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## MODERATING EFFECT OF EXTERNAL ENVIRONMENT ON THE RELATIONSHIP BETWEEN TMT CHARACTERISTICS AND PERFORMANCE OF UGANDAN STATE AGENCIES

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### **Abstract**

*The main objective of this study was to examine if the external environment moderated the relationship between top management team (TMT) characteristics and the performance of Ugandan state agencies. The external environment was measured using the three dimensions of dynamism, complexity, and munificence. TMT characteristics were measured using the behavioural, demographic, and psychological characteristics of the TMTs. The study was anchored on the upper echelons, environmental dependency, and dynamic capabilities theories. A descriptive cross-sectional research design was adopted. At least three TMT members of the 160 sampled state agencies out of the 201 state agencies in Uganda were selected. 152 agencies accounting for a 95% response rate responded and filled out the questionnaire. Primary data were gathered using a structured questionnaire. Hayes' (2022) PROCESS Macro was used to test for moderating effect. The findings revealed that the external environment moderates the relationship between TMT characteristics and performance (Interaction term  $b=.857$ ,  $t=3.773$ ,  $p<0.05$ ,  $\Delta R^2=.041$ ,  $F=14.233$ ). This study concludes that the external environment has a significant moderating effect on TMT characteristics and performance. This study recommends Ugandan state agencies to regularly assess and monitor the external environment to identify any changes that may impact the relationship between TMT characteristics and performance. In addition, state agencies should consider the specific TMT characteristics that are most important for driving performance in their particular operating context, and consider developing specific TMT characteristics to effectively navigate the external environment. This study also recommends policymakers consider the external environment when developing strategies to improve the performance of state agencies, evaluate the effectiveness of state agencies, and design and implement policies that affect state agencies.*

**Keywords:** External Environment, TMT Characteristics, Organisational Performance, Ugandan State Agencies

## Introduction

It has become increasingly difficult for organizations to achieve their set objectives due to increased pressure from different stakeholders. Due to this, organizations report varying performance levels, with some meeting stakeholder expectations and others falling short. Ogollah, Bolo and Ogutu (2011) coined that, researchers and experts have endeavoured to understand why a few organisations accomplish elevated levels of performance than others. Scholars such as Abdullah and Mansor (2018), Bashaer et al. (2016), and Ogollah et al. (2011) have argued that although organisations operate in the same environment, their performance levels differ. It is key to observe that TMTs are important in influencing the way an organisation performs (Muchemi, 2013). A few scholars (Oketch et al., 2021; Wasike et al., 2015; Muchemi, 2013) have reported that TMT characteristics impact organisational performance (OP) while others (Wasike, Ambula, & Kariuki, 2016) have contended that TMT characteristics alone cannot affect organisational outcomes but other factors, for instance, the external environment (Mkalama, 2014) moderates the relationship.

According to Okello and Ngala (2019), TMT characteristics refer to attributes owned by the organisational executives. Top management teams have been considered to mean significant leaders who purposely select among different blueprints and consequently decide the fate of their organisations. Earlier studies (Prosvirkina & Wolfs, 2021; John & Severine, 2016; Díaz-Fernández et al., 2014; Herrmann & Datta, 2005) focused on all groups of highly ranked members of the organisation to constitute the TMTs. As time progressed, there has been a shift that more widely looked at TMTs to include those topmost executives that include the Chief Executive Officer

(CEO), vice president, and department heads (Ramsey & Duhe, 2010). For conceptual purposes, this study considers TMTs to connote those members that are within the organisation and are responsible for implementing decisions.

Various researchers have operationalized and measured TMT characteristics into three general classes: demographic (Wasike et al., 2015; Kinuu, 2014; Irungu, 2007), behavioural (Wasike et al., 2015), cognitive (Kasomi, 2015) and psychological (Wasike et al., 2015; Luthans, Youssef, & Avolio, 2007). Boal and Hooijberg (2000) propose that researchers should concentrate their efforts on the behaviour and personality features of TMTs other than relying on demographic characteristics. The study of TMT characteristics has been limited to individually examining either demographic, cognitive, psychological, or behavioural characteristics but not all at once. This study operationalized TMT characteristics in terms of demographic, behavioural, and psychological characteristics. Introductory investigations saw how TMT characteristics, particularly characteristics of the CEO affected the performance of the organisation. TMT characteristics alone could not clarify OP (Wasike et al., 2016). Other studies have found that OP has to be linked to other many factors like environment that could influence how TMT actions influence OP (Mkalama, 2014).

Scholars in management consider the external environment (EE) to mean a sum of external factors that have influenced the functioning of an organisation (Machuki & Aosa, 2011). It gives constraints, possibilities, issues, and openings that affect the requisites for which firms execute business. It is key to note that no firm not faces external environmental constraints. The external environment provides a foundation of advantages plus threats to an

organisation. However, Hitt et al. (2011) indicate that the external environment includes those outside issues that an organisation interacts with when conducting its day-to-day operations and which can be the source of requirements, possibilities, difficulties, and prospects that influence the relationships on which organisations execute. Therefore, the external environment is the aggregation of all the external situations that influence an organisation's existence, growth, and development.

The external environment manifests in three dimensions; environment munificence (Luciano, Nahrgang, & Shropshire, 2020; Castrogiovanni, 2002, 1991), environment dynamism (Tan & Litschert, 1994) and environment complexity (Machuki & Aosa, 2011; Duncan, 1972) and all need understanding if the firm is to survive within the environment in which it operates. Environment munificence is operationalised on either favourability or unfavorability of the operating environment to the organisation (Kowo et al, 2018; Njoroge et al., 2016). Environment dynamism is important for any firm as it helps the firm to come up with strategies to understand changes in the environment as these changes influence organisational performance (Njuguna - Kinyua, Munyoki, & Kibera, 2014). Murgor (2014) considers environmental complexity as a key variable in the firm, as it concerns the provision of many diverse units of information to the organisation. Ramsey and Duhe (2010) and Porter (1980) have identified several environmental dimensions such as political, financial, social, mechanical, ecological, and legal factors and the five forces model respectively to be basic possibilities for powerful strategic management.

