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The Maturity of Human Resources Analytics and Its Impact on Enhancing the Quality of Management Accounting Information: An Exploratory, Applied Study of the Opinions of a Sample of Employees in the Administrative and Financial Departments at Warith Al-Anbiyaa University

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Abstract. The aim of this study was to investigate the relationship between the maturity of human resources (HR) analytics and quality of management accounting information at Warith Al-Anbiya University. This is at a time when data-driven management is becoming increasingly relevant and is contributing to the improvement of administrative and accounting procedures, and to the organizational decision-making process. The importance of such integration of analytical capacity, particularly HRM, and quality of management accounting information forms the basis of the study. This integration can be used to improve the planning, control, and estimation of costs, as well as create and provide the data needed for decision making. The data collection method used was descriptive-analytical, with the questionnaire as an instrument, which was distributed 77, with 63 questionnaires received which were then statistically analyzed, giving a response rate of 81.82%. HR analytics maturity was measured at four dimensions namely technological, organizational, functional and diffusion. Five dimensions of evaluation (relevance, accuracy, comprehensiveness/completeness, timeliness and scope) were used to measure the dependent variable, which is the quality of the management accounting information. The study aims at two things: first, to verify the statistical effect of the HR analytics maturity on the quality of management accounting information, and second, to find out how much this variation can be explained by the HR analytics maturity. Finally, the study provides conclusions and recommendations, based on the field results, that can help enhance the use of data and analytics in the administrative and accounting context of a university.

Keywords: HR analytics maturity, quality of management accounting information, management accounting, data-driven analytics.

1. Introduction

Today's organizations are changing at a fast pace as new information technologies are adopted and more data is being used for making resource decisions and using to produce products and services. This change has led to a rethinking of the function of human resources (HR) as it has moved beyond the administration of routine HR tasks and become more analytical, planning and value-creating. HR Analytics, in this sense, has become a business capability that relies on data and analytical techniques to understand and interpret phenomena related to the workforce, with the aim of helping to make decisions and improve institutional practices. Rigamonti

et al. (2024) point out that technology alone is not enough to develop this capability, as it must be accompanied by the technological, organizational, and functional aspects of the organization, as well as the embedding of analytical practice throughout the organization.

HR analytics isn't just a numbers game; it's a tool that must be utilized to reap its rewards.It's not enough to have HR analytics data or digital software; there's an organizational benefit to be gained from it. Rather, they rely on the extent to which an organization has developed in its competence to gather, to manages, and to analyze data, and consistently and systematically use the data analysis findings. HR analytics maturity: The maturity of the organisational, technical and analytical capacity which helps an organisation turn workforce data into knowledge to inform decisions. In this context, Özkanlı and Gök (2025) created a human resources analytics maturity scale consisting of three areas: strategic alignment, technology, and analytical techniques, and data capabilities. Their study showed the properties of psychometric scale, which allows for scientific research. This highlights the need to consider analytical maturity as a multidimensional competency and not only as the presence of certain technologies or information systems.

On the other hand, management accounting information is a key support structure on which management rely for planning, control, performance appraisal, and decision making between alternative courses of action. Value of accounting information is not just its creation or maintenance, but that it is relevant, accurate, reliable, timely and possesses sufficient representativeness to reflect what it is supposed to reflect. The more information that decision makers have to make a decision, the more useful it will be to them for cost estimation, budgeting, monitoring the use of resources, variance analysis and assisting managerial decisions. The quality of accounting information has been explored in the literature as an empirical object of study through questionnaires, such as the study conducted by Shnaishel and Muhaha (2021) which focused on the relationship between the quality of accounting information and accounting control, and how it relates to an auditor's opinion. When one reflects on the decisions made about personnel and the associated data that are relevant to expenditure planning, human resource requirement estimation, budgeting and cost control, the importance of the link between maturity of human resource (HR) analytics and the quality of management accounting information is apparent. The HR function, therefore, can have more structure and be more analyzable when it develops analytical capacities, resulting in better information inputs that can improve management accounting decision-making. But this connection can only be realised if there is a strong analytical capability, good quality underlying data, information systems being integrated and staff developing skill and competence and analytical results being applied to accounting and administrative procedures. So, the hypothesized relationship between these two variables should be treated as an empirical question that needs to be tested, not a given.

This is supported by previous works that discussed the importance of studying the relationship between HR practices and accounting information quality. The study by Qader et al. (2021) tested the effect of human resource management skills on the quality of accounting information in the public sector in the Kurdistan Region of Iraq using a quantitative approach with a questionnaire. This research provides a broad research base for the area of HRM and accounting information quality, but in contrast to the current study, HRM skills are examined instead of the maturity of HR analytics. Thus, the objective of this study is to explore the link between the development of human resources (HR) analytics and the quality of management accounting information in the context of an Iraqi university (Warith Al-Anbiyaa University). The study's importance lies in addressing a variable that is related to current developments in data-driven management and is linked to an accounting field that is directly relevant to assisting managerial decision making. Additionally, it aims to offer empirical insights on the degree of contribution of maturity of HR analytics to the explanation of the quality of management accounting information. This, in turn, can help in determining areas for institutional practices development and provide a scientific basis for recommendations based on the results of statistical analysis.

