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Abstract

This study is aimed to investigate the mediating effect of innovation capability in the relationship between strategic human resource management (SHRM) practices and organizational performance in Debre Tabor University (DTU), Ethiopia. SHRM practices are observed through human resource management planning, recruitment and selection, training and development, and compensation and benefits. The study relies upon the principles of social exchange theory and resource-based theory. 328 questionnaires were distributed to 328 selected staffs from 1823 staffs at Debre Tabor University by using random sampling technique and 314 questionnaires were returned for analysis. The data was analyzed by using Statistic Package for Social Sciences (SPSS) and AMOS software. Descriptive and inferential method of data Analysis was used for the analysis. The proposed conceptual model is evaluated with structural equation modeling using AMOS v23 and SPSS 21. The finding of the study revealed that SHRM have positive relationship with organizational performance ($p= 0.026$), SHRM have positive relationship with innovation capability ($p< 0.001$), and innovation capability have positive relationship with organizational performance ($p= 0.002$). The findings suggest that innovation influences the relationship between human resource management planning, recruitment and selection, training and development, and compensation and benefits. Through supporting HRM practices with the organization's strategic

goals, SHRM can help Debre Tabor University's to enhance their performance, increase their competitiveness, and achieve long-term success.

Keywords: Strategic human resource planning, recruitment and selection, training and development, compensation and benefit, innovative capability

Highlights

- SHRM practices enhance organizational performance at Debre Tabor University.
- Innovation capability strongly mediates the relationship between SHRM and organizational performance.
- Strategic HRM practices positively impact university innovation capability.
- SHRM and innovation explain 82.2% of the variance in DTU performance.
- Study offers empirical evidence from Ethiopian higher education perspective.

1. Introduction

Human Resource Management (HRM) is based on the principle that an organization's workforce is its most valuable asset, and it significantly impacts its performance. To ensure that HRM contributes to the organization's performance, it is essential to effectively design and implement a suitable set of human resource policies and procedures(Njonge, 2023). According to (Ali et al., 2023), in an energetic business atmosphere, there is the need for an approach to achieve better performance, to originate and implement human resources management. This realization reinforces the critical role human resources management play in this globally modern and increasingly competitive business landscape. Human Resource Management is the organizational function that deals with issues related to people such as compensation, hiring, performance management, organization development, safety, wellness, benefits, employee motivation, communication, administration, and training (Tukur, 2018).

Globalization has demanded the organization to be always ready in facing the increasing industrial competition. This condition requires the organization to always foster the innovation by integrating various new knowledge to conduct the organizational learning. The previous study stated that creativity and innovation in products, processes, and services contribute to the long-term growth and success of the organization(Gede Riana et al., 2020). Innovation and creativity are also essential so that the organization can win an increasingly stringent competition in the changing

environment. An innovative organization is proven to maintain a competitive advantage because it can respond faster to environmental changes (Gede Riana et al., 2020). A key to the ability to create innovation to support the organization's performance is the support of the quality of human resources, which should be on the top priority (Gede Riana et al., 2020)

Strategic Human Resource Management (SHRM) is a widely recognized theoretical concept that emphasizes the significance of an organization's workforce and HRM system as a source of sustainable competitive advantage. The SHRM approach is based on the premise that an organization's human resources are a valuable asset that can be leveraged to achieve strategic objectives(Njonge, 2023).

Existing studies Turulja et al., (2023) have generally addressed the mediating effect of innovation in the relationship between human resource management (HRM) practices (i.e selective hiring, training, rewarding and participative decision-making) and organizational performance. Several studies have addressed the issues of human resource (Tukur, 2018). Of these studies in Ethiopia, none have assessed the effect of strategic human resource management on organization performance; mediating role of innovative capability.

The major problem seen at Debre Tabor University, experts or teachers are leaving; leaving for another university without the permission of the university (this happens because the university does not release them voluntarily). The reason for this is the lack of adequate service or satisfactory service to the administrative staff or teachers at the time. For example: there is not enough training in each department for administrative staff or teachers to grow or develop themselves; there is a shortage of offices; there is a shortage of housing; benefits (e.g., soft, soap) and teaching aid materials (e.g., computer, laptops, projectors, markers, pens, paper, dividers, etc.).

Existing studies Turulja et al., (2023) have generally addressed the mediating effect of innovation in the relationship between human resource management (HRM) practices(i.e selective hiring, training, rewarding and participative decision-making) and organizational performance. Several studies have addressed the issues of human resource (Tukur, 2018). Of these studies in Ethiopia, none have assessed the effect of strategic human resource management on organization performance; mediating role of innovative capability.

According to Tukur (2018), top management should give more intension to HRM because it significantly affects the organization. The success or failure of any organization is highly

dependent up on how it efficiently and effectively utilizes the existing resources. A number of organizations face the problem of having well qualified staff and providing regular training to their staff. So, this paper tries to investigate problems of strategic HRM on organization performance in case of Debre Tabor University.

The purpose of the study is to investigate the effect of strategic human resource management (HRM) practices on organizational performance, focusing on Debre Tabor University. The aim is to analyze how the implementation of strategic HRM practices within the university affects key indicators of organizational performance. And the relationship between Strategic Human Resource Management (HRM) practices and organizational performance within the University, with a specific focus on the mediating role of innovation capability. The study seeks to investigate how strategic HRM practices influence organizational performance through the enhancement of innovation capability within the university setting. By examining these interconnected factors, the aim to provide a comprehensive understanding of how HRM strategies affect organizational outcomes, mediated by the ability to foster innovation within the academic environment of Debre Tabor University.

A study was done on the connection between innovation and organizational performance in Debre Tabor University context which indicate some important limitations and also gap for future studies. It suggests that further studies must conduct research on strategic human resource management, innovation, and organizational performance. The study also suggest that moderating effect was not measured in the study and future studies need to examine it, the study also suggest that future studies can be conducted in other services and manufacturing domains such as hospitality, telecom etc(Suhag et al., 2017).

Finally, the study tries to explain possible solutions to overcome problems identified and to encourage the existing human resource practice. In, general, this study tries to answer the following basic questions which can consider as a research guide for the study:

- What is the effect of Strategic HRM practices on innovation capability within the university?
- To what extent does innovation capability enhance the organizational performance of Debre Tabor University in the context of Strategic HRM practices?

- What are the indirect effects of strategic human resource management on organizational performance via innovation capability?

1.2. Objective of the Study

The main objective of this study is to investigate the mediating role of innovation capability in the relationship between the effects of strategic human resource management practices on organizational performance at Debre Tabor University (DTU).

1.2.1. Specific Objectives

- To examine the effect of the relationship between Strategic human resource management and innovation capability at DTU
- To examine the effect of the relationship between Innovation capability and organizational performance at DTU
- To examine the effect of the relationship between strategic human resource management and organizational performance at DTU
- To determine the mediating role of innovation capability in the connection between Strategic HRM practices and organizational performance.