The conceptualisation and evaluation of the connection between the environment and performance have been experienced

throughout the history of organisations. The organisation that has a TMT (with the best characteristics) that effectively implements strategies may find even the most seen environmental disturbance to be the wellspring of chances instead of dangers (Hubbard, 2009). Organisational performance is highly influenced and relates to the changes and the dynamic nature of the external environment (Machuki & Aosa, 2011). Previous scholars such as Ombaka (2014) have postulated and underscored the significance of an organisation in adjusting to the environment to stay reasonable. As the environment changes, the organisation's endurance completely relies upon formulating proper responses to unanticipated discontinuities. Much as there is supporting evidence showing a linear pattern between the environment and OP (Andrews, 2009), it stays possible that the impacts of various elements of the environment are most certainly not negative or positive. Top management teams thus need to distinguish and build up the capacities to adapt to these environmental conditions.

Prevalent organisational performance is the most pursued result by all organisations (Oketch, Kilika, & Kinyua, 2020). Kasomi (2015) noted that the meaning of organisational performance stays a thorny subject midst key tactical circles with different researchers and experts defining it differently. Organisational performance (OP) is a key notion in any organisation and is taking centre stage in strategic management research (Yongvanich & Guthrie, 2006) and up to now remains of pronounced attention to both academic scholars and practising managers (Mkalama & Machuki, 2019). Javier (2002) defined OP as the capability of an organisation to yield outcomes in aspects decided in connection to an objective. The performance of an

organisation is explained as its capability to get and achieve its objectives while engaging its rare resources efficiently (Griffins, 2006).

Various researchers have conceptualized and operationalised performance in organisations differently. Different parameters have been used to measure performance, especially in organisations with different operations (Kennerley & Neely, 2002). From past examinations (Richard et al., 2009), OP has been conceptualized utilizing either money-related or non-monetary constructs for objective evaluations. The commonly used measures of performance include financial, marketing, operational efficiency and human resources (Lebans & Euske, 2006). With the growing attention to the way, organisations execute their activities based on the environment, the balanced scorecard (Kaplan & Norton, 1992), sustainable balanced scorecard (Yongvanich & Guthrie, 2006), and the triple bottom line (Elkington, 1997) are currently in use. Muraga (2015) hypothesised OP as proficiency, importance, effectiveness, and financial viability of the organisation. The performance of Ugandan state agencies was conceptualized in terms of effectiveness and efficiency as used by Mouzas (2006). Lusthaus et al. (2002) noted that scholars have looked at performance to be identified or equated to efficiency and effectiveness. Kumar and Gulati (2010) posit that efficiency is about allocating resources across alternative uses and effectiveness is how much the firm accomplishes an expressed target. Effectiveness and efficiency are used as measures of performance since these agencies focus on service delivery than making profits.

The public sees organisations as institutions that exist to assist various partners that are either internal or external to the organisation. This concurs with Kasomi

(2015) who posits that the performance of an organisation is seen as the degree to which it fulfils its stakeholders for which it was set up to serve. According to Njoroge (2015), the performance of the public sector is assessed by proficiency that is conceptualized through components like expense per administration, various yields per representative, the normal estimation of awards per individual, and partner fulfilment, which is conceptualized through partner fulfilment list. The above contentions have set up that the concurred capacities of TMTs include translating arrangements made by the governing body into objectives, targets, methodologies, and extends, and being answerable for their performance. The distinct emphasis on organisational performance distinguishes strategic management from other fields since organisational performance is associated with having in place good strategies. In this manner, it can be presumed that TMTs are responsible for the performance of organisations (Mkalama, 2014). It has been imperative for managers to look for factors that determine an organisation's performance to enable managers to take appropriate steps to initiate them. Organisational performance identifies with the adeptness and effectiveness of the organisation (Machuki & Aosa, 2011).

State agencies are permanent or semi-permanent organisations in the structure of the state that is responsible for the oversight and organisation of explicit functions, like administration. Although usage differs, the government generally differentiates a state agency from other types of public bodies. In Uganda, state agencies are defined as government institutions that have a detailed legal background or a cabinet verdict founding them (Public Service, 2021). Since 1980, the government of Uganda has made autonomous organisations in types of



agencies, authorities, and commissions as a way of providing improved service delivery since such agencies are required to be efficient and effective (Basheka, Byamugisha, & Lubega, 2017). TMTs together with their directorates oversee state agencies.

As per Tumusiime (2015), state agencies in Uganda have not procured the required degree of performance as they have continually failed to meet the set performance targets. Much as state agencies get funds from the consolidated fund to perform their functions which are majorly service delivery, there aren't known studies in Uganda that have been undertaken to access the efficiency and effectiveness of these agencies. Basheka et al. (2017) posit that most state agencies in Uganda still face challenges in their external environment as they move from planning to strategy implementation up to the assessment exercises. Those opposed to the agencies highlight the immense amounts of monies they control and the representatives procure contrasted with traditional government employees, but some of them are not performing great (Rupiny, 2018). The government keeps on being confronted with inquiries from the residents regarding the lack of public service delivery yet these are areas where agencies of the state have been created with clear guidelines to improve performance. State agencies recruit quality personnel TMTs who are competent and they always implement the best strategies all aimed at posting good performance (Basheka et al., 2017). Basheka et al. (2017) suggest that more studies identified as critical for improving the effectiveness and efficiency of state agencies be carried out. However, the performance is questionable. The researcher is justified to carry out a study in this area to document the effect of the external environment on the relationship

between TMT characteristics and the performance of Ugandan state agencies.

### **Statement of the Problem**

Organisations are concerned more about posting high-performance levels. For this expectation, organisations have identified several strategies to ensure that the performance is as expected by the stakeholders. Among these strategies are the TMTs and the characteristics they espouse. The research on TMT characteristics and organisational performance has pulled in significant studies throughout the years (Yohannes, Ayako, & Musyoki, 2016; Milana & Maldaon, 2015). There appears to be no consensus on the presence of the connection if at all it exists between TMT characteristics and OP. Moreover, various scholars have utilised various constructs such as educational level (Díaz-Fernández, González-Rodríguez, & Simonetti, 2014), and training level, in estimating TMT characteristics just as the measure for OP. Strategic management scholars have contended that the behaviour, values, and cognitions of TMTs matter as far as organisational performance is concerned (Hambrick, 2007). Whereas many studies have explored TMTs and their relationship to performance (Nielsen & Nielsen, 2013), some have concentrated on only the CEO (Buyl et al., 2011) hence not considering the other TMT members that are key in making strategic decisions thus resulting in the varying results. Additionally, the environment is another variable that influences organisational performance (Murgor, 2014; Machuki & Aosa, 2011).

