

## Inspirational motivation and information and communication technology utilisation in public universities: A leadership perspective

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### ABSTRACT

The use of Information and Communication Technology (ICT) in higher education institutions is fundamental in the improvement of the teaching, research and administrative efficiency, but the use of ICT is not uniform in all public Universities in developing countries. This study assessed the impact of leadership motivation on the use of ICTs by academic staff of public universities in Tanzania, with emphasis on two aspects of leadership motivation: inspirational and leadership-based. A quantitative cross-sectional research design was used, guided by the theories of Transformational Leadership and the Technology Acceptance Model. Stratified random sampling was used to select 321 academic staff from public institutions, to ensure that a representative sample of the academic staff was selected across disciplines and institutional contexts. A structured questionnaire with validated items on a five-point Likert scale was used for gathering data. The analysis was conducted using the Partial Least Squares Structural Equation Modelling (PLS-SEM) software program, which was run using SmartPLS 4 to examine the measurement and structural models. It was found that the levels of ICT utilisation among academic staff are moderate to high, that is, most of the academic staff use ICT for research, communication and administrative work; however, their use in classroom teaching is relatively low. The two types of motivation (inspirational and leadership) had a significant positive effect on ICT utilisation, with the leadership-driven motivation having a greater effect ( $\beta = 0.499$ ,  $p < 0.001$ ; and  $\beta = 0.321$ ,  $p = 0.010$ , respectively). The model was found to have a good explanatory power of 64.1% ( $R^2 = 0.641$ ) for the variance in ICT utilisation. The study finds leadership to be critical in improving the use of ICTs by using motivational and operational support mechanisms. University administration is advised to develop motivational leadership among lecturers and, at the same time, provide training, technical assistance, infrastructure, and allocation of resources to promote the continued use of ICT with lectures.

**Keywords:** Inspirational Motivation, Inspirational Transformational Leadership, Public Universities, Utilisation of ICT, Technology Adoption, Tanzania

### I. INTRODUCTION

The fast pace of advancements in digital technologies has significantly impacted the higher education sector on a global scale by changing the way in which educational processes are carried out. Nowadays, universities are seen as institutions in which Information and Communication Technology (ICT) integration should play a central role because it can increase efficiency and facilitate better outcomes of the learning process (Trivedi *et al.*, 2022). ICT usage has become an essential element for competing in today's world for higher education institutions, both in developed and underdeveloped countries (Astuti & Ayinde, 2025). Nevertheless, despite all the significant expenses made for digital development, the ICT usage among the academic staff members remains unequal in higher education organizations (FakhrHosseini *et al.*, 2024).

In Sub-Saharan Africa, especially Tanzania, public universities are consistently facing difficulties in integrating ICT. Some of these problems include infrastructure limitations, technical assistance, resistance, and inadequacy in the skills of digital tools possessed by the staff (Ntorukiri *et al.*, 2022; Bendera, 2024). Although all these issues have been identified, new studies show that other organisational and leadership-related factors might be as crucial as infrastructure when it comes to the impact on technology adoption (Oyetade & Zuva, 2025). Indeed, leadership has been identified as one of the essential variables in promoting technology adoption by making resources available and shaping the attitudes, motivations, and intentions of employees towards the use of technology (Subrahmanyam, 2024).

Theoretically, the adoption and implementation of information and communication technologies have been well-understood through the Technology Acceptance Model (TAM), which underscores the significance of perceived usefulness and perceived ease of use in the process (Davis, 1989; Humida *et al.*, 2022). Although TAM offers a great deal of useful insight into the acceptance of new technology at an individual level, it does not take much notice of the effects of context and organisation on users' behaviours, especially leadership styles. By contrast, Transformational Leadership theory is all about the potential of leaders to inspire, motivate, and lead followers towards organisational objectives that surpass their expectations (Bass, 1985; Burns, 1978). In terms of transformational leadership traits, inspirational motivation assumes considerable importance for influencing employees' mindsets, dedication, and attitude toward changes (Brunner *et al.*, 2023; Chen & Khan, 2025).

Although much research attention has been dedicated to understanding digital transformation and leadership in higher education institutions, there has been a dearth of empirical research examining the impact of various dimensions of leadership, specifically inspirational motivation and leadership support, in facilitating ICT utilisation practices in higher education institutions, especially within the Tanzanian context (Mtebe *et al.*, 2025; Kadikilo *et al.*, 2024). Much of the previous research has been centred on both technological or infrastructural elements and the personal attributes of users, while little has been done to analyse how leadership influences the use of technology (Hansen & Nørup, 2017). In addition, there have been inadequate frameworks that incorporate both motivational and supportive aspects of leadership in relation to the uptake of ICT practices in the higher education setting (Arumugam *et al.*, 2023).

In this context, this research investigates the impact of leadership motivation on ICT adoption in Tanzanian public universities through the perspective of inspirational motivation and leadership-based motivation. This is done through adopting the quantitative research design and utilising PLS-SEM for analysis in order to demonstrate empirically how various facets of leadership can affect ICT adoption (Hair & Alamer, 2022; Sarstedt *et al.*, 2021). In addition, this study attempts to close the gap existing between Transformational Leadership Theory and TAM by introducing an integrated model that includes both motivational and enabling elements of leadership. The conclusions of this research are anticipated to be significant both theoretically and practically. In terms of theory, the research adds to the present body of knowledge by highlighting the existence of dual leadership pathways, including psychological and operational means, through which ICT usage is affected (Chen *et al.*, 2026; Subrahmanyam, 2024). On the other hand, regarding the practical value, the research offers important implications for higher education administrators and policy-makers on the need to utilise a dual approach of inspirational leadership and support systems in order to facilitate ICT uptake (Sacavém *et al.*, 2025).