1.3. Hypothesis

H1: There is a positive and significant relationship between Strategic human resource management and innovation capability at DTU

H2: There is a positive and significant relationship between Innovation capability and organizational performance at DTU

H3: There is a positive and significant relationship between strategic human resource management and organizational performance at DTU

H4: There is mediating role of Innovation capability on the relationship between strategic human resource management and organizational performance.

1.4. Scope of the Study

This study was shed light on the effects between Debre Tabor University recruitment and selection, Training and Development, Compensation and Benefits, innovative capability on organizational performance. It was do this within the conceptual, geographic, methodological, and time boundaries stated below.

Conceptual Scope: This research study focused on investigating the effects of recruitment and selection, Training and Development, Compensation and Benefits, innovative capability on organizational performance, specifically observing at how innovative capability influences organization performance. This study was explore the variables that effect organization performance within the context of Debre Tabor University.

Geographical Scope: The geographical scope of this study was limited to Debre Tabor University in Ethiopia. The research was be conducted within the evidences of the DTU, focusing on the employees working in this specific institution. The findings and conclusions was be specific to the context of DTU.

Methodological Scope: The research methodology was employed in this study was involve a mix of qualitative and quantitative approaches. Data collection methods such as surveys, and observations used to gather information from employees at DTU. The study was also utilize statistical analysis techniques to analyze the data collected and draw meaningful conclusions regarding the variables influencing organizational performance.

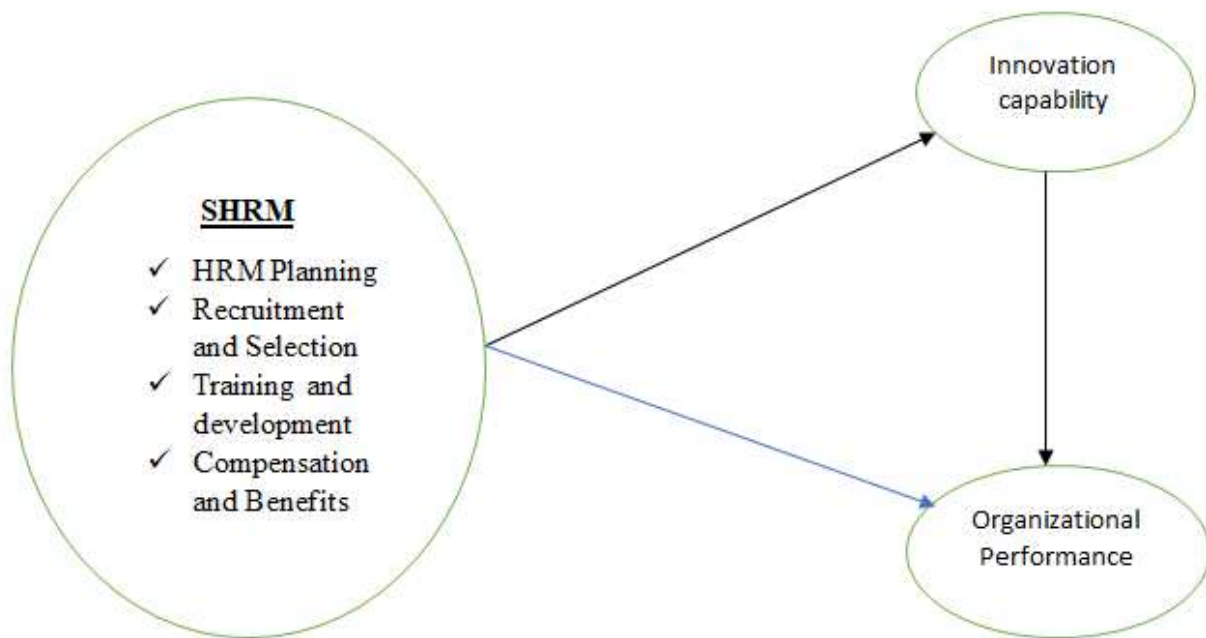
Time Scope: The time scope of this study was covered a specific period during which data collection and analysis was be conducted. The research timeline was include the preparation phase, data collection phase, data analysis phase, and report writing phase. The duration of the study was outlined in the research proposal, specifying the start and end dates of each phase to ensure timely completion of the research.

2. Conceptual framework

A conceptual framework refers to the extent a researcher conceptualizes to be the relationship between contextual variables in the study and shows the relationship graphically or diagrammatically (Negash et al., 2014). The relationship describes the association between the independent variables and the dependent variables. Since the study focus on the 'effect of strategic HRM practices on organizational performance in case of Debre Tabor University: Mediating Roles of Innovation Capability. Some key practices associated with SHRM: Recruitment and Selection, Training and Development, and Compensation and Benefits. These practices, when implemented strategically, can help organizations build a strong, motivated workforce that contributes to achieving the company's overall objectives. Innovative capability within an organization can be influenced by a variety of factors. Some determinants and influencers of innovative capability: Culture, resources, collaboration and customer focus. Recruitment and Selection, Training and

Development, Performance appraisal and Compensation and Benefits are taken as independent variable. Organizational performance is considered as dependent variable for this research innovative capability is considered as mediating variable. These independent and dependent variables are shown in the following conceptual framework. The conceptual framework for my research, highlighting the key elements to be explored and the potential impact of the study, using the model presented below in figure 1.

Figure 1. Conceptual framework



Source: Researchers own compilation with reference to Turulja (2023)

3. Methodology

3.1. Research design

The purpose of this study is to examine the mediating role of innovation capability in the relationship between strategic human resource management and organizational performance in case of DTU. This research aims to describe behaviors and collect people's perceptions, opinions, attitudes, and beliefs about a current issue. It was also attempt to study the effect of strategic HRM Practices on organizational performance.

As a result, a mixed method strategy was being adopted for this study as a research technique that involves gathering, analyzing, and integrating quantitative and qualitative research (and data).

3.2. Sources of data

This study was employ primary source of data and some supporting secondary sources. The primary sources of data were being employees in the selected college/directorate in DTU. The data was collected through questionnaires. The secondary data was obtained from reviewing related literature, journals and books reviewed. In addition to this,

Gathering data from the university's human resources department maintains personnel records and may have data on human resource management planning, recruitment and selection, training and development, compensation and benefits, and innovative capability practices related to organizational performance.

3.3. Sampling techniques

To ensure that the sample is representative of the entire population, random sampling technique was being used. College/institute members, administrative staff, and HR professionals. Random samples were drawn from each group proportionally to their representation in the population. This approach is particularly useful for ensuring that the survey results reflect the opinions and experiences of all relevant groups.