Section One: Research Methodology

I. Research Problem

In today's data-driven business world, companies are increasingly looking to build their ability to analyze data regarding human resources (HR) and use it to make administrative and accounting decisions. The management of employee information no longer just involves record keeping and performing traditional administrative actions, but also includes using that data to identify indicators that guide planning, cost estimates, resource allocation and tracking organizational performance. HR analytics maturity can be viewed as a progressive method that can enable companies to move from a few attempts at using data to a more structured, integrated way to use data in decision making.

On the other hand, the performance of administrative and accounting decisions relies on the quality of management accounting information and the relevance, accuracy, reliability and timeliness of the information. In

the education sector, which has particular needs due to its operations, human resource coordination is needed continuously, planning for staffing needs, managing costs and expenditures and preparing budgets that support the achievement of the organizational goals, is critical. Therefore, it is possible that the development of HR data analysis skills can help to improve the quality of managerial accounting information, but this is dependent on the type of data that is available, as well as the analytical maturity and the extent to which HR analysis results are incorporated into organizational practice. Even though HR is closely related to the field of decision support, the link between the maturity of HR analytics and the quality of management information in applied contexts (i.e., in Iraqi university institutions) must be analysed. This relationship requires further investigation at Warith Al-Anbiya University, by analyzing the views and answers of the study sample so as to determine the level of contribution of the maturity of HR analytics in explaining the level of HR management accounting information.

Accordingly, the research problem is defined by the following primary question:

- What is the impact of the maturity of human resource analytics on the quality of management accounting information at Warith Al-Anbiya University?

Second: Significance of the Study

The relevance of this study lies in the fact that it addresses an issue which is interwoven between current advances in human resource (HR) data analytics and a fundamental theme of management accounting: information quality as basis for organizational decision making. The study can be expressed in two aspects:

Scientific Significance

Adding to the body of accounting and management literature by studying the connection between HR analytics maturity and the quality of management accounting information.

Defining the conceptual basis, and relationships, between the development of HR analytical capabilities and the way that HR outputs are used to aid managerial decision making with regards to the accounting information.

Building a foundation of research that future research can build on to examine the link between data-driven analytics and accounting information quality in different organizational contexts.

Focusing on providing empirical evidence from the Iraqi university environment in relation to the relationship between these variables, allowing it to be compared with other studies from other sectors.

Practical Significance

Practical Significance Providing cues that may help University management to gauge the degree of University HR data use for administration and accounting.

Assisting in pinpointing potential improvement areas in data management, analytical tools and administrative and financial coordination.

Encouraging attention to the quality of management accounting information in financial planning, budgeting and estimation of personnel costs.

Offering a foundation for developmental decisions which are statistically based and are related to the university's particular needs and institutional capacities.

Third: Research Objectives

The ultimate aim of the study is to have a primary objective which is an analysis of the impact of human resources (HR) analytics maturity to the quality of management accounting information at Warith Al-Anbiya University. This goal includes the following:

- Assessing the university's HR analytics maturity level as per the measurement tool used for this study.
- Evaluating the management accounting information in terms of quality level of the study sample. The statistical effects of HR analytics maturity on the quality of management accounting information.
- Measuring the contribution of HR analytics maturity to the differences in the quality of management accounting information, if it is possible to do so using the selected statistical technique.
- Propose practical solutions with the real outcomes of the statistical analysis, with the intention of improving the use of data and analytics in the university context.

Fourth: Study Population and Sample

The study population is the staff members of Warith Al-Anbiyaa University, which is the target population for the study to investigate the relationship between maturity of human resource analytics and the quality of management accounting information in the university environment. The researcher used the questionnaire as the main instrument in collecting the data for the purpose of this study and testing the hypotheses. 77 questionnaires were mailed and after review for

appropriateness to statistical analysis 63 questionnaires were considered valid. This gave a response rate of 81.82% of the questionnaires sent out. These questionnaires were used to gather information that was subsequently analyzed statistically and tested the study's hypotheses using the SmartPLS software.

Fifth: Study Hypotheses and Framework

The main hypothesis stated that "there is a significant effect of HR analytics maturity on the quality of management accounting information

Testing Sub-hypotheses

The sub-hypotheses derived from the main hypothesis are stated as follows:

H1-1: There is a significant positive effect of the technological dimension on the quality of management accounting information.
H1-2: There is a significant positive effect of the organizational dimension on the quality of management accounting information.
H1-3: There is a significant positive effect of the functional dimension on the quality of management accounting information.
H1-4: There is a significant positive effect of the diffusion dimension on the quality of management accounting information.