Even though the deployment of ICTs in public universities in Tanzania has been extensive and costly, the extent of their effective use by faculty members is not uniform and sometimes inadequate. Despite the increased access to ICT-related services such as learning management systems, internet connections, and institutional websites within the various organisations, some signs simply indicate that technology is not sufficient for the adoption of ICT in teaching, research, and administration (FakhrHosseini *et al.*, 2024; Mtebe *et al.*, 2025). This disparity is likely to continue denying higher education institutions in the country opportunities associated with ICT utilisation in higher education.

Previous studies conducted in Tanzania and related environments have paid much attention to structural and technical factors that contribute to ICT adoption, like availability of infrastructure, technical abilities, and institutional support system frameworks (Bendera, 2024; Ntorukiri *et al.*, 2022). Nevertheless, the importance of motivational factors related to university leadership in ICT utilisation practices by academic staff is still understudied. In particular, the effect of inspirational motivation and support for ICT use provided by leaders on their motivation has not received sufficient attention in research, although it has been proven that leadership plays a crucial role in shaping employees' attitudes towards adoption and using technology (Subrahmanyam, 2024; Hansen & Nørup, 2017). Thus, there is a need for further theoretical consideration of motivational aspects of leadership in order to find ways of promoting ICT utilisation within universities. Consequently, the current study aimed at closing this research gap.

## 1.1 Research Objectives

- i. To examine the level of ICT utilisation in public universities in Tanzania.
- ii. To examine the influence of inspirational motivation on ICT utilisation in public universities in Tanzania.
- iii. To assess the influence of leadership-driven motivation on ICT utilisation in public universities in Tanzania.

## II. LITERATURE REVIEW

### 2.1 Theoretical Review

#### 2.1.1 Transformational Leadership Theory

The Transformational Leadership Theory (TLT), originally introduced by Burns (1978) and then further elaborated by Bass (1985), proposes that leadership is a process whereby leaders motivate their followers beyond

ordinary expectations to perform and attain greater commitment to the organisation. The four fundamental dimensions underpinning transformational leadership include idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration. Of particular interest in the present study is the concept of inspirational motivation, which captures the capacity of the leader to present a coherent vision and communicate optimism to encourage followers to work towards organisational objectives. With regards to ICT integration within universities, it is anticipated that inspirational motivation will result in an optimistic attitude among the university faculty, motivating them to adopt and utilise ICTs in their instruction and research.

The theory of transformational leadership is also supported by empirical evidence. Several studies indicate that the transformational type of leaders creates a positive atmosphere that makes the process of change easy and increases the readiness to innovate (Brunner *et al.*, 2023; Chen & Khan, 2025). Transformational leadership becomes especially important in higher education institutions since the process of ICT usage usually involves behaviour change and lifelong learning. This makes the motivational aspect very important for ICT usage, which is why inspirational motivation is believed to become one of its key components.

### 2.1.2 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM), as developed by Davis (1989), is considered among the models that are extensively employed in understanding the acceptance of information systems. According to the TAM model, two fundamental determinants of a user's decision to accept a piece of technology are perceived usefulness and perceived ease of use. Within the scope of public universities, teaching staff members will be more inclined to use ICTs in cases where they perceive the technology as useful to enhance their teaching abilities and research productivity and are easily usable.

But, despite its high degree of explanatory capability in an individual context, TAM has been subject to criticism due to its failure to appreciate the influence of organisational aspects on technology adoption behaviour. This issue becomes particularly relevant when the technology adoption theory is applied in higher educational institutions in developing countries. Hence, there is increasing recognition of the need for TAM to be combined with organisational theories when discussing ICT usage.

### 2.1.3 Integrated Theoretical Perspective

The combination of Transformational Leadership Theory and TAM offers a comprehensive theoretical basis for understanding the use of ICT in public universities. Although TAM captures the cognitive factors that affect individual users of technology, Transformational Leadership Theory addresses the environmental and motivational aspects which influence such cognitive factors. For example, inspirational motivation positively impacts attitudes toward ICT through the communication of its importance, whereas the availability of support from the leaders promotes actual use of ICT. It is evident from the recent research carried out on the subject that leadership is an important aspect that needs to be considered when explaining the behaviour of individuals towards adopting technologies both psychologically and structurally (Subrahmanyam, 2024; Sacavém *et al.*, 2025). Hence, it will be appropriate to use both theories together in order to capture the full picture.

## 2.2 Empirical Review

### 2.2.1 Level of ICT Utilisation in Public Universities in Tanzania

Several empirical studies reveal that the degree of ICT use at public universities in Tanzania can be considered moderate, varying from one institution to another, from one academic discipline to another, as well as depending on the skills of particular staff members. According to studies, while most universities in Tanzania provide their students and lecturers with ICT infrastructure like internet connectivity, learning management systems, and digital libraries, the extent to which ICT tools are being used for teaching, research, and administrative purposes is inconsistent. Specifically, according to Bendera (2024), despite the availability of ICT facilities in many universities in Tanzania, the degree of ICT use varies due to different levels of digital literacy of academics in those institutions.

Moreover, there have been other empirical findings that indicate that the adoption of ICT in universities in Tanzania depends on a combination of individual as well as institutional characteristics. According to Ntorukiri *et al.* (2022), many faculty members experience numerous obstacles, such as the absence of training, support, and professional development programs, and thus use ICT less often than would be necessary. In turn, Kadikilo *et al.* (2024) have identified that even though ICT was considered to be crucial for increasing academic productivity, its adoption during research and learning activities is rather low as a result of certain institutional limitations.