Study Population: The study was focus on the employees of Debre Tabor University, specifically targeting college/institute members, administrative staff, and human resource professionals. This population is selected as they are directly involved in or impacted by SHRM practices, making them well-positioned to provide insights into the implementation and effects of these practices on organizational performance. College/institute members, including professors and lecturers, contribute to the academic output of the university. Administrative staffs, who play key roles in day-to-day operations, and HR professionals, who are responsible for implementing SHRM practices, are all integral to the university's performance. Including these diverse groups ensures that the study captures a broad range of perspectives regarding SHRM practices and their impact on the university.

Sample size determination: A total of 328 people were chosen from the general target population to participate in this study using the random sampling techniques. The sample size was chosen because as the sample size grows, the research's dependability grows, and it can better reflect the reality of how strategic HRM practices influence organizational performance in Debre Tabor University. The sample size allocated to this study was being presented as: Yamane's formula is a

method used to calculate the appropriate sample size for a survey or study, particularly when dealing with a known, finite population. The formula is:

$$n = \frac{N}{(1 + N * e^2)} ,$$

Where:

- **n**: represents the sample size.
- **N**: represents the total population size.
- **e**: represents the margin of error, which is the acceptable level of deviation from the true population value.

The marginal error (e) is taken as 0.05, with 95% confidence limits (Njonge, 2023).

$$n == \frac{N}{(1 + N * e^2)} == \frac{1823}{(1 + 1823 * (0.05)^2)} = 328, \text{ where } n \text{ is the sample size}$$

The proportion $n/N = \frac{328}{1823} = 0.18$, which is approximately 18% we have to take the sample size of 328 for the study investigation as representative of the target study population. University teachers, assistants and, administrative staff in the sample size determination; rather the study was find information from those through purposely selected participants and personal observations.

3.4. Research approach

This research adopted a quantitative research approach, which is suitable for testing hypotheses and examining the relationships between variables using numerical data. The quantitative approach is ideal for this study as it allows for the collection of structured, statistical data through surveys, which can then be analyzed using advanced statistical techniques to test the mediating role of innovation capability in the relationship between SHRM practices and organizational performance. This approach enables the researcher to make objective, data-driven conclusions regarding the effectiveness of SHRM practices at Debre Tabor University.

3.5. Method of data collection

Data was collected using a structured questionnaire. The survey was designed with Likert scale questions to collect quantitative data on SHRM practices (e.g.human resource management planning, recruitment and selection, training and development, and compensation and benefits) and organizational performance. The questionnaire was administered to the selected sample of

employees (college/institute members, administrative staff, and HR professionals) of Debre Tabor University. The survey was being distributed in physical formats to ensure maximum participation and convenience for respondents. In addition to primary data collected through the survey, secondary data may be collected from publicly available university reports and performance reviews to supplement the findings.

Administration of instruments:

Three hundred twenty eight (328) copies of the questionnaire were distributed to respondents at work place (Debre Tabor University). After some time, the researcher went back and collected the answered questionnaire. Only three hundred fourteen (314) questionnaires were received in response. This means that the analysis of data is based on the percentage of response. The purpose of this was to help the respondents to understand the purpose of the research, and to do away with suspicions, partialities and also to be able to provide their independent opinions on the questionnaire items given them.

3.6. Measurement of variables

Basically, this study uses a multiple question in order to measure the SHRM (Planning, recruitment and selection, training and development, and compensation and benefits), innovation, and organizational performance. The questionnaire contains quantitative measurement. The demographic part of the question is more participants. The questionnaire consists of 48 questions were distributed and the English language has been used.

3.7. Method of data analysis

The collected data were statistically analyzed, using the Statistical Package for Social Sciences software (SPSS) and AMOS software v23/26 model version/ for structural equation modeling (SEM) and SPSS for statistical analysis. AMOS is particularly useful for testing complex relationships in SEM, while SPSS can be employed for descriptive statistics, correlations, and other preliminary analyses. Representations like tables and graphs were used to ensure easy and quick interpretation of data. Responses were expressed in percentages. Data from the completed questionnaire were checked for consistency. The items were grouped based on the responses given by the respondents and were coded for easy usage of the Statistical Package for Social Sciences (SPSS). This method was used because it is the best instrument to identify, compare, describe and to reach a conclusion, also Chi - square was used to interpret the hypotheses. The Chi-square is a nonparametric test. It is used to test the difference between a set of observed frequencies of a

sample and a corresponding set of expected frequencies. The decision rules accept H1 and reject H0 if the calculated value is greater than the tabulated value. The reverse was however being the case, that is; reject H1 and accept H0, if the tabulated value is greater than the calculated value.

The data collected from the survey analyzed using descriptive and inferential statistical techniques. Descriptive statistics, such as means, frequencies, and percentages, used to summarize the demographic information and the SHRM practices reported by respondents. Inferential statistics, such as chi-square test employed to test the hypotheses and investigate the mediating role of innovation capability of the relationships between SHRM practices and organizational performance outcomes at Debre Tabor University.

3.8. Ethical consideration

Ethical approval for this study was provided by the Debre Tabor University College of Business & Economics research ethics review committee. Because ethical consideration in research are essential, the data collected from participants used only for the research purpose and kept confidential. The researcher do not disclose the names of respondent's and all the respondents have involved voluntarily. The researcher also attempted to give proper acknowledgement or credit for all participants of this research.

Respondents were highly briefed and encouraged to give an honest and genuine answer, opinion, suggestion in the duration of the study. Manuals, policy, procedures and other relevant documents collected from University kept confidential and not revealed to the third party in any form. Overall, the data collected in a way that safeguard the participants' wellbeing and privacy.

3.9. Validity and reliability

The validity of a finding stems from how well it represents the phenomenon being studied in the analysis of the data. Research specialists and colleagues examined the measuring methodology and coverage of particular areas (objectives) covered by the study in order to verify the content validity of the instruments. The degree of consistency with which a measuring device measures the object for which it is intended is known as reliability. Uncertain instructions given to the volunteers may have caused these errors; therefore, a pilot study was conducted to reduce the likelihood of such errors. A pilot test had been conducted to increase the validity and reliability of the research tools.

According to Negash et al.(2014), the reliability test is an important instrument to measure the degree of consistency of an attribute which is supposed to be measured. Cronbach's alpha is one of the most commonly accepted measures of reliability. It measures the internal consistency of the items in a scale. It indicates that the extent to which the items in a questionnaire are related to each other. Reliability is the extent to which measurements are repeatable, when different persons perform the measurements, on different occasions, under different conditions, with supposedly alternative instruments which measure the same thing.

De & Pritchard (2006) suggests that the alpha value varies from 1.0 for a perfect score to 0.0 for a low grade. A good measure of the alpha should be 0.70 or higher. Scales with a coefficient alpha of 0.80 to 0.96 have very good reliability, scales with a coefficient alpha of 0.70 to 0.80 have good reliability, scales with an alpha value of 0.60 to 0.70 have fair reliability, and scales with a coefficient alpha of less than 0.60 have poor reliability (Pradhan, 2020). As a result, the survey's Cronbach's Alpha values show very good reliability, and the results are presented in the table below. Table 1 suggested that Cronbach's α value is preferably to be considered reliable. Therefore the result of total items together and also each clustered items were reliable enough for further statistical analysis.

