy and to determine how leading in the university plays a role in the development of knowledge economy

**Researcher:** Martha Shio: Phd Student (Educational Administration & Planning).  
Uganda Christian University

**Research Supervisor:** Dr. Eduan Wilson, from School of Education, Uganda Christian University

### ***Declaration from the participant***

I \_\_\_\_\_ declare to participate in the aforementioned study. I acknowledge that I have been provided with the opportunity to ask questions for clarifications and I understand that I have the right to withdraw from participating if I feel uncomfortable during the interview process.

I consent to (please tick Yes or No):

- Being interviewed : Yes  /No
- The interview being audio recorded: Yes  /No
- I also understand there are no risks associated with this study: Yes  /No

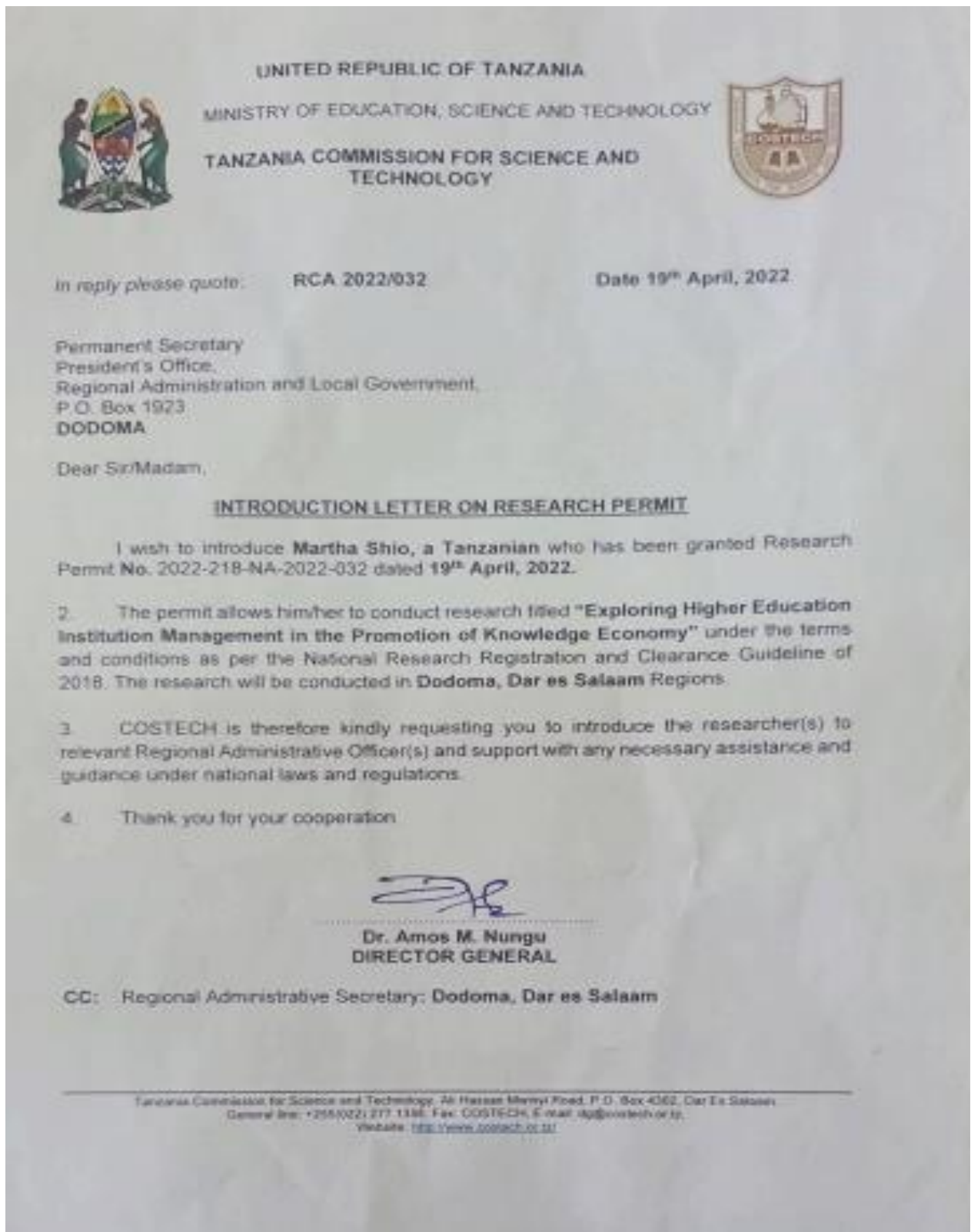
Directorate/College/School/Department/Unit:

\_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

APPENDIX VI: INTRODUCTORY LETTER :TANZANIA COMMISSION FOR SCIENCE AND TECHNOLOGY(COSTECH)





UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

TANZANIA COMMISSION FOR SCIENCE AND TECHNOLOGY



### RESEARCH PERMIT

Permit No. 2022-218-NA-2022-032

Date issued 19<sup>th</sup> April, 2022

Researcher's Name Martha Shio

Nationality Tanzanian

Research Title Exploring Higher Education Institution Management in the Promotion of Knowledge Economy

Research Area(s) Dodoma, Dar es Salaam

Validity From: 19<sup>th</sup> April, 2022 to 18<sup>th</sup> April, 2023

Contacts of local collaborator (with affiliated institution)

PROGRAM OFFICER

DIRECTOR GENERAL

#### IMPORTANT REQUIREMENTS

- A PI who wishes to continue with a research beyond the expiry date of the research permit should write to COSTECH two months before the operational permit's expiry date, to request for an extension or renewal of the permit.
- Research permit that involves collecting human, plant or animal materials / data that will be exported outside Tanzania must submit a signed Material Transfer Agreement (MTA) Data Transfer Agreement (DTA) between Tanzania host institution and the foreign counterpart. The MTA/DTA will indicate terms for collecting, storing/managing, transporting, disposal or returning of the materials/DATA to Tanzania after the closure of the research project.
- Any patent or intellectual property and royalty arising from any research approved by the National Research Registration Committee (NRRC) shall be owned as stipulated in the research proposals and in accordance with the IP policy of the respective research institutions.
- All researchers are required to report to a Regional Administrative Secretary (RAS) of the study area and present the introduction letter and activity schedule/plan prior starting any research activity.
- All researchers are required to submit quarterly progress reports and all relevant publications made after completion of the research.
- All communications should be addressed to COSTECH Director General through [director@costech.or.tz](mailto:director@costech.or.tz), [info@costech.or.tz](mailto:info@costech.or.tz) or +255 (022) 2700742, +255 (022) 2771358. Terms and conditions of the permit are found at [www.costech.or.tz](http://www.costech.or.tz)

## APPENDIX VII: UNIVERSITY INTRODUCTORY LETTER

 **THE UNIVERSITY OF DODOMA**  
**OFFICE OF THE DEPUTY VICE CHANCELLOR-ARC**  
DIRECTORATE OF RESEARCH, PUBLICATIONS AND CONSULTANCY  
P.O. Box 259  
DODOMA, TANZANIA  
TEL: +255-026-2310002

FAX: +255-026-2310012  
EMAIL: [dvcarc@udom.ac.tz](mailto:dvcarc@udom.ac.tz)  
Website address: [www.udom.ac.tz](http://www.udom.ac.tz)

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Our Ref. No. MA.B4/261/01/36 4<sup>th</sup> April, 2022

To: All Principals  
Deans  
Directors  
The University of Dodoma

Re: Introduction Letter for Ms. Martha Mkasafari Shio

The heading above is in reference.

The aforementioned is a bonafide student of the Uganda Christian University. She has fulfilled all clearance requirements, such as getting research ethics approval from UCUREC, accredited and regulated by the Uganda National Council for Science and Technology (UNCST). She intends to conduct research at the University of Dodoma (UDOM).

I kindly introduce her to you and request your esteemed office for any necessary support that she may require in conducting her research at your College/School and Institute. The title of her study is *"Exploring Higher Education Institutions Management in the Promotion of Knowledge Economy."* She will conduct his research from 1st April to 30th August 2022.

Kindly do not hesitate to contact the undersigned in case of any queries.

Sincerely,

  
Dr. Ambrose Kessy  
Director-Research, Publications and Consultancy

C.C: Vice Chancellor  
Deputy Vice Chancellor-Academic, Research and Consultancy

## APPENDIX VIII: UNIVERSITY REVIEW FORM



# UGANDA CHRISTIAN UNIVERSITY

A Centre of Excellence in the Heart of Africa

03/01/2022

To: MARTHA SHIO

UGANDA CHRISTIAN UNIVERSITY  
+255712108045

Type: Initial Review

Re: UCUREC-2021-242: EXPLORING HIGHER EDUCATION INSTITUTIONS MANAGEMENT IN THE PROMOTION OF KNOWLEDGE ECONOMY , 1, 2021-12-10

I am pleased to inform you that the Uganda Christian University REC, through expedited review held on 29/12/2021 approved the above referenced study.

Approval of the research is for the period of 03/01/2022 to 03/01/2023.