Further evidence can be found in regional and comparative analyses, which also indicate that the utilisation of ICT in Tanzanian universities is still under development. For example, Oyetade and Zuva (2025) indicate that organisational readiness and commitment of leadership play an important role in the successful adoption of ICT in educational establishments within developing countries. In turn, Astuti and Ayinde (2025) demonstrate that ICT adoption within Sub-Saharan African universities demonstrates inconsistent trends, with many institutions failing to

go beyond the stage of using ICT in an elementary way to advance towards more developed levels of its incorporation in academic activities. Thus, it is evident that Tanzanian institutions face the same issues as other institutions in developing countries in adopting ICT successfully. In summary, it becomes clear that existing empirical literature provides consistent evidence that ICT utilisation in public universities in Tanzania occurs at a moderate level of development, with partial adoption and inconsistent application of ICT within academic processes. Despite increasing availability of ICT infrastructure and systems in such universities, their actual usage is limited due to skill shortages and insufficient training of teachers, as well as a lack of adequate institutional support mechanisms.

### 2.2.2 Inspirational Motivation and ICT Utilisation

Research has proven that inspirational motivation increases the utilisation of ICT within educational establishments by influencing positive attitudes as well as the preparedness of the employees to adapt to digital changes. For instance, according to Brunner *et al.* (2023), digital leadership, such as inspirational communication, plays an important role in facilitating employee engagement in technologically driven processes. Additionally, Chen and Khan (2025) indicated that transformational leadership is essential in fostering the adoption of innovations owing to increased willingness among employees to adopt technological advancements. Further, research conducted by Subrahmanyam (2024) showed that communication from the management, as well as motivational influences, were critical factors influencing technology adoption within an organisation.

In the case of Africa and other developing nations, inspirational motivation assumes a greater significance due to various structural limitations prevalent within universities. According to Hansen and Nørup (2017), supportive leadership positively impacts the adoption of ICT within educational organisations by facilitating staff to cope with change resistance. Likewise, Mtebe *et al.* (2025) noted that leadership involvement is one of the most significant factors for digital transformation within universities, especially where leaders encourage staff to adopt ICT systems. Moreover, Oyetade and Zuva (2025) point out that leadership activity have a considerable impact on the employee attitude towards ICT adoption.

Additional research shows that motivational inspiration improves psychological preparedness for ICT usage by eliminating fear, uncertainty, and resistance in university faculty members. In their study, FakhrHosseini *et al.* (2024) observed that the adoption process of users towards digital platforms is highly dependent on motivational and cognitive aspects, which involve managerial endorsement. Likewise, Arumugam *et al.* (2023) state further that the effectiveness of leaders acts as a mediator in technology adoption by influencing employees' attitudes and motivation. Sacavém *et al.* (2025) similarly agree that inspirational leadership is essential for successful digital transformation in universities, especially with strategic communication and vision alignment.

However, the body of empirical work shows that inspirational motivation remains an important factor in ICT use because it affects not only attitudes but also behavioural intentions. According to the studies done by Brunner *et al.* (2023), Chen and Khan (2025), and Subrahmanyam (2024), inspirational leadership plays an important role in developing commitment toward information technology, whereas according to the studies conducted by Mtebe *et al.* (2025) and Hansen and Nørup (2017), it is also significant in African universities.

### 2.2.3 Leadership-Driven Motivation and ICT Utilisation

Motivation driven by leadership has proven to be one of the major factors that contribute to the utilisation of ICT in universities; motivation includes facilitation practices like training, availability of resources, and technical help. The studies conducted by Bendera (2024) have shown that ICT utilisation at the Tanzanian universities is greatly impacted by the institution's support system in terms of access to training and technical support. Likewise, Ntorukiri *et al.* (2022) concluded that a poor leadership support structure is among the factors that inhibit proper implementation of ICT in higher education institutions.

Research studies also suggest that leadership motivation positively influences the level of proficiency and confidence in the use of ICT tools among employees. According to Oyetade and Zuva (2025), support strategies implemented in organisations, such as leadership motivation, play a critical role in the effectiveness of the ICT adoption process at educational organisations. Hansen and Nørup (2017) also state that employee support from their leadership motivates individuals to use ICT successfully through training and encouragement. Besides, the findings reported by Kadikilo *et al.* (2024) indicate that poor institutional support negatively affects research productivity and the usage of ICT among universities in Tanzania.

Another important factor is the connection between ICT availability and its actual use by staff members due to leadership-driven motivation. Arumugam *et al.* (2023) emphasize that technology adoption success depends on leadership effectiveness due to structural support provided by institutions. Also, FakhrHosseini *et al.* (2024) explain that the acceptance of intelligent systems does not rely only on individual perception but also on institutional support. Moreover, Sacavém *et al.* (2025) stress the importance of digital transformation facilitated by leadership through employee training and resource allocation.

In general, literature supports the notion that motivational leadership is crucial for the application of ICT since it tackles real-world hindrances to technology adoption. The research conducted by Bendera (2024), Mtebe *et al.* (2025), and Ntorukiri *et al.* (2022) highlights institutional backing as one of the significant factors affecting ICT uptake at educational institutions. It can be deduced that without effective motivational leadership, ICT platforms would probably go unused despite their availability. Finally, the empirical studies reviewed clearly suggest that ICT usage should be considered within the framework of motivational and leadership support. The research conducted by Oyetade and Zuva (2025), Arumugam *et al.* (2023), and Mtebe *et al.* (2025) proves that the process of leadership influences the adoption of ICT by acting on psychological and infrastructural aspects. This approach becomes especially important when analysing the adoption of ICT in institutions of higher learning in developing countries.