Table 1. Reliability

Constructs	Before deleting		After deleting	
	Cronbach's Alpha	No of items	Cronbach's Alpha	No of items
Human Resource Planning(HRP)	0.893	9	0.817	4
Recruitment and Selection(RS)	0.848	7	0.785	4
Training and Development(TD)	0.888	7	0.844	4

Compensation and Benefits(CB)	0.852	7	0.835	5
Innovation Capability(IC)	0.865	9	0.808	5
Organizational Performance(OP)	0.891	9	0.857	5
Over all the questionnaire	0.95	48	0.96	27

Source: Survey data 2025, using SPSS 21

4. Presentation of findings

4.1. Rate of response

In this study, the respondents were chosen from the staffs who work at Debre Tabor University. A total of 328 questionnaires were distributed to the respondent by hand for teachers, administrators and lab assistants. And, 314 questionnaires were returned back to researcher but 14 were not returned. The usable responses collected to enable a meaningful analysis account for 95.7% response rate from the total questioners distributed indicating that the respondents were committed to providing relevant data for the analysis. The data is quantitatively examined, and the results are presented in an easy to understand format.

Table 2. Respondents Description

Variable	Category	Frequency	Percentage (%)
Gender	Male	255	81.2
	Female	59	18.8
	Total	314	100
Education Level	Assi. Prof. and above	38	12.1
	Masters	195	62.1
	Degree	76	24.2
	Diploma	5	1.6
	Total	314	100
Age	Below 25 yrs.	13	4.1

	26-35 yrs.	196	62.4
	35 yrs. and above	104	33.4
	Total	314	100
Work Experience	Below 6yrs	14	4.5
	6-10 yrs.	162	51.6
	11 yrs. and above	138	43.9
	Total	314	100

Source: Survey data 2025, using SPSS 21

Demographic questions were asked in order to know profile of the respondents of this study. From table 2, there are 314 respondents were asked the question of gender in which have to categories male and female respondents. The first male respondent mark in first category by 81.8% and in second category female respondent are 18.2% participated.

Demographic questions were asked in order to know profile of the respondents of this study. From table 2, there are 314 respondents ask the question of qualification in which have to categories diploma, degree, master and assistant professor and above. Respondents first 5 diploma respondent marks in first category in 1.6%, in the second category degree respondent are 24.2% , in the third category master respondent are 62.1% and last category assistant professor and above 12.1%.

It is inferred from the above table that 4.5% of the respondents have less than 6years of work experience, 51.6% of the respondents possess 6-10 years of work experience, and 43.9% of them have more than 11 years of work experience.

4.2. Data analysis: factor analysis

Factor analysis is the oldest and best-known statistical technique for explaining the relationship between a set of observed and construct variables (Datta et al., 2023). Factor analysis can be used for different purposes. Firstly, through calculating the factor loading, factor analysis can be employed for evaluating the validity of measurements. Secondly, factor analysis can be used to confirm or develop a theory through investigating the observed variables that belong to latent ones (unobserved variables). Thirdly, factor analysis is used to produce a smaller group of latent variables which consist of a larger set of observed variables (manifest variables) (Nissar Ahmad Paul1, 2023). Factor analyses are divided into two types. Firstly, Exploratory Factor Analysis (EFA)

is described as the early stages of research to discover the interrelationships between a set of observed variables (Koster & Benda, 2020). EFA is designed to explore the relationship between observed and latent variables when this relationship is uncertain or unknown. Therefore, it aims to determine the degree to which the observed variables are linked to their fundamental factors (latent variables). It is designed only to suggest and not to confirm groups or dimensions. Secondly, Confirmatory Factor Analysis (CFA) is a more complex set of techniques than EFA which is used to confirm specific hypotheses when the researcher knows that these measures correlate with the latent variable (Turulja et al., 2023). Based on a theory, the researcher suggests relationships (hypothesized structure) between the observed items and their factors that are tested statistically (Datta et al., 2023).

In this study, factor analysis has been used. According to Ismail & Mamat (2012), factor analysis attempts to identify a small set of factors that represents the underlying relationships among a group of related variables. Every single item should be above 0.50 loading in terms of the criteria to analyze the factors (Ismail & Mamat, 2012). In order to measure the variables, Table 3 shows the factor analysis for the model.

4.2.1. Exploratory factor analysis (EFA)

EFA aims to obtain a set of dimensions (factors) that explain the structure of the interrelationships (correlations) between items that should relate to each other for the purpose of producing an appropriate structure model (Alosani et al., 2020). The EFA's main goals are to uncover the factors, which are made up of a set of measurements; to determine the strength of the link between each factor and each 48 observed measure; and to reduce a data set to a more manageable size while keeping as much of the original data as possible (Nissar Ahmad Paul, 2023). This study used SPSS version 21 to do EFA and reliability analysis.

Statistical Package for Social Science produced KMO and Bartlett's test of Sphericity indicators to assess the factorability of the data (Ismail & Mamat, 2012). The Kaiser-Meyer-Olkin (KMO) measure of total sample adequacy evaluates the validity and suitability of indicators for factor analysis. A KMO rating ranges from 0 to 1 (factor analysis is likely to be ineffective) (Factor analysis yield reliable factors) respectively. According to Ismail & Mamat (2012), suggest that the KMO value might be excellent, great, good, middling and unacceptable (above 0.9, between 0.8 and 0.9, between 0.7 and 0.8, between 0.5 and 0.7 and less 0.5, respectively). In Table 3 revealed that the KMO in this study was 0.96 according to Kaiser (1974) indicate that the data was eligible and a good for factor loadings or that the sample was factorable.

Additionally, Bartlett's test of Sphericity tests a indicate Chi-Square is 8828.068 with df = 1128, $p < 0.001$, This means that the variables are interconnected. As a result, the research was able to complete the remaining steps of the factor analysis.

Table 3. KMO and Bartlett's test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		
Bartlett's Test of Sphericity	Approx. Chi-Square	8828.068
	Df	1128
	Sig.	0.000

Source: Survey data 2025, using SPSS 21

4.2.1.1. Measurement model

The main purpose of using SEM to assess the measurement model is to find the most the parsimonious model which is well-fitting and valid. A measurement model is employed to evaluate construct validity in terms of convergent and discriminant validity to discover the extent to which the measures have adequate internal consistency by conducting the necessary tests and the acceptance levels for the goodness of fit. The full structural model was then only be valid and reliable when the measurement model is based on theory and well-defined constructs, so that the subsequent structural model is based on a solid theoretical foundation (Bai & Wang, 2016).