Much as Ugandan state agencies are overseen by TMTs, their performance varies, with some posting moderate performance (Tumusiime, 2015) while others are constantly on dreary performance. These variations indicate some noteworthy

components that affect their performance that should be assessed and suitable arrangements set forth for continued expected performance levels. TMTs have been connected to the disappointment of their organisations in adjusting to the changing environmental conditions (Mkalama, 2014). According to the Radix Management Consulting (2017) report, there exists a connection between the ability of TMTs and the efficiency and effectiveness of Ugandan state agencies (Radix Management Consulting, 2017). Although much accentuation has been put on the connection between TMT characteristics and performance, no known study exists on TMT characteristics (psychological, behavioural, and demographic) alone on their contribution to performance among Ugandan state agencies. Extant literature reveals that other factors such as the environment (Carpenter et al., 2004) influence organisational performance. It is consequently basic to research the moderating effect of the external environment on the connection between TMT characteristics and the performance of agencies.

The studies on the connection between TMT characteristics and the OP have generated conflicting and uncertain outcomes with certain examinations demonstrating positive outcomes (Nielsen & Nielsen, 2013) while others indicating negative outcomes (Díaz-Fernández et., 2014) and others (Waweru, 2008; West & Schwenk, 1996) demonstrating no relationship. Moreover, various scholars have utilised various concepts in estimating the connection between TMT characteristics and OP. A few researchers (Hambrick, 2007; Cannella & Holcomb, 2005) have called attention to the way that there is yet deficient experimental work on TMT characteristics and OP. Wasike et al. (2016) posit that other

scholars have additionally brought up methodological imperfections, misperceptions and irregularities in the conceptualization of TMT characteristics. Other studies (Omondiet al., 2022; Oketch et al., 2021; Wu et al., 2017) have found OP to be linked to many other factors like the external environment that could act as moderators to demonstrate that they influence how TMT actions affect OP (Mkalama, 2014).

Despite the significant number of empirical studies that link each study variable to OP, there are mixed and inconclusive results due to different theoretical perspectives applied and measurements of variables. For instance, while the UET has been tested in a variety of settings, existing reviews have considered the multilevel nature of upper echelon phenomena (for a notable exception see Cannella and Holcomb 2005) furthermore, the outside setting wherein TMTs are inserted. In addition, Crossland and Hambrick (2007) extended the theoretical echelons of analysis and show how discretion may also vary systematically at the national level. They contend that executives in various nations face deliberately various imperatives on their scopes of activity, and subsequently, the impact they have on organisational performance is probably going to vary among nations (Hambrick, 2007; Crossland & Hambrick, 2007). Thus, requiring a holistic approach that focuses on the interaction between TMTs and the external environment is eventually hypothesized to lead to enhanced OP. Contextually, most of these studies have not been carried out among Uganda state agencies and in different contextual setups ranging from private sectors like commercial banks, and microfinance to manufacturing. Whereas attempts have been made to analyse previous studies, research gaps can be

addressed through the synthesis of related studies and explanation of the deficiencies in the approach, definition, theory testing and results. Much as studies have shown differing results on the study variables, there are conceptual (Kraus & Ferrell, 2016; Yohannes et al., 2016; Mkalama, 2014; Díaz-Fernández, et al. 2014), contextual (Shadrack & Owino 2016; Wasike et al., 2016; Milana & Maldaon, 2015; Kasomi (2015); Kinuu (2014)), and methodological (John & Severine, 2016; Wasike et al., 2015; Nyamwanza, & Mavhiki; 2014) gaps that this study sought to address. Therefore, this study pursued to answer the research question; what is the moderating effect of the external environment on the relationship between TMT characteristics and the performance of Ugandan state agencies?

### Literature Review

**Dynamic Capabilities Theory:** This theory advanced by Teece, Pisano and Shuen in 1997 explains that activities such as the development of strategies and their implementation may be driven by management trends like philosophy change, professional process engineering, authorisation, excellence, dramatic changes within the environment, and declining organisational performance. In essence, clearly defining, formulating and implementing a strategy requires sharp and experienced minds through TMTs. Dynamic capabilities are organisational routines, in which managers alter their resources, integrate them and recombine them to generate value-creating strategies (Eisenhardt & Martin, 2000). Dynamic capabilities refer to “the ability to integrate, build, and reconfigure internal and external competencies to address rapidly-changing environments” (Teece et al., 1997).

Fiol (2001) concluded that dynamic capability is an important aspect of

competitive advantage due to its influence on a firm’s ability to change. Eisenhardt and Martin (2000) suggested that some firms are faster, more alert and more proactive toward changes. They often are the first player in the market to adopt trends and execute changes in strategies, thus giving them a source of sustained competitive advantage. The DCT assumes that the top management role in strategy is integration, adapting, and reconfiguring of skills of the firm especially internal including competencies and more so skills to match the environment. Clulow, Gerstman, & Barry (2003) found that management capabilities enable firms to not only survive but also consistently outperform rival firms through superior strategic decisions and utilization of available resources, especially in environments characterized by high complexity and low barrier of entry. In such an environment, learning and adapting faster than competitors is key to a firm’s survival and competitive advantage, which are enabled by dynamic capabilities. The capabilities according to the theory coupled with resources enable organisations to achieve the objectives set through a strategic plan and implementation process.

Hansen, Perry, and Reese (2004) revealed that how a company uses its assets is pretty much as similarly significant as the assets it has. The authors contended that simple ownership of abilities does not make predominant OP but what is important most is how the TMTs use the firms' capacities toward the fulfilment of set targets and objectives. The framework investigates the sources and strategies for abundance creation by private venture firms working in environments of fast innovative change. This theory predicts that organisations, in general, create dynamic capacities and persistently reconfigure them as per the changing environmental elements to

enhance their performance. These theoretical predictions of DCT were utilized to decide the moderating effect of the external environment on TMT characteristics and the performance of Ugandan state agencies.

The critiques claim that this theory presents dynamism in different resources and capabilities leaving out other scenarios like the idea of variable co-arrangement that could support strategy implementation (Chathoth, 2002). It is therefore important to understand the changing market to remain competitive in the changing and uncertain markets (Barreto, 2010). The study applied this theory as it suggests that organizations need to have certain capabilities to be able to respond to changing internal and external environments and adapt to new challenges and opportunities.