### III. METHODOLOGY

#### 3.1 Research Design and Approach

The research conducted in this study was quantitative cross-sectional research, which was derived from the positivist research philosophy. The quantitative approach was suitable for the study because it allowed the researchers to obtain numerical data to test the hypothesised relationships between leadership motivation and ICT utilisation of academic staff in Tanzanian public universities. The cross-sectional design enabled data collection to be efficient and capture the status quo regarding the utilisation of ICTs and the leadership practices (Creswell & Creswell, 2018).

#### 3.2 Study Area

The study was done in the selected public universities in Tanzania. Despite having a population of 55 million, Tanzania is home to 19 public universities with an estimated number of 5,400 academics for various fields of study (Tanzania Commission for Universities, 2024). All academic staff members (lecturers, senior lecturers, associate professors and professors) were the target population because they are the main users of ICT in their academic activities, which include teaching, research and administration.

#### 3.3 Sampling Technique and Sample Size

Stratified random sampling was used to ensure representative sampling across academic disciplines and academic rank. Stratification took place according to two criteria: academic disciplines (humanities, social sciences, natural sciences and engineering) and academic ranks (junior, mid-level and senior staff). The sample size was determined using Yamane's formula:  $n = N / (1 + N(e)^2)$ , where  $N = 5,400$  and  $e = 0.05$ , yielding 372 respondents. The sample size was expanded by 15% to account for non-response, to reach 428 respondents. With data cleaning, 321 valid responses were kept, which is more than the minimum requirement of 200 responses for conducting PLS-SEM analysis (Hair & Alamer, 2022).

#### 3.4 Data Collection Instrument

A structured questionnaire with four sections was used for data collection: A) Demographic Data, B) Inspirational Motivation (10 items adapted from the Multifactor Leadership Questionnaire), C) Leadership-driven Motivation (10 items adapted from the leadership support scales of previous studies on ICT adoption), and D) ICT Utilisation (10 items adapted from previous studies on ICT adoption). Each item was scored on a five-point Likert-type scale from 1 (Strongly Disagree) to 5 (Strongly Agree). The content and face validity were confirmed by three experts and by 30 academic staff from another university, not included in the main sample.

#### 3.5 Validity and Reliability

Cronbach's alpha and Composite Reliability (CR) were used to test the reliability of the scales. All constructs exceeded the 0.70 threshold: Inspirational Motivation ( $\alpha = 0.874$ , CR = 0.892); Leadership-Driven Motivation ( $\alpha = 0.861$ , CR = 0.884); and ICT Utilization ( $\alpha = 0.895$ , CR = 0.908). Convergent validity was tested by Average Variance Extracted (AVE), which has a range of 0.594 to 0.651, with all the values exceeding 0.50. The criterion of Fornell-Larcker and cross-loadings, in addition to the ratios of HTMT below 0.85, were employed to ensure that the model possessed discriminant validity (Sarstedt *et al.*, 2021).

#### 3.6 Data Collection Procedure

Physical and online questionnaires were used to collect data for three months (January – March 2026). To ensure consistency in administration, four research assistants were trained. Persons who did not respond to the initial letter received two follow-up reminders at two weekly intervals. Ethical clearance was obtained from Mzumbe University (MU/RS/2026/042), and informed consent was obtained from all the participants. All respondents were assured of both confidentiality and anonymity, and data were kept securely and only accessed by the research team.

### 3.7 Data Analysis

The data were analysed using SmartPLS 4.0. This analysis was conducted in two steps: (1) measurement model assessment to check reliability and validity, and (2) structural model assessment, which involved the path coefficients ( $\beta$ ), significance (bootstrapping with 5,000 resamples), coefficient of determination ( $R^2$ ), effect size ( $f^2$ ), and predictive relevance ( $Q^2$ ) (Hair & Alamer, 2022). The collinearity was checked using the Variance Inflation Factor (VIF), and the values less than 5 were considered as no multicollinearity. The level of ICT use and leadership motivation was measured using descriptive statistics such as means and standard deviations.

## IV. FINDINGS & DISCUSSIONS

### 4.1 Findings

#### 4.1.1 Level of ICT Utilisation in Public Universities in Tanzania

This section presents descriptive findings on the level of ICT utilisation among academic staff in public universities in Tanzania. A series of ten Likert scale items was utilised to assess the extent and efficiency of the usage of ICT by academic personnel in teaching, researching, communicating, and administrating. In this regard, the analysis was conducted based on the mean and standard deviation measures in order to identify the overall extent of the ICT usage practices. According to the presented descriptive findings, the extent of the usage of ICT among academic personnel in public universities in Tanzania can be defined as moderate to high since the mean values exceed 3.60. The obtained results reveal that the frequency of ICT usage among the respondents is quite high; however, it still cannot be described as optimal. With regard to the most common ICT practice among respondents, it is worth saying that the highest mean score (3.85) represents a high degree of access to ICT for research purposes. The lowest score (3.65) shows a low level of ICT application in classroom learning sessions.

The standard deviation values between 0.87 and 0.93 indicate a moderate variability in ICT usage among academics. It implies that although many academics utilise ICT in their work, there still exists considerable variation in the adoption rate of ICT and its level of use among different individuals or university departments. Possible causes for these variations could include differences in skills and resources needed for ICT use. From the results, it can be concluded that ICT utilisation is increasing and is already evident among academics but is uneven in its usage within different roles.