As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the REC for re-review and approval prior to the activation of the changes.
3. Reports of unanticipated problems involving risks to participants or any new information which could change the risk/benefit ratio must be submitted to the REC.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by participants and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Continuing review application must be submitted to the REC **eight weeks** prior to the expiration date of **03/01/2023** in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda.

The following is the list of all documents approved in this application by Uganda Christian University REC:

No.	Document Title	Language	Version Number	Version Date
1	DATA COLLECTION TOOLS	ENGLISH	1	2021-12-10
2	Informed Consent forms	ENGLISH	1	2021-12-10
3	Protocol	English	1	2021-12-10

Yours Sincerely

Peter Waiswa  
For: Uganda Christian University REC

## APPENDIX IX: INTRODUCTION LETTER



**UGANDA CHRISTIAN  
UNIVERSITY**

A Centre of Excellence in the Heart of Africa

7<sup>th</sup> March, 2022

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

**RE: INTRODUCTORY LETTER FOR MARTHA MKASAFARI SHIO**

Warm greetings from Uganda Christian University!

This serves to introduce the above named; **Martha Mkasafari Shio**, as our student registered number **RM/P02/006** pursuing a Doctoral of Philosophy (PhD) in Education Management and Administration.

Martha is conducting a research as a requirement for the award of the above mentioned degree entitled; *Exploring Higher Education Institutions Management in the Promotion of Knowledge Economy*.

She has fulfilled all clearance requirements such as getting Research Ethics Approval from UCUREC which is accredited and regulated by Uganda National Council for Science and Technology (UNCST).

Any assistance given to her in achieving this goal will be highly welcome.

Thank you so much.

Yours faithfully,

**Dr. Owor Joseph Jakisa**  
Directorate of Postgraduate Studies,  
Uganda Christian University  
[jowor@ucu.ac.ug](mailto:jowor@ucu.ac.ug)