The understanding of the external environment helps TMTs design strategies like enhancing capacity and essential competencies that would enable them to shield organisations from some form of unwanted environmental results while chasing opportunities. David and Okeyo (2018) found that the external environment moderates the relationship between strategic planning and the performance of Nairobi. Conceptually, the researchers criticise David and Okeyo (2018) for not indicating how they conceptualised the study variables (external environment and performance). In addition, David and Okeyo (2018). Methodologically, David and Okeyo did not test for the validity and reliability of the questionnaire that was used for data collection. Furthermore, the findings cannot be used to generalise in the Ugandan context. This study conceptualized the external environment in terms of munificence, complexity, and dynamism and also conceptualised performance in terms of efficiency and effectiveness. Also, validity and reliability, validity, and diagnostic tests

(such as normality, linearity, and homogeneity) of the research instruments were conducted. This study also considered TMT characteristics instead of strategic planning. Thus, this study assessed the moderating effect of the external environment on the relationship between TMT characteristics and the performance of Ugandan state agencies.

Sumiati, Rofiq and Pramono (2019) additionally attested that the external environment significantly impacted the performance of the SME business nevertheless Sumiati et al. (2019) did not investigate how the external environment moderates TMT characteristics and performance in state agencies. In addition, Sumiati et al. did not conceptualise the external environment in terms of complexity, dynamism, and munificence. Furthermore, the findings cannot be used in the Ugandan context since the study was conducted among Small and Medium Enterprises. This study was conducted among state agencies in Uganda.

Using structural equation modelling, Kinuu (2014) indicated significant findings on the moderating effect of the institutional environment on the TMT psychological characteristics and performance connection. Kinuu considered only TMT psychological characteristics leaving out other constructs such as behavioural and demographic characteristics. In addition, Kinuu assessed the institutional environment whereas this study assessed the external environment. In addition, the researchers criticize Kinuu (2014) for collecting data from TMTs of companies using a questionnaire that had a self-report bias. This implies that the TMTs of the companies reported about themselves. This self-report can mislead descriptive statistics and inferences (Bauhoff, 2014). This study assessed how the relationship between TMT characteristics (in terms of



psychological, demographics, and behavioural) and performance (in terms of efficiency and effectiveness) is moderated by the external environment in the Ugandan context.

Conversely, statistically insignificant results were obtained on the moderating effect of the macro environment on the TMT demographics and performance connection (Mkalama, 2014). On the other hand, the researchers criticize a study by Mkalama (2014) for not analysing and presenting the secondary data that she collected. Furthermore, Mkalama did not consider other dimensions of TMT characteristics such as behavioural and psychological characteristics. Instead of the macro environment as used by Mkalama, this study utilised the external environment. Thus this study incorporated other dimensions of TMT characteristics and the external environment.

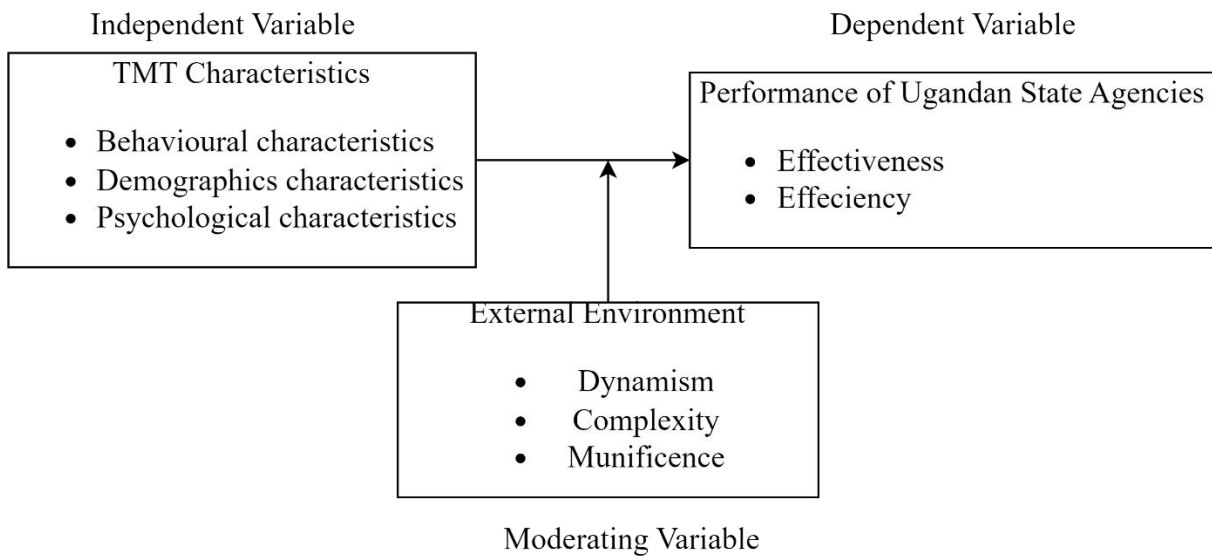
Murgor (2014) determined the impact of firm abilities and key reactions on the connection between the external environment and the performance of large-scale manufacturing firms in Kenya. Using data obtained through a structured questionnaire, the findings show that the external environment significantly influenced some indicators of performance. The opinions of Adeoye and Elegunde (2012) concur with this argument as they contended that the unsteady environment in which standard organisations work is of significant importance that organisations uphold their performance assessments along with embrace suitable plans of action that would offer relevant information matters considered to be of paramount importance.

Oluremi and Gbenga (2011) argue that organisations that want to flourish need to advance knowledge of the trends with an emphasis on the environment and dynamics that influence competition. The environment outside organisational confines affects the businesses in a particular industry to get above-average proceeds and look for strategic competitiveness amongst the others in the industry in which they operate (Hitt et al., 2011). Machuki and Aosa (2011) determined that the external environment has no impact on corporate performance.

It seems that the connection between the characteristics of TMTs and OP is not clearly defined as either positive or negative, however, all things considered, the environment in which a group works or the firm functions moderates the relationship. Accordingly, a developing understanding among scholastics that contingency impacts like environmental steadiness, colleagues' relations (Cannella & Holocomob, 2005) and essentially, industry features need to be considered when probing the TMT characteristics and OP association.

Thus, the null hypothesis: External environment has no significant moderating effect on the relationship between TMT characteristics and the performance of Ugandan state agencies.