In theoretical terms, the results fit well within the Technology Acceptance Model that assumes ICT use is associated with the usefulness and easy-to-use perceptions of technology. Moderate use rates imply that academics have positive attitudes towards ICT and its benefits. However, barriers exist that prevent academics from fully integrating ICT in teaching and learning. Additionally, Transformational Leadership Theory explains the relationship between leadership motivation to increase ICT use in organisations and ICT use rate among employees since academic ICT use is dependent on leadership and the institution's willingness to facilitate its use. Thus, improvements in leadership support systems will improve ICT use in Tanzania's public universities.

**Table 1**

*ICT Utilisation Descriptive Statistics*

| Statement                                                                           | Mean | Std.D |
|-------------------------------------------------------------------------------------|------|-------|
| I regularly use ICT tools to prepare teaching materials and lecture notes           | 3.82 | 0.90  |
| I frequently use learning management systems for teaching and assessment activities | 3.68 | 0.92  |
| I use ICT effectively for conducting academic research and data analysis            | 3.83 | 0.88  |
| I utilize ICT tools to communicate with students and colleagues efficiently         | 3.77 | 0.89  |
| I integrate digital technologies into classroom teaching and learning activities    | 3.65 | 0.91  |
| I use ICT systems for submitting and managing academic and administrative tasks     | 3.70 | 0.93  |
| I frequently access online academic resources and databases for my work             | 3.85 | 0.87  |
| I feel confident in using ICT tools to improve my teaching effectiveness            | 3.74 | 0.90  |
| I use ICT applications to enhance student engagement and participation              | 3.69 | 0.91  |
| I rely on ICT systems to improve efficiency in my academic responsibilities         | 3.80 | 0.88  |

#### 4.1.2 The Influence of Inspirational Motivation on ICT Utilisation in Public Universities in Tanzania

From the results of descriptive statistics, it is evident that all indicators associated with inspirational motivation had mean values greater than 3.70, indicating consensus among respondents that leadership practices inspire the use of ICT within public universities. Therefore, faculty members believe that leaders play a proactive role in motivating them to use ICT in their respective disciplines, including learning, research, and management processes. In general, consistent, relatively high mean values indicate the prevalence of inspirational motivation among various leadership behaviours. About the mean value ( $M = 3.88$ ) and standard deviation ( $SD = 0.83$ ), there is a high level of agreement on the effectiveness of leadership in inspiring academic staff to use ICT systems and maintain continuity

with the use of these technologies. It is also notable that other indicators ( $M = 3.84$ ,  $M = 3.83$ ) reflect high agreement that leaders inspire innovative use of ICT systems and create enthusiasm for digital learning practices.

Leadership communication of vision regarding ICT ( $M = 3.82$ ) and confidence building in ICT use ( $M = 3.80$ ) are also high indicators of the extent of agreement. Therefore, leaders can be considered quite efficient in the communication of their digital transformation vision and in encouraging employees in their use of ICT tools. Somewhat lower mean values, such as for the communication of the benefits of ICT ( $M = 3.79$ ) and encouragement of ICT positive attitudes ( $M = 3.77$ ), point at somewhat weaker intensity of such leadership. Still, it can vary from department to department or institution to institution. The smallest mean score of all indicators examined here ( $M = 3.71$ ,  $SD = 0.92$ ) points at rather weak emphasis on the recognition of good ICT practice by its users. Hence, it can be concluded that inspirational leadership is rather strong in motivating employees and encouraging them, but the aspect of rewards and recognition based on performance is not as strong yet.

In general, the study's findings prove that inspirational motivation has a major influence on the use of ICT in public universities through vision sharing, confidence creation, innovation encouragement, and positive attitudes towards technology. On a theoretical level, the findings are consistent with Transformational Leadership Theory, in which the importance of transformational leadership as a factor influencing employees' actions is emphasized. In addition, they are consistent with the Technology Acceptance Model, as inspiration by the leaders makes technology more useful and acceptable to academic staff.

**Table 2**

*Inspirational Motivation Descriptive Statistics*

| Statement                                                                                               | Mean | Std.D |
|---------------------------------------------------------------------------------------------------------|------|-------|
| University leaders communicate a clear and compelling vision for ICT utilization in academic activities | 3.82 | 0.88  |
| Leaders consistently encourage academic staff to integrate ICT into teaching and learning processes     | 3.75 | 0.91  |
| Leadership inspires confidence among staff to effectively use ICT tools in their daily work             | 3.80 | 0.87  |
| Leaders promote positive attitudes toward the use of digital technologies in universities               | 3.77 | 0.90  |
| Leadership motivates academic staff to adopt and continuously use ICT systems effectively               | 3.88 | 0.83  |
| Leaders actively support innovation and creativity in the use of ICT for academic purposes              | 3.84 | 0.86  |
| University leadership emphasizes the importance and benefits of ICT utilization in education            | 3.79 | 0.89  |
| Leaders create enthusiasm and commitment among staff toward digital learning practices                  | 3.83 | 0.85  |
| Leadership recognizes and appreciates staff who effectively use ICT in their academic work              | 3.71 | 0.92  |
| Leaders encourage continuous improvement and development of ICT skills among academic staff             | 3.86 | 0.84  |

#### 4.1.3 The Influence of Leadership-Driven Motivation on ICT Utilisation in Public Universities in Tanzania

The descriptive statistics reveal that the measures of motivation through leadership factors mostly attained average scores exceeding 3.70. It indicates that the survey respondents believe that practical leadership support is available to boost the adoption of ICT by individuals. It means that the academic staff recognises the significance of the contribution of university leadership in ensuring that conditions for successful ICT adoption are available through various forms of support. Overall, the relatively high scores reveal that the leadership-driven factors are an essential aspect of the process of ICT adoption in public universities. The most substantial average score ( $M = 3.90$ ,  $SD = 0.81$ ) strongly agrees that leadership actively promotes the adoption of ICT among the academic staff in their organisational routines. It reveals that leadership plays a critical role in ICT usage as compared to awareness and intention. Similarly, the other two closely related measures of the same variable with relatively high average scores ( $M = 3.88$  and  $M = 3.86$ ) strongly agree that the leaders effectively solve ICT-related challenges and regularly conduct training sessions to enhance the skills of the staff.