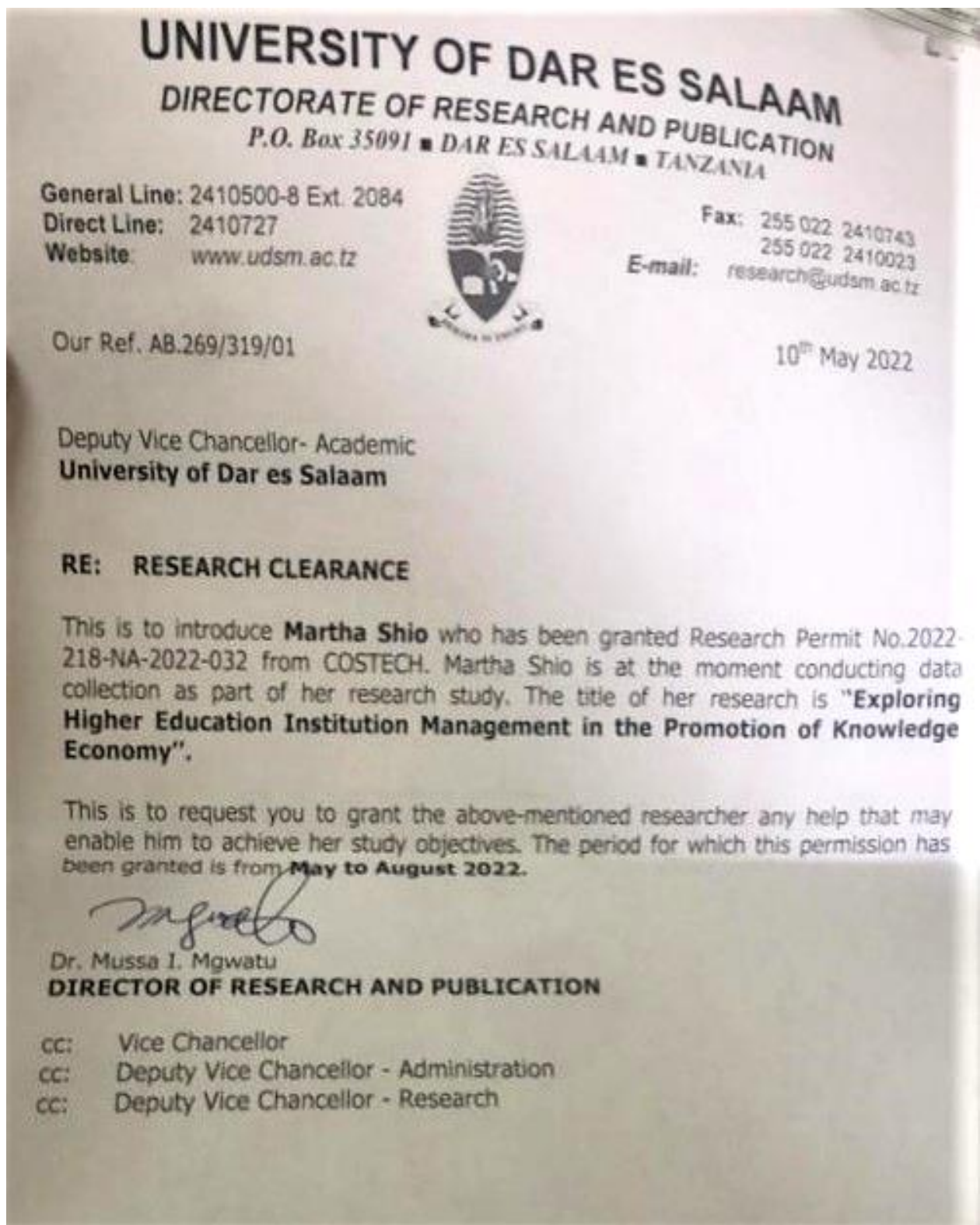


cc. Executive Secretary, Uganda National Council Science & Technology

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Tel: +256 (0) 31 235 0800, Web: [www.ucu.ac.ug](http://www.ucu.ac.ug) UgandaChristianUniversity @UCUniversity  
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APPENDIX X: RESEARCH CLEARANCE



UNIVERSITY OF DAR ES SALAAM



SCHOOL OF EDUCATION  
CENTRE FOR EDUCATIONAL RESEARCH AND PROFESSIONAL  
DEVELOPMENT  
**( C E R P D )**

Email: [cerpd@udsm.ac.tz](mailto:cerpd@udsm.ac.tz)

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30<sup>th</sup> May, 2022

To:

- (i) QAB Coordinator,
- (ii) Research Coordinator,
- (iii) Units' coordinators in the departments,
- (iv) Heads of departments  
School of Education

**Re: Introducing Ms. Martha Shio to collect data at the School of Education**

The above captioned matter refers.

Ms. Martha Shio has been granted permission by the DVC-Academic, UDSM to collect data at the SoED on the study titled 'Exploring Higher Education Institution Management in the Promotion of knowledge Economy'.

The purpose of this communication is to kindly ask the above mentioned members of academic staff (who are chosen in this study) to accord Ms. Martha Shio the necessary support in her data collection.

Thank you for your continued support and cooperation.

A handwritten signature in black ink, appearing to read 'Raymond M. Boniface'.

Raymond, M. Boniface (PhD)  
Coordinator – CERPD  
cc. Dean, SoED.

## APPENDIX XI: EXTRACT OF SCHEME OF CODES /CODE BOOK

THEME 1: Planning Aspects of Knowledge Economy Initiatives				
Code Label	Sub-theme	Examples of codes	Code description	Example of interview statements
PKE#	Planning KE strategically	Long-term goals; timeframe; KE items scheduled; long direction; strategic areas for research; aligning visions; regulatory long-term framework; university planning informs college and department planning of KE components; policies for more than 5 years; imagine future environment to operate; planning for a longer period of time	<ul style="list-style-type: none"> <li>• Systematic identification of strategies and resources for fostering KE - Integration of through institutional policies frameworks aligning with national development plans</li> <li>• Alignment of institutional documents with national policies mentioning or implying knowledge economy principles. - Integration of knowledge economy goals into university strategic plans based on national development frameworks</li> </ul>	<p>“universities now have the long-term time frame for incorporating functions such as innovation into university policies” (SM#1)</p> <p>“What we do as university more so a public university need to reflect what the country direction is therefore when you look at the plans goals strategies of the university hey are formulated based on the national policies frameworks since universities should address Tanzania needs “(SM#7).</p>
PKE#	Plans to generate diverse mechanisms for KE resourcing	Generate different approaches to secure funding; various options for supporting innovative ideas; generate internal research related activities revenue; charging fees for conferences; selling university made products; alternative routes to fund projects such as donors or NGOs; range of funding mechanisms and strategies		<p>“Let me say that grants from international aid like world bank and collaborations with global university institutions have not only provided financial support but also enhanced our research capabilities and global reach. (SM# 3)”</p> <p>“A variety of funding sources beyond government support is important” (MM#5)</p>
	Resourcing KE	Diverse Resourcing	- Embracing of diverse funding sources beyond government funds	“Strategies for research funding: -Strengthen the