Alternative hypothesis: External environment has a significant moderating effect on the relationship between TMT characteristics and the performance of Ugandan state agencies



**Figure 1: Conceptual Framework**

### Methodology

This study adopted a positivist way of thinking since it depends on the existing knowledge, examining literature from past and related studies, the conceptual framework developed by the researchers through an assessment of scholarly works, and logical procedures that are followed in developing a hypothesis that can later be tested and a deduction made to decide the truth or falsify the expressed hypothesis (Saunders, Lewis, & Thornhill, 2012). This study embraced a survey research technique. Several such surveys are one-time (cross-section) while others are proceeding (longitudinal) permitting the researchers to notice changes over a long time. Data were collected once from respondents with no intentions of follow-up (Sekaran & Bougie, 2016) hence adopting a cross-sectional research design. The descriptive cross-sectional survey design was used because it helps the researcher to set up whether relationships among variables exist sooner

or later on schedule (Cooper & Schindler, 2013).

The target population of this study comprised all Ugandan state agencies that were created by the Act of Parliament to provide services for the nationals. They are entirely financed by the Government. These agencies operate in different sectors namely health, education, works and transport, information and communication technology, justice, law, and order, public sector management, energy and mineral development. Other sectors include accountability, water and environment, public administration, tourism, trade and industry, social development, agriculture, security and lands, housing and urban development. According to Public Service (2021), there are 201 state agencies. The unit of inquiry consisted of at least three members of the TMT in each of the selected agencies depending on the number of TMTs every agency has. This study adopted the CEO/Managing Director, Deputy/ Assistant

CEO, Corporation Secretary, and Heads of Department as members of TMTs. The unit of analysis comprised a state agency and the break in the variable (used in data aggregation) was the name of the agency. Using a table developed by Krejcie and Morgan (1970), with a margin error of 3.5% and a confidence interval of 95%, a sample of 160 was used from a population of 201 state agencies. The study adopted stratified sampling in selecting the respondents from the strata that are relevant to the study. The group of interest was state agencies stratified into different sectors. The basis of stratification was based on the sector in which each agency falls. Proportionate random sampling was used in selecting the agencies to include in the study so that each sector is proportionately represented. Thereafter, respondents from each sector were randomly selected among the TMT members. To determine the sample size from each sector, a formula suggested by Kothari(2004) was utilised as indicated below

$$n_s = n * P_s$$

where  $P_s$  is the proportion of the population of the strata from the population and  $n$  is the sample size

Thus, the sample for the health sector,  
 $n_{health} = 160 * \frac{23}{201} = 18$

Primary data were collected on TMT characteristics, external environment, and performance of Ugandan state agencies using a structured questionnaire advanced from the assessment of prior studies (Kinuu, 2014; Charas, 2014; Mutuku et al., 2013; Machuki & Aosa, 2011). Adopting measurement scales reported in the literature guaranteed content validity. Furthermore, exploratory factor analysis (EFA) was conducted to determine to discover the factor structure of the measures. EFA was conducted for TMT characteristics, external

environment, and performance of the Ugandan state agencies. Principal component analysis was utilised to extract the items. These items were then rotated employing Varimax with the Kaiser normalization method to assist in the translation of the extracted items. Kaiser (1960) recommends the retention of all variables with an eigenvalue of greater than one. The researcher assessed the Kaiser–Meyer–Olkin (KMO) and all items with values of 0.6 (Hoque & Awang, 2016) and above were retained. Also, Bartlett’s test was assessed to determine the significance of the factors at  $p < 0.05$ . Some items that did not meet the required criteria were dropped.

The factor structure of TMT characteristics consisted of all its three components (psychological, demographic, behavioural ) as significant constructs. The KMO of .747 was greater than 0.6 as recommended by Hoque and Awang (2016). Also, further investigation of Bartlett's Test of Sphericity ( $X^2 = 892.933, p < .05$ ) reveals that it is significant at 0.05. Factor analysis extracted 11 components which explained 71.718% variance in TMT characteristics after rotation. In their order of significance, they incorporate; psychological, demographic, and behavioural characteristics with 28.619%, 23.522% and 19.576 respectively. The factor structure of the external environment consisted of all its three components (munificence, dynamism, and complexity) as significant constructs. The KMO was .666 and Bartlett's Test of Sphericity ( $X^2 = 1332.068, p < .05$ ) reveals that it is significant at 0.05. Factor analysis extracted 13 components which explained 70.091% variance in the external environment after rotation. In their order of significance, they incorporate; munificence, dynamism, and complexity with 31.747%, 24.110%, and 14.234 respectively. The factor structure of the performance of

Ugandan state agencies consisted of all its two components (efficiency and effectiveness) as significant constructs. The KMO was .846 and Bartlett's Test of Sphericity ( $X^2 = 1563.551, p < .05$ ) reveals that it is significant at 0.05. Factor analysis extracted 2 components which explain 67.080% variance after rotation in the performance of Ugandan state agencies. In their order of significance, they incorporate; effectiveness (component 1) and efficiency (component 2) with 36.877% and 30.203% respectively.

Furthermore, Confirmatory Factor Analysis (CFA) results were calculated using AMOS based on Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variance (MSV), and Average Shared Variance (ASV) as recommended by Hair et al., (2010) to determine the construct validity of the tool. For TMT characteristics, the CR for component 1 (psychological characteristics), component 2 (demographic characteristics), and component 3 (behavioural characteristics) were .900, .821, and .0766 respectively. For the external environment, the CR for component 1 (munificence), component 2 (dynamism), and component 3 (complexity) were .865, .823, and .732 respectively. For the performance of Ugandan state agencies, component 1 (effectiveness) and component 2 (efficiency) were 0.909 and 0.879 respectively. The CR of the different components exceeded the recommended value of 0.7 (Hu & Bentler, 1999). In addition, the model achieved the required convergent for each component was a reliable measure of validity since the AVE, among the components exceeded (0.50). For

discriminant validity, the MSV was less than AVE thus the items were valid. Reliability was assessed using Cronbach Alpha ( $\alpha$ ) to determine the internal consistency of the tool. For TMT characteristics, the demographics characteristics subscale had 4 items ( $\alpha=.809$ ), the psychological characteristics subscale consisted of 4 items ( $\alpha=.892$ ), the behavioural characteristics has 3 items ( $\alpha=.745$ ). In addition, for the external environment, the dynamism subscale had 5 items ( $\alpha=.836$ ), munificence had 6 items ( $\alpha=.863$ ) and complexity had 2 items ( $\alpha=.720$ ). And lastly, for the performance subscale, efficiency and effectiveness have 6 ( $\alpha=.867$ ) and 8 (.903) items respectively.

### **Findings and Discussions**

The objective of this study was to establish the moderating effect of the external environment on the relationship between TMT characteristics and the performance of Ugandan state agencies. To assess the moderating effect, the study applied Hayes' (2022) PROCESS Macro Model 1. Several scholars (Hayes, 2022; Kinuu; 2015; Mkalama, 2014; Baron & Kenny 1986 ) posit that moderation can only be supported if the interaction term is significant.