Construct Reliability

Construct reliability assessment allows the evaluation of the extent to which a variable or set of variables is consistent in what it intends to measure (Straub, Boudreau, and Gefen, 2004). Construct Reliability is usually assessed using composite reliability and Cronbach's alpha. Cronbach's alpha can be calculated using SPSS, in AMOS we focused on composit reliability. Both values are interpreted using the guidelines offered by Nunnally and Bernstein (1994), who suggest 0.7 as a benchmark for a model reliability applicable.

Composite reliability (CR) is calculated based on factor loading. The formula is

$$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + (\sum \epsilon_i)}$$

Where, $\lambda(\text{lambda})$ is the standardized factor loading for item i and ε is the respective error variance for item i . The error variance(ε) is estimated based on the values of the standardized loading (λ) as;

$$\varepsilon_i = 1 - \lambda_i^2$$

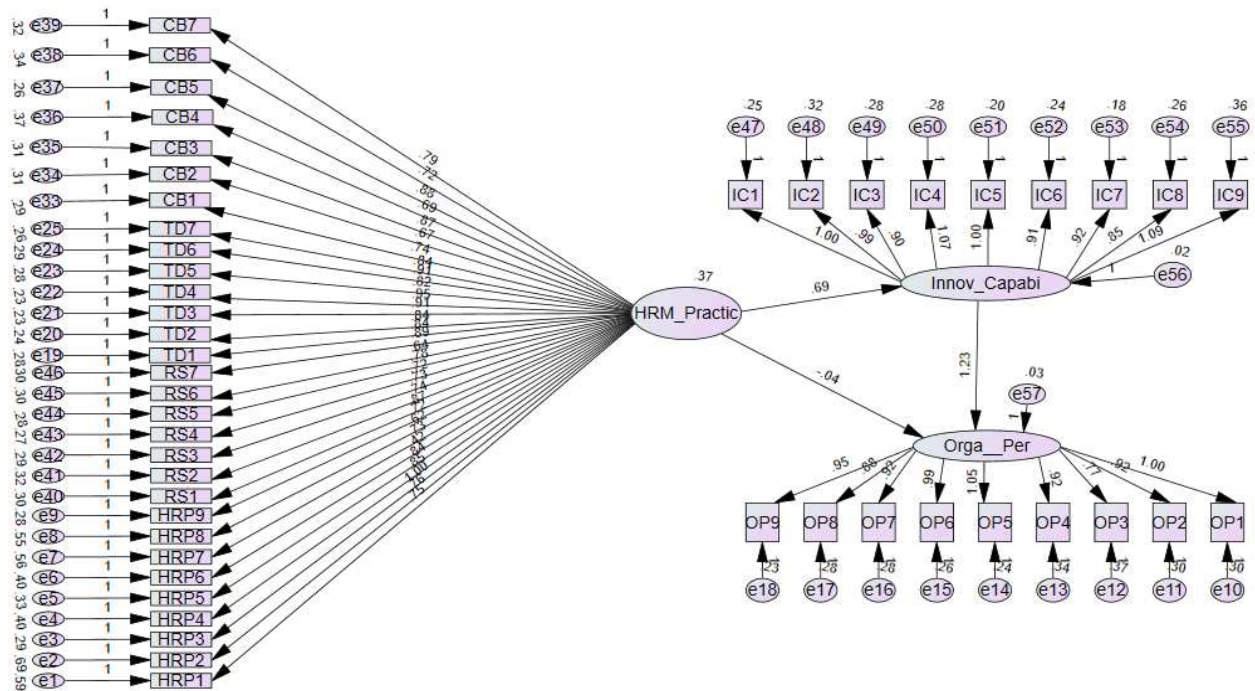
Based on the results (table 4) , only 4 items relating to human resource management planning were remained for further analysis, namely HRP3, HRP4, HRP5, and HRP9 from a total of 9 items. The items were deleted due to low loading below .60. Thus, only 4 items were remained further analysis. Based on the results, only 6 items relating to recruitment and selection were remained for further analysis, namely RS1, RS2, RS3, RS4, RS5 and RS7 from a total of 7 items. The items were deleted due to low loading below .60. Thus, only 6 items were remained further analysis. Based on the results, only 5 items relating to compensation and benefits were remained for further analysis, namely CB1, CB3, CB5, CB6, and CB7 from a total of 7 items. The items were deleted due to low loading below .60. Thus, only 5 items were remained further analysis. Based on the results, only 8 items relating to organizational performance were remained for further analysis, namely OP1, OP2, OP4, OP5, OP6, OP7, OP8 and OP9 from a total of 9 items. The items were deleted due to low loading below .60. Thus, only 5 items were remained further analysis. According to (Hair et al, 2010), make sure that you have left 3 indicators for each constructs, but before we deleted the item first connect the highest covariance's of errors from modification indices. So, by considering this idea/reference we goes to the next procedures.

Goodness of Fit

Whether a measurement model is considered valid is dependent on the goodness of fit (GOF) indices. GOF indices indicate how well the model reflects the data, in other words, how well the specified model reproduces the covariance matrix among the indicator items (Turulja et al., 2023). There are various GOF indicators, although usually only a couple of which are reported. Generally, GOF indicators can be grouped into three categories: absolute measures, incremental measures and parsimonious fit measures. This study follows the advice by Datta and Budhwar, (2023) and presents the following fit indices: chi-square, normed chi-square, RMSEA, RMR, and CFI.

The analysis of SEM begins with the model shown below. Using AMOS software the Goodness of Fit indices are obtained and summarized in Table 5. The result reveals that the proposed measurement model is inadmissible.

Figure 1. The complete measurement Model



Source: Researchers AMOS output v23, 2025

As we have seen in table 6 above, the model fit indices shows, the value of χ^2/DF is 2.068 which is in the acceptable range (between 1 and 5), RMSEA has a value of .058 which is in the acceptable range (below .08/.1), RMR is .034 which is in the acceptable range (below .09). CFI, TLI, IFI NFI and GFI values are .860, .853, .861, .761 and .725 respectively and all of these values almost fall within the acceptable range (above .90). The values of PCFI and PNFI are .821 and .727 respectively and both fall within the acceptable range (above .5). All standardized regression weights (estimates) are significant at a p-value of below 0.001(as described in ***) except organizational performance to human resource management practices (p-value-.804). The critical ratios of the factor loadings are all significantly different from zero (above 1.96). Standardized

regression weights (estimates) are expected to be above 0.5, but four items (HRP2, HRP6, and HRP8 are below it. On top of that, to satisfy convergent validity squared multiple correlations (SMC) are not expected to be below 0.4 and the model shows that the SMC values for HRP1, HRP2, HRP6, HRP7, HRP8, RS2, RS6, CB2, CB4, CB6, IC2, IC3, IC8 and OP3 are also lower than the 0.4 thresholds, suggesting a problem of item reliability and convergent validity. Hence, the proposed full measurement model needs to be re-specified. To re-specify the proposed model, HRP1, HRP2, HRP6, HRP7, HRP8, RS2, RS6, CB2, CB4, CB6, IC2, IC3, IC8 and OP3 were deleted from the model and the Amos regression was run, but before we deleted the item first connect the highest covariance's of errors from modification indices. As we can see in table 7, the correlations of all the latent variables are below the threshold of 0.8, indicating the existence of discriminant validity.