		Mechanisms for KE Initiatives	for knowledge economy initiatives. - Strengthening research by enhancing funding sources to facilitate activities such as research prototyping and infrastructure acquisition.	capacity of the Directorate of Research and Publications to identify, share and utilize information on availability of sources of funding for research”
PKE#	Planning KE components informed through situational Analysis	Conducting a SWOT analysis to understand internal strengths, weaknesses, external opportunities, and threats in the context of KE; regulatory and policy frameworks influencing knowledge exchange; Studying the potential barriers and challenges that may affect the successful implementation of KE initiatives;	- Identification of weaknesses in situational analysis within institutional planning documents. - Use of planning documents to inform departmental action plans while addressing gaps such as lack of analysis on interdisciplinary collaborations.	“Of course, for we use the documents to make action plans within the department but while they provide insight into university goals, they fail address other aspects for instance status of interdisciplinary collaborations in the university (MM#2)”
PKE#	Planning for KE indicators	Licensing policies; ICT use & Infrastructure ; Increased value on R&D, &l; consultancy	- Incorporation of research and development (R&D) and innovation plans in university management planning. - Integration of information and communication technology (ICT) systems into university activities. - Inclusion of KE training programs in institutional planning.	“As a director i get involved in university planning in different capacities because of the three-tier function of the university teaching research and services for instance i am involved in planning for research resources for the students and the academic staff, funds among others” (Respondent SM#3) “Developing countries have been subjected to consume knowledge from other areas especially in the developed countries it is about time the university within the African context change this since we have all the ability to produce knowledge that is relevant to our context, although we still have a long way but am glad universities now here in Tanzania are

				making efforts to this regard” (Respondent SM#1).
PKE#	Planning for partnerships for KE initiatives	Potential connections; Partners for mutual benefits; Expertise of potential partners; other universities and research institutions; community contributions; collaborative networks; industry connections		“Partnerships and collaborations are highlighted in our strategic plans, means recognize the importance of external partnerships and the central administration handles all the formalities related to partnerships, “(SM#4) “While collaboration is encouraged and included in our strategic goals, the central administration handles the official partnership agreements” (LM#4) “Even though we identify potential partners and draft collaboration plans, the central administration finalizes and signs the memorandums of understanding.”(MM#3)
	Partnerships KE	Planning for Partnerships in KE Initiatives	- Emphasis on fostering collaborations among academia, industry, government, and stakeholders for knowledge economy initiatives. - Creation of synergies and sharing expertise through partnerships to accelerate knowledge-based initiatives.	
<b>THEME 2: Organizing Knowledge Economy Initiatives</b>				
OKE#	Organizing Processes of KE	Level of coordination between different level of management; copyrights to academic research; economic, money returns to academic research and innovation; challenges of bureaucracy; poor connections between hods	Administrative processes are designed to align closely with university policies. Middle Managers interpret and implement these policies to ensure that operational procedures support the strategic goals of the university, particularly in fostering a knowledge economy. Knowledge Economy (KE) tasks are divided into specific activities such as research, innovation, and collaboration with industry partners. economic returns from research outputs. These returns can come from licensing agreements, patents, and partnerships with	“We have a research coordinator at the college level and also department level and we get involved mainly through kukusanya taarifa za research (Collecting and documentation); and issues like organizing minor seminars for research at the college or department “(LM#5) “Most of the time you will find us three head of departments of the college meeting to plan and discuss matters such as organizing competition on research and innovation

		and senior managers; majority of college principals do not have the qualifications related to the college specialization; some hods involve staff in budget planning but not implementation so you find money for research remains.	industry, contributing to the financial	that will represent the college at the university level, sharing ideas on conferences (MM#6)”
OKE#		Administrative Processes' Impact on KE Activities	- Lengthy administrative procedures for approval affecting KE practices. - Top management decisions on research activities, funding, and ethics influencing implementation by middle-level employees.	“We managers of the most of us are academic staff, outside the management role we have a teaching role as well as research role and this is the case also with the academic staff”
OKE#	Indicators KE	Publications; knowledge dissemination & sharing platforms; Adaptability to technology: basic research versus applied research, startups; incubation of ideas; presence of technical staff in the laboratory Funding & infrastructure ; departmental sharing and communication Interdisciplinary nature of research & projects	-. - Utilization of multi-channel communication for research dissemination including websites, social media, and industry-academia forums.	”I see the way senior staff treat the junior staff instead of actively involving them into projects and research activities they use them in marking scripts it is even worse when the senior is the supervisor of the academic staff”(MM#6) “Faculty members are conducting basic research mostly compared to action research that can be translate to commercialized products; however, the issue comes to translating research findings into commercial products or services can be a complex and time-consuming process especially in some disciplines in social science or education this translation is simpler with the science related disciplines “(SM#4)
OKE#	R&D Innovation KE		- Increased emphasis on R&D in university planning compared to innovation activities. - Establishment of research centers	“I personally understand the importance of using open access but some of my academic staff worry