The null hypothesis stated that: External environment has no significant moderating effect on the relationship between TMT characteristics and the performance of Ugandan state agencies. Alternative hypothesis: External environment has a significant moderating effect on the relationship between TMT characteristics and the performance of Ugandan state agencies.



\*\*\*\*\* PROCESS Procedure for SPSS Version 4.0 \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D. [www.afhayes.com](http://www.afhayes.com)  
 Documentation available in Hayes (2022). [www.guilford.com/p/hayes3](http://www.guilford.com/p/hayes3)

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Model : 1  
 Y : perofUSA  
 X : TMTCHA  
 W : ENV

Sample  
 Size: 152

### Figure 2: Description of the Moderating Model

Figure 2 presents the Hayes (2022) model that was used to determine the moderating effect of the external environment on the relationship between TMT characteristics on the performance of Ugandan state agencies. In Figure 2, Y is the dependent variable (PerofUSA – performance of Ugandan state agencies), X is the independent variable

(TMTCHA – Top Management Team Characteristics), and W is the moderating variable (ENV – External Environment). A sample size of 152 agencies was considered. The PROCESS Macro output is presented in Figure 3. The output reveals the R-value, R square value, the F-statistic and the p-value of the model.

```
*****
OUTCOME VARIABLE:
perofUSA

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .756      .571      .081     65.676     3.000     148.000     .000

Model
      coeff      se      t      p      LLCI      ULCI
constant     9.591     2.870     3.342     .001     3.919     15.262
TMTCHA     -2.385     .751     -3.174     .002     -3.870     -.900
ENV     -2.450     .873     -2.807     .006     -4.175     -.726
Int_1       .857     .227     3.773     .000       .408     1.306

Product terms key:
Int_1      :      TMTCHA      x      ENV

Test(s) of highest order unconditional interaction(s):
      R2-chng      F      df1      df2      p
X*W       .041     14.233     1.000     148.000     .000
-----
```

### Figure 3: Moderating Effect of External Environment

The output in Figure 3 shows the R-value of .756 which reveals a strong correlation between the TMT characteristics, external environment, and the interaction term and

the performance of Ugandan state agencies. The model was statistically significant since the p-value of .000 was less than .05, F (3,148) = 65.676. The results in Figure 3

shows that the R Square of 0.571 in the model indicates that 51.7% of the variation in performance of the Ugandan state agencies was attributed to TMT characteristics, external environment and the interaction term of TMT characteristics and external environment.

The regression results, therefore, indicate that at 0.05 significance, all the coefficients are statistically significant with TMT characteristics at  $\beta_1 = -2.385$ ;  $t = -3.174$ ;  $p = 0.002$ , the external environment at  $\beta_2 = -2.450$ ;  $t = -2.807$ ;  $p = 0.006$ , and the interaction term at  $\beta_3 = .857$ ;  $t = 3.773$ ;  $p = 0.000$ . Figure 3 further shows that the beta coefficient for the constant in the model ( $\beta_0$ ) = 9.591 at  $t = 3.342$ . The  $\beta_0$  of 9.591 implies that with all the factors held constant, the performance of Ugandan state agencies will be 9.591 while  $\beta_1$  of -2.385 indicates that if all factors are held constant, a unit change in the TMT characteristics would result in a -2.385 change in performance,  $\beta_2$  of -2.450 indicates that with all other factors held constant, a unit change in external environment would lead to -2.450 change in performance and lastly,  $\beta_3$  of .857 indicates that with all other factors held constant, a unit change in the interaction term between TMT characteristics and external environment would lead to a reduction of .857 units in performance of Ugandan state agencies. The interaction term (Int\_1) was statistically significant ( $\beta = .857, t =$

$3.773, p = .000$ ) thus external environment significantly moderated the relationship between TMT characteristics and the performance of Ugandan state agencies. The R square change of .041 implies that moderating variable external environment explains 4.1% of the model.

$$\text{PerofUSA} = b_0 + b_1 \text{TMTCHA} + b_2 \text{EXE} + b_3 \text{Int}_1$$

Where

PerofUSA = Performance of Ugandan state agencies

$b_0, b_1, b_2$  are coefficients

TMTCHA = TMT characteristics

ENV = External Environment

Int\_1 = TMTCHA\*ENV= interaction term

The estimated model is thus summarized as follows;

$$\text{PerofUSA} = 9.591 - 2.385 \text{TMTCHA} - 2.450 \text{ENV} + .857 \text{Int}_1$$

The Hayes' (2022) PROCESS output in Figure 4 for model estimating and probing the moderation of the effect of the external environment on the relationship between TMT characteristics on the performance of Ugandan state agencies. The value of the external environment worth 2.2.961 is insignificant while 3.199, and 3.487 are significant as indicated in Figure 4.

```

-----
Focal predict: TMTCHA (X)
Mod var: ENV (W)

Conditional effects of the focal predictor at values of the moderator(s):

      ENV      Effect      se      t      p      LLCI      ULCI
2.961      .153      .105      1.454      .148      -.055      .361
3.199      .358      .077      4.652      .000      .206      .509
3.487      .604      .086      6.994      .000      .433      .775

Moderator value(s) defining Johnson-Neyman significance region(s):
Value      % below      % above
3.008      24.342      75.658
    
```

**Figure 4: Probing of the Moderation Effect**

The PROCESS output in Figure 4 is for a model estimating and probing the moderation of the effect of TMT characteristics on the performance of Ugandan state agencies by the external environment. At the 16<sup>th</sup> percentile, the value of the external environment worth 2.961 has an insignificant effect of 0.153 on the TMT characteristics and performance of Ugandan state agencies. At the 50<sup>th</sup> percentile, the value of the external environment worth 3.199 has a significant effect of .358 on TMT characteristics and performance of Ugandan state agencies. In addition, at the 84<sup>th</sup> percentile, the value of

the external environment worth 3.487 has a significant effect of .604 on TMT characteristics and performance of Ugandan state agencies. Further probing is carried out using the Johnson-Neyman as indicated in below Figure 5. Johnson-Neyman interval indicates the range of values of the moderator in which the slope of the predictor is significant vs. nonsignificant at a specified alpha level. In simple terms, Johnson-Neyman identifies regions in the range of the moderator variable where the effect of the focal predictor on the outcome is statistically significant and not significant.