There is also the issue of technical support, which is provided by leaders ( $M = 3.82$ ). Moreover, the improvement of ICT systems due to leadership actions ( $M = 3.79$ ), along with continual capacity-building programs ( $M = 3.76$ ), are other factors that received relatively positive responses. It shows that leadership plays an important role in ensuring that there are appropriate facilities for using ICT. Leadership guarantees the availability of ICT infrastructure ( $M = 3.78$ ). Thus, leadership ensures the technological preparedness of universities in question despite some discrepancies from one university to another. At the same time, there are slightly less positive results when it comes to the availability of resources ( $M = 3.74$ ) and budget allocated to ICT development ( $M = 3.73$ ,  $SD = 0.92$ ). It can be stated that leadership supports the use of ICT but does not have an impact on resource availability. Moderately high standard deviations show some variation in responses.

Overall, the findings indicate that motivational aspects of leadership are highly important for the improvement of the level of ICT utilisation among employees in public universities through training, technical, infrastructural, and troubleshooting support. Theoretically, the results affirm Transformational Leadership theory in terms of support provided by leaders for behavioural changes and performance improvements. In addition, the Technology Acceptance Model also gains affirmation in view of the support aspect of improving perceived ease of use.

**Table 3***Leadership-Driven Motivation Descriptive Statistics*

| Statement                                                                                       | Mean | Std.D |
|-------------------------------------------------------------------------------------------------|------|-------|
| University leaders provide regular ICT training programs to enhance staff competence            | 3.86 | 0.84  |
| Adequate ICT resources are made available to support academic activities effectively            | 3.74 | 0.89  |
| Technical support is readily accessible when staff experience ICT-related challenges            | 3.82 | 0.86  |
| Leadership ensures that ICT infrastructure is properly maintained and fully functional          | 3.78 | 0.88  |
| Leaders actively encourage academic staff to use ICT in daily institutional activities          | 3.90 | 0.81  |
| ICT systems in the university are continuously improved through leadership support initiatives  | 3.79 | 0.87  |
| University leadership provides effective solutions to technical problems encountered in ICT use | 3.88 | 0.83  |
| Staff receive continuous capacity building programs to improve ICT usage skills                 | 3.76 | 0.90  |
| Leadership allocates sufficient budgetary resources to support ICT development and usage        | 3.73 | 0.92  |
| Leaders closely monitor and evaluate ICT implementation across university departments           | 3.85 | 0.85  |

**4.2 Structural Model Assessment**

The structural model assessment was conducted to examine the hypothesised relationships between inspirational motivation, leadership-driven motivation, and ICT utilisation in public universities. This stage evaluates the strength, significance, and predictive relevance of the structural relationships after confirming the adequacy of the measurement model. The analysis provides evidence on how leadership motivation dimensions influence ICT utilisation among academic staff.

**4.2.1 Collinearity Diagnostics**

Collinearity diagnostics were performed to examine if the predictors had intercorrelation coefficients that may influence the estimation of the path coefficients in the structural model. It was necessary to perform this test so that it could be confirmed that the predictors have unique explanatory powers on the dependent variable, without being redundant. All Variance Inflation Factor (VIF) values are within acceptable limits, being less than the recommended value of 5. There is no multicollinearity problem with the model based on the above results. This implies that the predictor constructs are independent of each other and have non-redundant explanatory powers over the dependent variables. The lack of multicollinearity is a good indication that inspirational motivation and leadership-driven motivation have different impacts on ICT utilisation. It means that the estimates from the structural model are accurate and valid because they show true relationships among the constructs. The collinearity diagnostics have shown that the structural model has been built properly and can be used in further analyses.

**Table 4***Collinearity Statistics (VIF Values)*

| Construct / Indicator                   | VIF Range     |
|-----------------------------------------|---------------|
| Inspirational Motivation indicators     | 2.289 – 3.512 |
| Leadership-Driven Motivation indicators | 1.828 – 4.182 |
| ICT Utilization indicators              | 2.550 – 3.984 |

**4.2.2 Path Coefficient Analysis**

Path coefficient analysis was used in order to measure the strength and direction of the relationship between independent variables (Inspirational motivation and Leadership-based motivation) and the dependent variable (ICT Utilisation). Path coefficient analysis is critical to PLS-SEM methodology since it offers empirical support for the proposed relationships in the structural model. From the findings, it emerges that both inspirational motivation and leadership-based motivation have a significant and positive influence on ICT utilisation in public universities. Positive beta coefficients are a clear indication that increases in leadership motivation are linked to increases in ICT utilisation by academic staff. Inspirational motivation has a moderate positive influence ( $\beta = 0.321$ ,  $p = 0.010$ ), implying that inspirational leadership, which inspires and motivates the employees, leads to more ICT utilisation.