			and partnerships with industry to foster a culture of innovation and knowledge creation. Focus on basic research rather than action research due to incentives tied to promotion	that or let me say have concerns on the recognition and most still prefer the tradition way of publishing in the renown journals”
OKE#	Ecosystem KE	Provision of KE Ecosystem	- Utilization of external institutions for equipment and resources due to inadequate infrastructure within departments. - Entrepreneurship units in universities provide incubation of ideas and organizing innovation competitions among students.	“The entrepreneurship unit in the university provides incubation of ideas and sometimes even have competitions especially among students”
OKE#	Interdisciplinary Research KE	Operations for Interdisciplinary Research, research cutting across, mixing research with different researchers from different units, engaging with different disciplines, beyond my own field,	- Strategic focus on fostering interdisciplinary collaboration through research sub offices - Engagement with industry partners for applied research and knowledge exchange.	“Our university has strategically focused on fostering interdisciplinary collaboration and innovation which is the direction of the world today especially in academic institutions to remain active and visible. We have established dedicated research centers that bring together experts from different disciplines to tackle complex societal challenges”
OKE#	Output Value KE	Output Demonstrating Value of University KE Activities	- Emphasis on research applicability and innovation value for promotion. - Challenges in thorough review of proposals impacting the quality of outputs.	“These outputs not only demonstrate the value of university research and collaboration but also drive partnerships with industry, government, and community stakeholders”
OKE#	Channels for university KE related activities and outputs	Wats app, you-tube, websites, seminars, conferences, meetings, exhibitions	- Utilization of various communication channels such as websites, social media, and conferences for research dissemination. - Marketing university products through exhibitions, conferences, and trade fairs.	“we have different platforms that we use to communicate findings on research and innovation ikiwepo social media kama you tube so when an academic researcher comes with a research innovation such as product or a concept then he or she they get to talk about what they have produced for instance if it is a system then they describe it and this way it reaches people or relevant industry” “Publishing our research in open access journals I feel it increases visibility. It allows our findings to be accessed by many people, including researchers,

				<p>industry partners, and policymakers at national and global level. This enhances our reputation but also fosters greater collaboration and knowledge exchange." (SM#2)</p> <p>"In our department, we organize meetings and among the agendas is to facilitate the exchange of ideas and information among staff members on research issues" (MM#8).</p>
OKE#	Use of academic Staff KE	<p>Relevant &amp; Practical trainings (such as building entrepreneurial mindset);</p> <p>Through promotion exercises; encouraging consultancy activities;</p> <p>Awards &amp; incentives; academic expertise for cutting edge research;</p> <p>Activities</p>	<p>- Utilization of professors and researchers to generate intellectual property and engage in partnerships. - Faculty involvement in research, publications, and collaborations with industry for innovation.</p>	<p>"The university is using its professors and researchers to come up with new ideas, make discoveries, and find solutions to important problems, utilizing the expertise of faculty members to generate intellectual property, conduct research, and engage in partnerships that result in innovations, publications, and collaborations with industry" (SM#5)</p> <p>"Many of our academic staff are involved in consultancy work or other jobs outside the university. This means they have less time to dedicate to their primary roles here of research work " (MM#3).</p> <p>"It's difficult to get staff fully committed to research projects when they have other opportunities outside the university that limit even their presence in the offices, so university need to think of better incentives and support for research activities to keep staff focused and motivated " (MM#5).</p>
<b>Theme 3: Leading function in promoting Knowledge Economy</b>				
LKE	Visionary Leading	<p>forward-thinking, thinking at greater length, thinking beyond,</p>	<p>Implies leaders encouraging new ideas and approaches that transform research processes. Focusing on long-term goals and sustainable growth. Bringing about</p>	<p>"...because of the nature of today's world requires even us academic leaders to think beyond in terms of where we want our research to go "our</p>