Conditional effect of focal predictor at values of the moderator:						
ENV	Effect	se	t	p	LLCI	ULCI
2.583	-.170	.177	-.963	.337	-.520	.179
2.656	-.108	.162	-.669	.505	-.429	.212
2.728	-.047	.148	-.315	.753	-.338	.245
2.800	.015	.134	.115	.908	-.249	.280
2.872	.077	.120	.642	.522	-.161	.315
2.944	.139	.108	1.289	.199	-.074	.353
3.008	.194	.098	1.976	.050	.000	.387
3.017	.201	.097	2.081	.039	.010	.392
3.089	.263	.087	3.023	.003	.091	.435
3.161	.325	.080	4.082	.000	.168	.482
3.233	.387	.075	5.151	.000	.238	.535
3.306	.449	.074	6.060	.000	.302	.595
3.378	.511	.077	6.668	.000	.359	.662
3.450	.573	.082	6.951	.000	.410	.735
3.522	.635	.091	6.988	.000	.455	.814
3.594	.696	.101	6.882	.000	.496	.896
3.667	.758	.113	6.709	.000	.535	.982
3.739	.820	.126	6.515	.000	.571	1.069
3.811	.882	.140	6.323	.000	.606	1.158
3.883	.944	.154	6.143	.000	.640	1.248
3.956	1.006	.168	5.979	.000	.674	1.339
4.028	1.068	.183	5.832	.000	.706	1.430

**Figure 5: Conditional Effects of the focal Predictor at values of the moderator**

The value of 3.008 is the significance region based on the Johnson Neyman technique. The results in **Error! Reference source not found.** reveal that the effect of the external environment is insignificant for values less than 2.944 and significant for the values for values greater than 3.008. This indicates that the region of significance for the experimental condition is all values of the

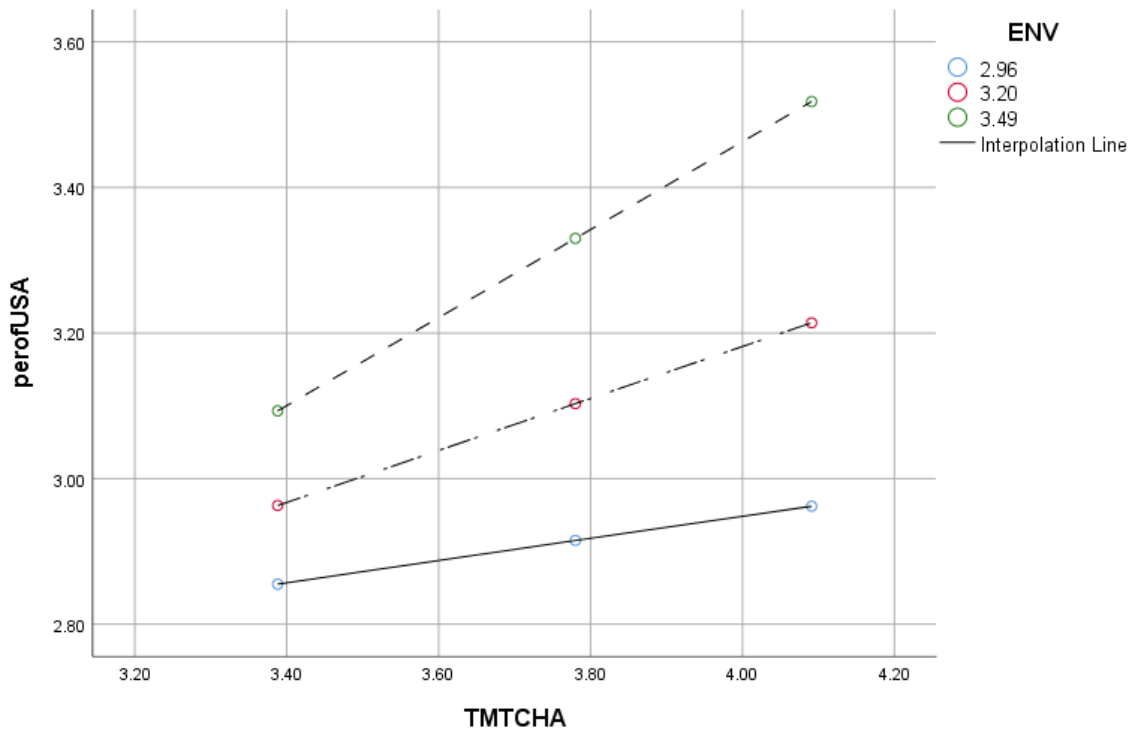
external environment lower than 3.008 insignificantly affect the relationship between TMT characteristics and the performance of Ugandan state agencies. Further, a look at the respective effect size highlighted in yellow, indicates that the effect of the intervention is 0.194 and is positive.



Data for visualizing the conditional effect of the focal predictor:  
 Paste text below into a SPSS syntax window and execute to produce plot.

```
DATA LIST FREE/
    TMTCHA     ENV         perofUSA  .
BEGIN DATA.
    3.388      2.961      2.855
    3.780      2.961      2.915
    4.091      2.961      2.962
    3.388      3.199      2.963
    3.780      3.199      3.103
    4.091      3.199      3.214
    3.388      3.487      3.093
    3.780      3.487      3.330
    4.091      3.487      3.518
END DATA.
GRAPH/SCATTERPLOT=
```

**Figure 6: Data for Visualising Moderation Effect**



**Figure 7: Visualisation of the Moderating Effect**

Figure 7 reveals that the effect of as TMT characteristics increases, the performance of Ugandan state agencies also increases in presence of the moderating variable (external environment). Furthermore, an

examination of the interaction plot as proposed by Jose (2013) and Aiken and West (1991) revealed that; i) the effect of TMT Characteristics on the performance of Ugandan state agencies depends on the level

of demographic, behavioural, and psychological characteristics (i.e., low, medium and high, ii) regression lines are not parallel iii) the magnitude of an effect is more significant at one level of a variable than at another hence confirming occurrence of a significant interaction. Therefore, all the

above results are indicative that TMT characteristics and the external environment fuse to predict the performance of Ugandan state agencies; TMT characteristics highly influence the performance of Ugandan state agencies hence supporting the alternative hypothesis.