Table 4. Statistics of discriminant validity of proposed measurement model

Initial Iteration		
Constructs	Correlation	Reasons
Com_Ben <---> Rec_Sel	.80	Discriminant Validity Holds
Rec_Sel <--->HRP	.70	Discriminant Validity Holds
Com_Ben <---> Tra_De	.91	Discriminant Validity Not Holds
Tra_De <---> Rec_Sel	.96	Discriminant Validity Not Holds
Com_Ben <---> HRP	.72	Discriminant Validity Holds
Tra_De <---> HRP	.71	Discriminant Validity Holds

Source: Researchers AMOS output v23, 2025

4.2.1.2. Structural model

Assessment of model fit in SEM is a two-step process (Negash et al., 2014). The first step involves testing the full measurement model's fit, as well as its construct validity. The goal of testing the measurement model is to establish how well the observed variables of a hypothesized construct relate to one another. This was reported in the previous chapter and the result shows acceptable

model fit and validity. However, the test of the full measurement model does not investigate the nature of the relationships between constructs beyond simple correlations. As such, a the measurement model is a means towards establishing the fit and validity of a structural model, rather than an end in itself (Ismail & Mamat, 2012). Thus, the second step in the process requires testing of the structural model, including the significance of the structural relationships. The structural model can be tested only after adequate measurement and construct validity are established, as the latter is the groundwork for the structural model. Hence, this section reports on the tests of the structural model. The validity and acceptability of the structural model can be evaluated in terms of (1) model fit, that is, GOF indices; (2) comparing factor loadings of the structural model to that of the underlying measurement model; and (3) the size, direction and significance of the estimated structural parameters.

Based on the results, only 4 items relating to human resource management planning were remained for further analysis, namely HRP3, HRP4, HRP5, and HRP9 from a total of 9 items. The items were deleted due to low loading below .60. Thus, only 4 items were remained further analysis. Based on the results, only 4 items relating to recruitment and selection were remained for further analysis, namely RS1, RS3, RS4, and RS7 from a total of 7 items. The items were deleted due to low loading below .60. Thus, only 4 items were remained further analysis. Based on the results, only 4 items relating to training and development were remained for further analysis, namely TD1, TD3, TD5, and TD7 from a total of 7 items. The items were deleted due to low loading below .60. Thus, only 4 items were remained further analysis. Based on the results, only 5 items relating to compensation and benefits were remained for further analysis, namely CB1, CB3, CB5, CB6, and CB7 from a total of 7 items. The items were deleted due to low loading below .60. Thus, only 5 items were remained further analysis. Based on the results, only 5 items relating to innovation capability were remained for further analysis, namely IC1, IC4, IC5, IC7, and IC8 from a total of 9 items. The items were deleted due to cross loading below .30 and loading above .50 low loading below .60. Thus, only 5 items were remained further analysis. Based on the results, only 5 items relating to organizational performance were remained for further analysis, namely OP1, OP5, OP6, OP7, and OP9 from a total of 9 items. The items were deleted due to low loading below 0.60. Thus, only 5 items were remained further analysis.

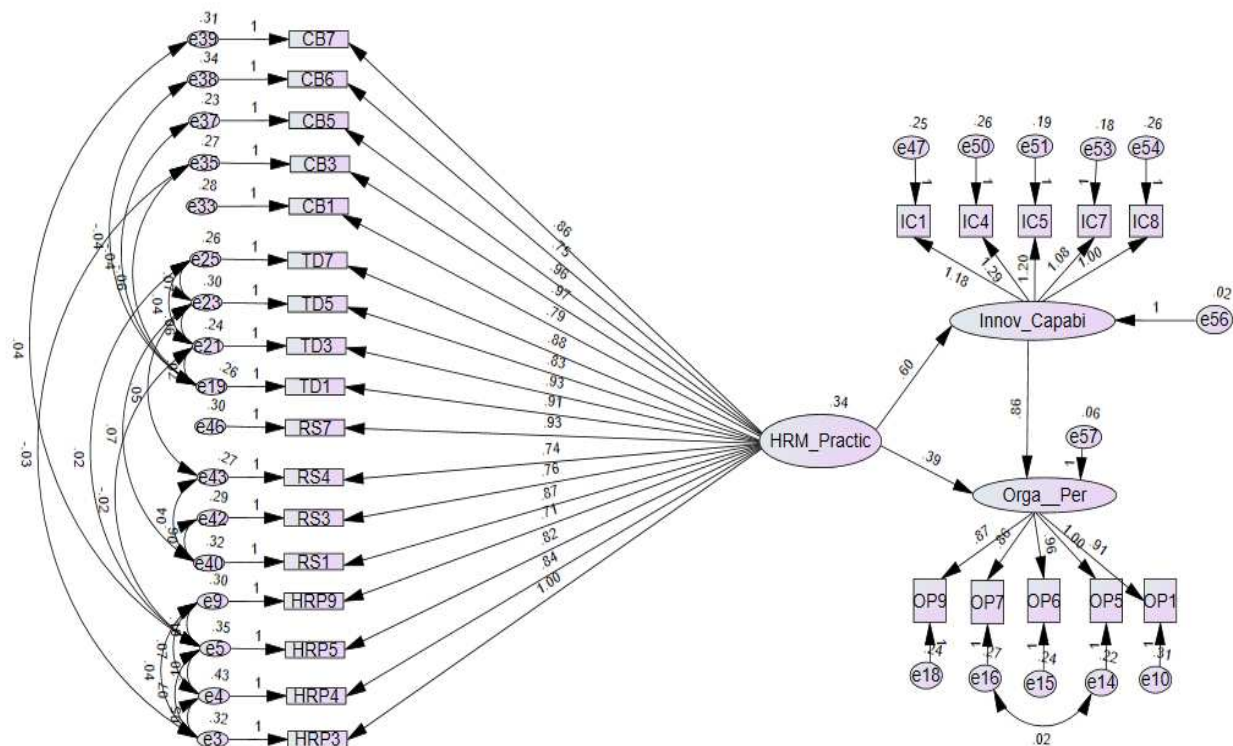
Table 8 provides a description of the above tests and the rule of thumb criteria for what constitutes an acceptable value based on recommendations of SEM literature.