The motivational influence arising from leadership shows more influence ( $\beta = 0.499$ ,  $p < 0.001$ ), implying that motivational influence arising from practical measures such as training, ICT resources and technical support has a more powerful influence than inspirational influence. It implies that although inspirational leadership creates motivation and perception for the use of ICTs, motivational leadership takes a more critical position in determining how people use the technology in practice. The results show that motivational leadership has a more significant influence on the use of ICTs than inspirational motivation.

**Table 5***Path Coefficients Results*

| Relationship                                               | Beta ( $\beta$ ) | Standard Deviation | t-value | p-value |
|------------------------------------------------------------|------------------|--------------------|---------|---------|
| Inspirational Motivation $\rightarrow$ ICT Utilization     | 0.321            | 0.125              | 2.568   | 0.010   |
| Leadership-Driven Motivation $\rightarrow$ ICT Utilization | 0.499            | 0.130              | 3.839   | 0.000   |

**4.2.3 Coefficient of Determination ( $R^2$ )**

The coefficient of determination ( $R^2$ ) was computed in order to assess the degree to which the structural model could predict ICT utilisation. The coefficient of determination,  $R^2$ , refers to the percentage of the dependent variable that can be explained using the independent variables, which include inspirational motivation and leadership-driven motivation. It is therefore an important parameter in assessing the strength of prediction of the structural model. According to the results, the value of the coefficient of determination of ICT utilisation is 0.641, meaning that 64.1% of the variation in ICT utilisation is predicted by inspirational motivation and leadership-driven motivation.

An additional confirmation of the validity of the model is provided by the  $R^2$  adjusted value of 0.639. It can be seen that even after taking into account the number of predictor variables, the power of the model still does not change, which means that its findings will be applicable. The remaining 35.9% of the variance in ICT use is accounted for by other variables outside the scope of this research, including ICT infrastructure within institutions, personal knowledge of ICT, organisational culture, and the external policy context. It can be concluded that leadership motivation affects ICT use very significantly, but ICT use itself is a complex issue dependent on various organisational and environmental factors.  $R^2$  values confirm that the model has high explanatory power and shows how ICT use is affected by leadership motivation in public universities.

**Table 6***Coefficient of Determination*

| Dependent Variable | R-square | R-square adjusted |
|--------------------|----------|-------------------|
| ICT Utilization    | 0.641    | 0.639             |

**4.2.4 Effect Size ( $f^2$ )**

The effect size ( $f^2$ ) was determined to establish the relative influence of each independent variable in accounting for the variance in the dependent variable, ICT use. While the coefficient of determination ( $R^2$ ) measures the variance accounted for by all independent variables in the regression model,  $f^2$  identifies the extent to which each independent variable influences the outcome, depending on whether it is introduced into the model or not. In essence,  $f^2$  aids in establishing the most influential variable in the regression equation. It is worth noting that inspirational motivation is a weak predictor of ICT use since  $f^2 = 0.054$ .

On the other hand, motivation driven by leadership indicates a medium effect size ( $f^2 = 0.130$ ). Thus, it shows a more significant influence on the use of ICTs. In essence, leadership motivation-driven approaches, such as training, availability of ICT facilities and support, contribute immensely towards promoting ICT usage behaviour among academic staff members. The disparity in the effect size values further illustrates the dominance of leadership motivation over inspirational motivation as a factor of ICT usage behaviour. Indeed, although inspirational leadership has its merits, its influence seems to be secondary when compared with the practical support offered by leadership motivation towards ICT use behaviour. Effect size results indicate the importance of a balance between motivational and practical approaches in ICT usage behaviour. ICT usage behaviour in public universities is significantly determined by both motivation and leadership factors.

**Table 7***Effect size*

| Construct                    | $f^2$ |
|------------------------------|-------|
| Inspirational Motivation     | 0.054 |
| Leadership-driven Motivation | 0.130 |

**4.2.5 Predictive Relevance ( $Q^2$ )**

The predictive relevance of the structural model ( $Q^2$ ) was tested to measure its predictive capacity regarding the endogenous variable ICT utilisation. This was achieved by means of the blindfolding technique, which aims at measuring the extent to which the observations are predicted by the structural model. If the  $Q^2$  measure of predictive relevance has a positive value exceeding zero, it is interpreted as an adequate predictive relevance of the model. The  $Q^2$  measure of predictive relevance of the ICT utilisation is 0.478, a considerable figure exceeding zero. It means that there is strong predictive relevance in the model since it can accurately predict ICT utilisation from inspirational and leadership motivations.

The values of  $Q^2$  for inspirational motivation and leadership motivation are both zero, which is reasonable considering the fact that the predictive relevance test is applied only to endogenous constructs. The emphasis is therefore placed on the use of ICT as the dependent variable in the current model. The comparatively high value of  $Q^2$  indicates that the model exhibits adequate predictive relevance. In other words, leadership motivation constructs used in the study can predict ICT utilisation behaviour among academic staff employed in public universities with considerable accuracy.