\*\*\*\*\* BOOTSTRAP RESULTS FOR REGRESSION MODEL PARAMETERS \*\*\*\*\*

OUTCOME VARIABLE:

perofUSA

	Coeff	BootMean	BootSE	BootLLCI	BootULCI
constant	9.591	9.505	2.709	4.143	14.751
TMTCHA	-2.385	-2.366	.696	-3.717	-.977
ENV	-2.450	-2.418	.826	-3.993	-.755
Int_1	.857	.850	.212	.420	1.259

\*\*\*\*\* ANALYSIS NOTES AND ERRORS \*\*\*\*\*

Level of confidence for all confidence intervals in output:

95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:

5000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

NOTE: Standardized coefficients not available for models with moderators.

From the findings, the regression analysis revealed that the external environment moderates the relationship between top management team characteristics and the performance of Ugandan state agencies. The introduction of the interaction term makes the coefficient of TMT characteristics to negative sign which indicates that the moderating variable (external environment) weakens the causal effect of TMT characteristics on the performance of Ugandan state agencies thus changing the direction of the relationship (Aiken & West, 1991). This further implies that external environmental variations in terms of munificence (whereby the interests of the various stakeholders are put in place), political regime, developed government

structure and the country's overall political stability will positively affect the relationship between TMT characteristics and performance of the state agencies. This is because once there is a positive political regime, there will be political stability and policies will be implemented as designed.

This is in line with the findings of Wu, Wu, Tsai, and Li (2017) who found that risk perceptions and mental models serve as mediating factors and are affected by the TMTs' characteristics and decision-making. They additionally found that psychological proprietorship applies moderating effects on TMTs' characteristics and decision-making.

It was also indicated that when there are followed societal norms and values,

followed by customs of various communities and regions of host communities, this will also affect the relationship between the TMT characteristics and the performance of Ugandan state agencies. In addition, when there are changes in the laws emanating from the counties, and changes in the cultural practices in terms of land demarcations, pastoralism and farming practices, this will affect the relationship between TMT characteristics and the performance of Ugandan state agencies.

The same findings were advocated by the environment dependence theory (EDT) developed by Ansoff & Sullivan (1993) is used to underpin this study. The theory concedes the contention on the thought that organisations ought to persistently break down, filter and assess the environmental setting wherein they work planning to recognize any patterns at the beginning phase before influencing the performance (Kirui, 2016). Thus, as TMTs create strategies, they are exposed to environmental impacts and thus should consistently guarantee that vital decisions take awareness of dangers in the environment where the organisation works (Ansoff Igor & McDonnell, 1990).

The outcomes of this study endorse the postulates of the environmental dependency theory that external environments influence organisations as they carry on their businesses. The TMTs are accountable for completing the business activities of their organisations to accomplish positive performance however in doing the activities, TMTs should distinguish between open opportunities and dangers in their environments. They should hence have traits to empower them to detect and make moves fundamental either to take advantage of valuable opportunities or neutralize dangers. For Uganda state agencies, the external

environment includes the society, economy, regulations and political system that influence their TMTs to achieve their objectives and goals.

### **Conclusion/ implications to policy, practice/ future directions**

#### **Conclusions**

It can be concluded that the external environment significantly moderates the connection between TMT characteristics and the performance of state agencies in Uganda. In addition, it can be concluded that the specific TMT characteristics that are most important for the performance of Ugandan state agencies may vary depending on the external environment in which the agency operates. Organizations operating in different external environments should prioritize different TMT characteristics in order to achieve optimal performance. It is also important for Ugandan state agencies to regularly assess and monitor the external environment in order to identify any changes that may impact the relationship between TMT characteristics and performance. Furthermore, Ugandan state agencies should develop specific TMT characteristics in order to effectively navigate challenges or opportunities presented by the external environment. The impact of TMT characteristics on the performance of state agencies in Uganda may be more or less pronounced depending on the external environment, and agencies should consider this when evaluating the effectiveness of their TMT.

#### **Implications to policy**

The external environment can never be ignored as long as policymakers want to be relevant as they try to set achievable goals and objectives, this is because it is ever-changing and requires a team that is well-equipped with knowledge on how to deal with it. First, policymakers should consider

the external environment when developing strategies to improve the performance of state agencies. This should involve identifying the specific TMT characteristics (such as demographic, behavioural, and psychological) that are most important for driving performance in different external environments, and developing policies and programs that support the development of these characteristics in top management teams.

Second, policymakers should consider the external environment when evaluating the effectiveness of state agencies. For example, if a state agency is performing well in a relatively stable external environment, it may not be fair to compare its performance to a state agency operating in a highly competitive or rapidly changing environment.

Finally, policymakers should consider the external environment when designing and implementing policies that affect state agencies. For example, regulatory changes or shifts in economic conditions can have a significant impact on the performance of state agencies, and policymakers should consider these potential impacts when developing policy.

Overall, taking the moderating effect of the external environment into account can help policymakers to develop more effective strategies and policies for improving the performance of state agencies in Uganda.

#### **Implications to Practice**

Foremost, state agencies should regularly assess and monitor the external environment to identify any changes that may impact the relationship between TMT characteristics and performance. This can help state agencies to anticipate and prepare for potential challenges or opportunities. Secondly, state agencies should consider the specific TMT characteristics (in terms of

behavioural, demographics, and psychological) that are most important for driving performance in their particular operating context. This may involve developing specific TMT characteristics to effectively navigate the external environment. Thirdly, state agencies may need to be flexible and adaptable to effectively respond to changes in the external environment. This may involve developing contingency plans or implementing processes for quickly adapting to new circumstances. Generally, taking the moderating effect of the external environment into account can help state agencies to make more informed strategic decisions and improve their overall performance.

#### **Future Directions of Research**

This study utilised a cross-sectional research design that supports gathering data at one moment and the results from such studies are generally restricted to this study period. Thus, future studies ought to take a different approach such as longitudinal exploration where the performance of state agencies in Uganda is monitored for a long period. A longitudinal survey design would give the connections among the study studies as observed in a given period. In addition, future examinations ought to consolidate qualitative approaches utilising for instance observations and interview guides. Another direction could be to further explore the specific TMT characteristics that are most important for driving performance in different external environments. This could involve conducting case studies or large-scale empirical studies to identify patterns in the relationship between TMT characteristics and performance across different external environments. Another direction could be to explore the moderating effect of the external environment on the relationship between TMT characteristics



and performance in other organizational contexts, such as private sector companies or non-profit organizations. This could help to identify any generalizable patterns in the moderating effect of the external environment on the relationship between TMT characteristics and performance. This will help in building the literature further through researching other factors and increase the extent of the results and the degree of generalization.

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