Table 5. Tests for Structural Model Validity

SEM Tests	Description	Acceptable values
Structural model fit	Assesses the extent of the structural model fit of the sample data using the GOF indices used for the measurement model	See Table 4.4
Comparison of loadings of the structural model and the measurement mode	Assesses closeness of the parameter loadings of the structural and measurement models	The difference in loading should be 0.05 or less
Size and significance of parameter estimates	Significance of the parameter estimates based on the corresponding p-values	$p < 0.05$

Source: Hair et al. (2006)

Figure 2. Final Structural Model



Source: Researchers Amos output v23, 2025

Figure 3 presents the structural model, which shows the relationship between constructs or latent variables or unobserved variables that are easy to understand. Support for and the acceptability of the structural model is evaluated based on the four criteria outlined in table 9 first, the structural model's fit statistics are evaluated. The model fit statistics of the structural model are shown in table 9.

Table 6. Model fit statistics for structural model

Initial Iteration							
Chi-Square		Absolute Fit Indices		Incremental Fit Indices		Parsimony Fit Indices	
X2	387.150	RMSEA	0.031	CFI	0.980	PCFI	0.835
Df	299	RMR	0.018	TLI	0.977	GFI	0.913
X2/Df	1.295	CMIN/DF	1.295	IFI	0.980	PGFI	0.722
--	--	S(RMR)	0.035	NFI	0.919	PNFI	0.783

Source: Researchers Amos output v23, 2025

A structural equation model generated through AMOS was used to test the relationships. A good fitting model is accepted if the values of the CMIN/df is < 5 , the goodness of fit(GFI) indices (Hair et al., 2010); the Tucker and Lewis (1973) index(TLI); the Confirmatory fit index(CFI)(Bentler, 1990) is > 0.90 (Hair et al., 2010). In addition, an adequate fitting model was accepted if the AMOS computed value of the standardized root mean square residual(RMR) < 0.05 , and the root mean square error approximation(RMSEA) is between 0.05 and 0.08 (Hair et al., 2010). The fit indices for the model shown Table 4.8 fell within the acceptable range; CMIN/df= 1.295, the goodness of fit(GFI)= 0.913, TLI= 0.977, CFI= 0.980, SRMR= 0.035 and RMSEA= 0.031.

The model's normed chi-square (X^2/DF) is within the acceptable range. All the incremental fit indices also meet the threshold value of greater than 0.90 and the model is acceptable in terms of CFI, IFI, TLI, and NFI. The model's absolute fit index value is also within the recommended range in terms of RMSEA (0.031). Regarding RMR (0.018), the result is within the threshold value. Further, the model's parsimony fit indices values are acceptable in terms of PCFI and PNFI, which show relatively higher value than the corresponding measurement model. Hence, the full structural model, as indicated in Figure 3, is supported and accepted in terms of the selected fit indices in SEM literature.

Based on the result, the square multiple correlation(SMC) or R^2 was 0.851 for innovation capability, this shows that 85.1% variance in innovation capability is account by strategic human resource management (i.e It is estimated that the predictors of innovation capability explain 85.1 percent of its variance or the error variance of innovation capability is approximately 14.9 percent of the variance of innovation capability itself) and 82.2% change in organizational performance can be account to strategic human resource management and innovation capability (i.e It is estimated that the predictors of organizational performance explain 82.2 percent of its variance or the error variance of organizational performance is approximately 17.8 percent of the variance of organizational performance itself).

Table 7. The factor loading for the structural Model

Variable	Indicator	Indicator reliability loading (λ)	Square of Standardized loading(λ^2)	Composite reliability (ICR)
Recruitment and Selection	RS1	.67	.45	0.76
	RS3	.63	.40	
	RS4	.64	.40	
	RS7	.70	.50	
Training and Development	TD1	.72	.52	0.80
	TD3	.74	.55	
	TD5	.66	.44	
	TD7	.71	.51	

Compensation and Benefits	CB1	.66	.43	0.82
	CB3	.73	.54	
	CB5	.76	.57	
	CB6	.60	.36	
	CB7	.67	.45	
Human Resource Management Planning	HRP3	.72	.52	0.74
	HRP4	.60	.36	
	HRP5	.63	.39	
	HRP9	.61	.37	
Innovation Capability	IC1	.66	.44	0.80
	IC4	.67	.45	
	IC5	.71	.50	
	IC7	.69	.48	
	IC8	.60	.36	
Organizational Performance	OP1	.71	.50	0.85
	OP5	.76	.58	
	OP6	.73	.54	
	OP7	.70	.48	
	OP9	.73	.54	

Source: Researchers Amos output v23, 2025

Results of the assessment of reliability are presented in tables 10. Composite reliability (CR) for each construct was greater than 0.70 confirming the constructs' reliability (Turulja et al., 2023).

Second, the loading estimates of the structural model are compared against the loading estimates of the corresponding measurement model. The structural model is expected to show similar or close loadings to that of the measurement model (Negash et al., 2014). In this regard, most of the loading estimates of the structural model are virtually unchanged from the measurement model. Only four standardized estimated loadings show change and the maximum change in standardized loadings are 0.03, which is not above the 0.05 limit (Ismail & Mamat, 2012). This indicates the

existence of parameter stability among the measured items in the two models, which provides further support for the validity of the structural model. The comparison is shown in table 11.

The third set of criteria for assessing the validity of the structural model is investigating the size, direction, and significance of the structural parameter estimates. Table 12 below presents the structural path estimates and all paths are significant.

Table 8. Direct Effects

	Estimate	S.E.	C.R.	P	Remark
Innov_Capabi <---HRM_Practic	0.604	0.061	9.841	***	Significant
Orga_Per <--- Innov_Capabi	0.862	0.281	3.070	0.002	Significant
Orga_Per <---HRM_Practic	0.387	0.174	2.228	0.026	Significant

Source: Researchers Amos output v23, 2025

4.3. Testing the Meditational Effect of Innovation Capability

Mediation analysis was performed to test the mediating effect on innovation capability. This research has one major hypothesis on mediation for mediating effects. The effect of the independent variable X (or exogenous construct) on a mediator M is represented by a. The effect of the mediator on the dependent variable Y (or endogenous construct) is represented by b. M is regarded as a third variable or an intermediary variable in the link between X and Y (Fairchild & Mcquillin, 2010). Therefore, the indirect effect is a product term of $a \times b$. While the total effect of X and Y relationship includes two parts that are the direct effect of X on Y represented by c and the indirect effect of X on Y through M ($a \times b$). Total effect of X on Y is $c' = (a \times b) + c$.

The following procedures were conducted to analyze mediation that is explained as follows. First, it is crucial to identify the significance of the indirect effect to establish mediation and to decide between two major categories of mediation or non- mediation. Before identifying the indirect

effect, the path coefficients of both direct and indirect and their significance were estimated simultaneously by using Amos version 23. The significance of indirect effects was assessed by employing procedures.

Second, the classification of mediation or non-mediation is identified based on whether direct the effect is significant or not. The p-values for indirect effects were obtained from the bootstrap result using bias-corrected confidence intervals in Amos. Next, to determine the type of mediations or non-mediation according to the criteria listed below (Demming et al., 2017).