		progressive way of supervising, envisioning the future of the university research, future oriented, you have to be strategic, Planning and acting with a clear vision of future opportunities and challenges.	substantial changes in the way knowledge is utilized.	strategic plans are designed not only to address current challenges but also to anticipate future trends and opportunities in research, the university has also established entrepreneurial and innovation centre " (SM#1).
LKE	Empowering	giving them the confidence and autonomy to take risks in research, open to other departments; attending seminars organized by other departments; ensures that everyone is informed, ideas are freely exchanged; feedback is regularly given and received; encouraging; supporting; guiding; mentoring; Acknowledging and rewarding	Implying that empowerment is fundamental to fostering innovation and entrepreneurship within a KE framework. Creating a supportive environment that involves providing the necessary resources, tools, and encouragement for employees to pursue new ideas.	"Our ability to innovate is directly tied to the availability of funds. By securing and allocating resources specifically for innovative projects, we can significantly enhance our research output, for instance in our university anyone who publishes in a peer-reviewed journal is awarded 1,000,000Tzs this motivates staff to research and publish more" (SM#2). "We acknowledge our staff achievement of research and innovation activities through awards and promotions during meeting, by announcing in our unit websites and even wats app group" (SM#4)
LKE	Adaptive	Flexible work arrangements; staying current; updated with industry trends, encouraging continuously upgrade their skills,	Enable academic researchers to work in ways that maximize their productivity and creativity, essential for driving KE initiatives.	"We have to understand that not everyone is comfortable with the same methods of communication. Some prefer emails, others face-to-face meetings, and some are more comfortable with other ways since there are staff of different age groups. For communication for example I tend to use emails, normal calls, wats app so to accommodate these differences to ensure everyone is informed" (MM#2).

LKE	Collaborative Leading	diverse perspectives are valued; integrated decision-making; taking diverse thoughts; drives collective work; delegating; acting;	Involves encouraging collaboration, creating an environment where team members work together, share ideas, and leverage each other's strengths. This enhances problem-solving and drives collective progress in KE initiatives.	"I work collegially with my team, often delegating the office tasks. For instance, when I am not around, I delegate someone to the office, and it can be any staff member who is available and capable." (MM#2) " During the seminar discussions and presentation at the department we normally do not have the same person chairing discussions we select different staff members regardless of whether they hold a PhD or a master and this might encourage one to be more critical and stimulate their thinking "(MM#6).
LKE	Positional	hierarchical structure; establish clear lines of authority and responsibility, tasks and decisions flow through defined levels; structured rewards and punishments; rely on formal authority and processes; adherence to established reporting structures-use of OPRAS; adherence to rules, policies, and procedures to ensure consistency like promotion;	Leading that ensures that activities conform to established norms and guidelines and maintaining control over processes and outcomes of research -related activities to achieve desired results and use of incentives to motivate employees toward achieving KE objectives.	"Our university has issued that all faculty members are aware of the promotion criteria, which include among others research publications, books published" (MM#8). "I don't have to push staff too hard to publish because the university's common guideline states that promotion is based on publications, and each staff member has to submit their publications through the OPRAS system." (MM #2).
<b>THEME 4: Control Mechanisms in supporting Knowledge Economy</b>				
CKE#	Use of performance Metrics	- Tracking knowledge production output, participation in knowledge-sharing platforms, and rankings. -	Requires providing systematic ways to monitor, evaluate, and optimize progress towards goals.	"Our focus is to know how we are faring on the issue of research, publications output so we consider gathering data for number of projects, journals and others" (SM#2) "I am required to collect data after every three

		Collection of data on research projects, publications, and conference attendance for assessment. Traditional: number of publications (papers, book chapters, books); journals; conference papers and attendance; Contemporary: Funded projects, commercialized products (patents), prototypes, Number of interdisciplinary researches; areas for improvement		months on publications, projects and specific information regarding if an individual researcher is the main author, or co-author, which journal number of attended conference within and outside the country, the funder and then I submit this information to the HoD later is submitted to the College Board (LM#4)
CKE#	Management Tracking of KE related issues	Frequency; Data management; checking progress; use of ICT to monitor; observation of outcomes; identifying patterns, trends, storing; looking the ongoing research activities	- Use of software like Excel and centralized databases such as Research Information Management System (RIMS) for data storage and management. - Recommendations for installing and upgrading tracking software for research-related data storage and organization.	"I mainly use Excel for tracking purposes for the research published, conference attended in the department, which is not ideal for managing large datasets or complex research projects." (LM#3).
CKE#	Committees /Boards	Role of University Committees in Evaluation; Procedures; duration; committees at different levels; experts in the field evaluate research proposals, publications; grant review boards; ethical	- Formation of evaluation teams at various levels for assessing publications, research, and consultancy materials. - Review committees responsible for evaluating the quality and impact of KE initiatives.	""At our institution the ethical committee dealing with ethics is carried by the central office of the research and publication, but what happens at the lower level is to review the publications for promotion purposes review starts at the departmental level and they might include even an external reviewer depending then there is a meeting at college board after which the feedback