**Table 8***Predictive relevance*

| Dependent Variable           | SSO      | SSE      | $Q^2 (=1-SSE/SSO)$ |
|------------------------------|----------|----------|--------------------|
| ICT Utilization              | 2408.000 | 1256.349 | 0.478              |
| Inspirational Motivation     | 2752.000 | 2752.000 | 0.000              |
| Leadership-driven Motivation | 2752.000 | 2752.000 | 0.000              |

### 4.3 Discussion

In this part of the paper, a thorough discussion of the study findings is presented concerning the research objectives, theoretical frameworks, and previous literature on the issue under study. According to the results obtained, ICT use in Tanzanian public universities by academics can be described as moderate to high. This means that ICT technologies have been adopted for use in academic activities, including preparation for lectures, conducting research, communicating with students, and carrying out other administrative tasks. However, ICT tools still do not fully integrate into educational processes, indicating the presence of a considerable gap towards achieving the desired ICT maturity level. Indeed, according to Bendera (2024), ICT use in universities in Tanzania is gradually becoming more popular; however, there are still many disparities caused by digital competence and institution-specific factors. Additionally, Mtebe *et al.* (2025) have found that despite the growth in the number of ICT devices in universities, their efficient use in teaching and learning activities was rather modest. This confirms the idea expressed in the previous paragraph: simply having access to information technology is not sufficient to ensure efficient ICT use.

As compared to wider research studies concerning Africa, the results are consistent with those reported by Oyetade and Zuva (2025), who contend that ICT adoption within higher learning institutions relies heavily on organisational readiness and leadership support. Astuti and Ayinde (2025) add to the discussion by stating that the adoption of ICT within Sub-Saharan Africa continues to be uneven, with most educational organisations still operating at the initial stages of integration. This shows that higher learning institutions in Tanzania share similar obstacles in ICT adoption with those in developing nations. From a theoretical point of view, the results conform to TAM since they demonstrate that perceived usefulness and perceived ease of use play an instrumental role in determining ICT acceptance. The relatively low rate of ICT adoption reveals that although academics realise the advantages of adopting ICT tools, there are still various hindrances, including inadequate expertise and infrastructure, preventing the full adoption of technology.

Moreover, it can be seen that the research outcomes have also shown that inspirational motivation has a positive effect on ICT usage among public universities. The academic staff stated that leaders encourage the usage of ICT via visioning, motivation, and promoting positive attitudes towards technology. Nonetheless, there were areas like rewards which were weak, implying that motivational reinforcement was not entirely embedded into the institution. The results obtained support those stated by Chen *et al.*, (2026), suggesting that inspirational leadership contributes greatly to motivating employees towards digitalisation and digital transformation. Brunner *et al.* (2023) further state that digital leadership contributes to encouraging employees to adopt technology and increase their motivation, and reducing their reluctance to do so. Finally, Chen and Khan (2025) suggest that transformational leadership fosters innovation and sustainability in the context of organisational digitalisation.

Finally, according to the findings from the leadership-based motivation emerges as a crucial factor that has considerable and substantial implications for the use of ICT in public universities. This construct entails concrete forms of leadership, including ICT training, technical support, resource allocation, infrastructure maintenance, and capability building. The findings reveal that tangible forms of leadership have greater significance compared to inspirational motivation in shaping the ICT adoption process. These findings are aligned with Subrahmanyam (2024) finding that leadership support has considerable implications for the adoption of technology by facilitating its implementation through enabling factors such as resources and technical support. In line with these findings, Hansen and Nørup (2017) contend that leadership support plays a pivotal role in enhancing ICT adoption by overcoming the barriers faced by users. Sacavém *et al.* (2025) suggest that organisational digitalisation is primarily influenced by leadership structures that enable technological integration.

Mtebe *et al.* (2025) revealed that support systems within organisations, involving training and technical support, are key factors that determine ICT usage in universities. According to Ntorukiri *et al.* (2022), insufficient training and poor support systems are significant barriers to the implementation of ICTs. This information supports the

results obtained in the current study, which prove that practical leadership-based interventions are necessary to improve ICT use in academic institutions. In terms of theories, leadership-based motivation can be related to Transformational Leadership Theory as well as its dimensions of "individualised consideration" and "supportive leadership," which involve helping the followers by providing them with the needed resources and guidance. Furthermore, TAM is supported due to improved perceived ease of use.

## V. CONCLUSION & RECOMMENDATIONS

### 5.1 Conclusion

The study examined the influence of leadership motivation on ICT utilisation in public universities in Tanzania, focusing on inspirational motivation and leadership-driven motivation. The findings revealed that ICT utilisation among academic staff is generally at a moderate to high level, indicating that ICT tools are widely used in teaching preparation, research activities, communication, and administrative tasks. However, full integration of ICT into classroom teaching and learning processes remains limited, suggesting that digital transformation in higher education is still in progress rather than fully achieved.

The findings also proved that leadership and inspirational motivations have a significant impact on the utilisation of ICT in public universities. Inspiration motivates people to use ICT through developing good attitudes towards technology, boosting their confidence levels, and encouraging them to utilise technology. Leadership, on the other hand, motivates the utilisation of ICT more effectively because it offers tangible support in terms of ICT training, technical support, resources, and infrastructural support. In conclusion, it was found that leadership is an essential element for closing the gap in ICT usage in Tanzania's public universities.

### 5.2 Recommendations

The study suggests that leadership should boost motivational efforts through the adoption of inspirational motivation approaches in terms of ensuring consistent communication of a digital transformation vision as well as encouraging staff members to incorporate ICT in their teaching, research, and administration roles. In addition, leadership needs to develop an appreciation system for recognising ICT practices that yield positive outcomes. The development of such motivational elements is important because they will boost the readiness of staff members to embrace ICT. Moreover, institutions of higher learning must give priority to ICT usage support systems driven by strong leadership. Such systems involve regular ICT training activities, proper technical support services, appropriate ICT infrastructure availability, and enough financial allocation towards the development of digital systems. Policy makers and university management need to ensure constant ICT support system maintenance and its equitable distribution among various departments within universities. Improved support system performance will greatly improve ICT utilisation.

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