1. Competitive mediation occurs if indirect effects and direct effects are both significant and have opposite directions (+ve and -ve).
2. Complementary mediation occurs if both indirect effect and direct effects are significant and have the same directions (positive influence).
3. Indirect-only mediation occurs if the indirect effect is significant, but no direct effect.
4. Direct-only non-mediation occurs if the direct effect is significant, but not indirect effect.
5. No effect non-mediation occurs if both direct and indirect effects are insignificant.

Complementary mediation is known as partial mediation in Demming et al.(2017) approach. While the indirect-only mediation is the same as full mediation. However, competitive mediation, direct-only non-mediation and no effect non-mediation fall under no- mediation category in Baron and Kenny's approach may cause projects to be discarded (Demming et al., 2017).

There are several implications for the type of mediation or non-mediation established. First, when the first three cases; complementary, competitive, and indirect-only mediation occur, the data support the hypotheses for mediation. Second, in both complementary and competitive mediation, the mediator identified is consistent with the hypothesized theoretical framework, and the significant direct effect signals that there is a second possibly omitted mediator that can be examined in any future study. The sign of the direct effect signals for the sign of an omitted indirect path. Third, indirect-only mediation implies that the mediator identified is consistent with the hypothesized theoretical framework and there is no need to test for further indirect effects. The sign of the direct effect in direct only non-mediation implies that it is yet undiscovered mediators. Finally, the no-effect non-mediation is a failure for testing mediation (Demming et al., 2017).

Table9.Hypothesis testing of the Structural Model

Path analysis estimates Hypotheses						
Hypothesis	Path			Stand. Coeff.	Type of the mediating Effect	
H4	HRM-Practic ---> Innov_Capabi - --> Orga Per			0.881	Complementary	
Decomposition of effects Path						
path	Unstandardized coefficients (t-values)			standardized coefficients		
	Total Effect	Direct Effect	Indirect Effect	Total Effect	Direct Effect	Indirect Effect
H1		0.604			0.923	
H2		0.862			0.548	
H3	0.907	0.387	0.52	.881	0.376	0.506

Source: Researchers Amos output v23, 2025

The hypotheses were tested by applying structural equation modeling techniques(Turulja et al., 2023). First, the assessment of the structural model resulted in an acceptable model fit (Table 8). Parameter estimates and their corresponding significance levels for hypotheses testing are provided in Table 12 and Table 13. The results confirmed that, innovation capability mediates the relationship between strategic human resource management and organizational performance (H4: $\beta=0.881$, $p<0.026$).

The square multiple correlation (SMC) was 0.822 for organizational performance, this shows that 82.2% variance in organizational performance is accounted by strategic human resource management and innovation capability. The square multiple correlation(SMC) was 0.851 for innovation capability, this shows that 85.1% variance in innovation capability is accounted by strategic human resource management.

The study examined the effect of strategic human resource management and innovation capability on organizational performance. The effect of strategic human resource management on innovation capability was positive and significant ($\beta = 0.92$, $t = 9.841$, $p < 0.001$), hence H1 was

supported. The effect of innovation capability on organizational performance was positive and significant($\beta = 0.55, t = 3.070, p = 0.002$), hence H2 was supported. The effect of strategic human resource management on organizational performance was positive and significant($\beta = 0.38, t = 2.228, p = 0.026$), hence H3 was supported. Model fit indices and hypotheses results are presented in Table 14 below.

Table 10. Hypotheses results

Hypotheses Relationship	Standardized Estimates	t-value	p-value	Decision
HRM-Practic---> Innov_Capabi	0.92	9.841	***	
Innov_Capabi--> Orga_Per	0.55	3.070	0.002	
HRM-Practic --> Orga_Per	0.38	2.228	0.026	
R-Square				
Innovation Capability	0.851			
Organizational Performance	0.822			
Model Fit				
CMIN/df=1.295, GFI=0.913, TLI=0.977, CFI=0.980, IFI=0.980, SRMR=0.035, RMSEA=0.031				

Source: Researchers Amos output v23, 2025

Overall, the results provide support for the hypothesized mediation model, in which the independent variables SHRM practices have significant indirect effect on the organizational performance through innovation.

5. Conclusion and Recommendation

5.1. Conclusion

The research aimed to analyze the mediating role of innovation capability in the relationship between strategic human resource management and organizational performance in the case of Debre Tabor University. In line with the obtained results the study made the following conclusions:

- ❖ The outcomes of the study finalized that the effect of strategic human resource management on organizational performance is positive and significant. This entails that when the organization is provided with organizational culture, motivate workforce and effective planning then organizational performance will be improved.
- ❖ The outcomes of the study confirmed that the effect of SHRM on the organizational performance is positive and significant. This signifies that when the organization is provided with good reputation among stakeholders, need based community service and fair resource allocation then the level of organizational performance will increases.
- ❖ The final end results of the study specified that the effect of strategic human resource management on the organizational performance is positive and significant. This denotes that when the organization is provided with good Strategic direction, transparent and fair recruitment process, goals and objectives the level of organizational performance will increases.
- ❖ The end result of the study verified that innovation capability “ complementary mediation the effect of strategic human resource management on organizational performance. This suggests that strategic human resource management affects organizational performance in two ways; directly by strategic human resource management and indirectly through innovation capability”.

5.2. Recommendation

Based on the major findings and the conclusions, the following recommendations were forwarded.

- DTU expected to create and implement ongoing training programs for all employees in order to maintain the modernized organizational performance.
- Conduct quarterly training need for individuals to align staff development with technological trends, ensuring training budgets are spent only on skills that close critical institutional performance gaps.

- Audit compensation structures regularly to ensure pay transparency and equity, as perceived fairness is the primary psychological driver for employee engagement and long-term retention.
- Formalize internal mobility programs that allow staff to rotate between departments, breaking down silos and sparking innovation through the exchange of diverse perspectives.
- It is suggested that the DTU required working on employees who fell to stay in the organization because of different difficulties and need; like salary increment, reward, transfer of employees from other department.
- Create formal feedback loops where employees can experiment with new pedagogical or administrative methods without fear of repercussions, fostering a true culture of innovation.

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Authors' contribution

Alebel Woretaw Asaye (Assistant Professor): Conceptualization, methodology, supervision, writing original draft, writing review and editing.

Abaynew Zemene Kebede: Data collection formal analysis, investigation, writing original draft.

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The authors report there are no competing interests to declare.

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Ethical approval statement

This study was authorized by the Debre Tabor University College of Business & Economics research ethics review committee in compliance with the ethical guidelines outlined by Debre Tabor University. The protocol number for this approval is DTU-CBE/RCSC/115/0820225.

Informed consent

Informed consent was obtained from all participants. Verbal consent was utilized due to operational constraints in the workplace with the study's nature and purpose fully explained

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Data availability statement

The data supporting this research are not publicly available due confidentiality agreements with participating industries. Aggregate data may be made available by the corresponding author upon reasonable request.

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