		board members; ensuring ethical standards through meetings; promotion committee;		is given to us at the central office for further” (SM #9).
CKE#	Reporting Mechanisms KE	Channels for giving feedback; feedback informs planning of KE reporting tools; performance reports; feedback helps in identifying gaps; receiving feedback from the central office; feedback dynamics in the departmental meetings among staff; frequency, quarterly, communicating the result; make informed decisions; benchmarking	- Submission of reports on research activities, publications, and projects to the university planning office. - Reporting progress, challenges, and outcomes of KE initiatives for communication and evaluation purposes.	““Our approach to quarterly assessment allows for proper adjustments, ensuring our initiatives remain responsive and this also from my experience enables timely identification of challenges that need to be rectified” (SM#2). “After every three months am required to give progress reports and even the projects funded by university also does a written and oral report after every three months “(MM#2).
CKE#	Evaluation Frequency KE	Frequency of Evaluation; using insights from report; ongoing; continuous	- Quarterly assessment of research activities and projects for timely identification of challenges and adjustments. - Requirement for progress reports every three months on publications, projects, and conference attendance. Assessing the effectiveness, efficiency, and outcomes of KE initiatives against university goals and objectives	“Our approach to quarterly assessment allows for proper adjustments, ensuring our initiatives remain responsive and this also from my experience enables timely identification of challenges that need to be rectified”

# APPENDIX XII: TURNITIN REPORT

## 28153 36974

### MARTHA Final VERSION DISSERTATATION.docx

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# UGANDA CHRISTIAN UNIVERSITY

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SCHOOL OF RESEARCH & POSTGRADUATE STUDIES

## DISSERTATION CORRECTION COMPLIANCE REPORT BY THE CANDIDATE (POST VIVA FORM)

Date: 8/9/2025

Name of Candidate: MARTHA MKASAFARI SHIO Reg. No: RM18P02/006

Title of Dissertation: INTERNAL MANAGERIAL PRACTICES OF SELECTED PUBLIC UNIVERSITIES IN PROMOTING KNOWLEDGE ECONOMY INITIATIVES IN TANZANIA

SN	COMMENTS BY EXTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	The declaration should talk about a thesis not a paper and the statement of the problem is too long.	Reworded to dissertation not paper Condensed to 1 page	Declaration page ii Page 6, corrected
2	The scope is not spelt out.	Mentioned Scope of managerial functions; Geographical coverage; Research approach and design; factors considered	Page 13, corrected
3	Conceptual framework source to be indicated	source is indicated.	Page 10

4	many themes were used in the literature review which reduced its focus	Some themes deleted 2.5 Knowledge Economy Practices and Knowledge Economy Indicators	Page 45 to 46 deleted
5	Editing should be done to bring out the meaning of what the researcher intends to communicate.	Editing was done to the entire work	The whole dissertation

SN	COMMENTS BY INTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	Change the title wording, abstract too loaded with information	i.The wording changed to “Internal managerial practices of selected public universities in promoting knowledge economy initiatives in Tanzania”.  ii.Abstract changed to 272 words	Preliminaries pages edited and corrected
2	Statement of the Problem is too long, it should be summerised	Condensed to 1 page	Page 6, corrected
3	Which anticipated limitations are you addressing in 1.6? Delimitation of the study	Scope of managerial functions (confined to four functions planning, organizing, leading, controlling) in relation to knowledge economy initiatives. The study is limited to 2 public universities in Tanzania	Page 13, corrected
4	it would be important to bring out the voice of the researcher in an effort to make observations and comments on participants’ ideas, opinions and insights. Just indent and put them into single space (see what has been done for you in the dissertation on the different pages in Chapter four).	Corrected	Chapter four pages
5	Include 6.4 and 6.5 section research agenda and Phd contribution	Included	Pages 253 and 254
6	Prepare the mind of the reader that the conclusion was made objective by objective.	The section introduced with a clear framing statement. This tells the reader upfront that the conclusions directly follow the study’s objectives.the content is organized under paragaphs that correspond to each objective.	Pages 248 and249

SN	COMMENTS BY VIVA VOCE PANNEL	ACTION TAKEN	INDICATOR
1	System theory and the year when it was invented 1968	Corrected the year	Page 60
2	Literature review: did you identify any methodological gaps in the studies that you reviewed.	Identified most studies quantitative the current study adopted qualitative multi -case study	Page 100 reviewed
3	As a PhD candidate indicate contribution to methodology, practice, policy and theory?	Indicated in section 6.5	Page 249
4	There was need to provide for suggestions for further research (Research Agenda) in this section/chapter	Suggested under 6.4 research agenda	Page 248

**MARTHA SHIO MKASAFARI**

Candidate's Name



Signature

**DR. EDUAN WILSON**

Supervisor's Name



Signature