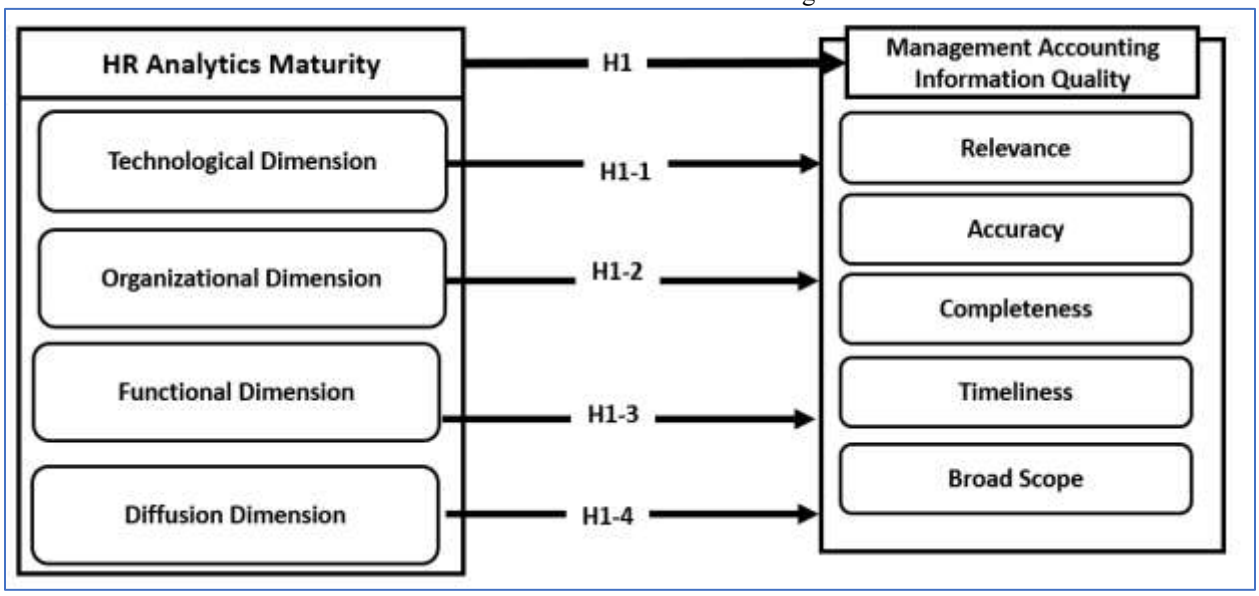


Figure (1) *The study's hypothetical model*

Section Two: Theoretical and Conceptual Framework of the Study

First: The Independent Variable – Maturity of Human Resources Analytics

1. The Concept of Human Resources Analytics Maturity
Human resources (HR) analytics is an evolutionary path that organizations take to manage human capital data. In fact, "analytical maturity" is much more than the creation of classical and descriptive management reports, like those that spell out numbers of people or simple employee turnover rates. Maturity, in this case, is an organisation's journey through a developmental continuum: from simple reporting of operational data, through more sophisticated reporting and diagnostic analytics, and finally to predictive and prescriptive analytics. This last step allows for the management to anticipate future workforce needs and proactively create a risk model (Angrave et al., 2018: 61).

It's fair to say that the maturity of HR analytics represents a fundamental change in HR management philosophy at an organisation. It shifts the focus of the HR function from intuition, past experience or subjective impressions to an evidence-based and scientific practice. This is done through the use of statistical techniques, machine learning algorithms, and data visualization tools, which are all being integrated to gain deep insights into employee behavior. This therefore increases the capacity of decision-makers to make objective and accurate decisions, and the organization's capacity to respond to dynamic changes in the environment (Espegren & Hugosson, 2025: 3). In the context of the theory of organizational and dynamic capabilities, maturity of human resources (HR) analytics is seen as an embedded, continuous organizational capability, not a series of individual analytics projects or technical tools that are purchased and implemented as single-offers. Analytical maturity means that analytical processes and practices are integrated into the day-to-day work of an organization, and the structures and processes are in place to continuously reconfigure organizational

resources. The purpose of this is to define opportunities and threats for the organization and use them to optimize the overall performance and provide sustainable competitive advantage (Rigamonti et al., 2024: 245).

Moreover, it is not enough to take a narrow view on the technical maturity of analytics; as well as the technical, an integrated view should include technological, organizational and strategic aspects. Analytically mature organizations are able to establish synergy among the quality and governance of their data environment, leadership support, and clear strategic goals, as well as promote the analytical competence of their people. This will make sure that the raw data is transformed into value added outputs supporting the overall institutional aims of the organization (Ozkanli & Gök, 2024: 2).

Advanced analytical maturity means being able to work at several, interrelated levels of analysis – at the individual, team and organizational level. Advanced organizations go beyond functional, siloed analytics and connect human resource (HR) metrics to operational and financial results. This allows them to identify structural issues, develop proactive talent management plans, and relate the employee experience to the corporate overall performance (Minbaeva, 2025: 8).

Thus, researchers describe HR Analytics maturity as an organization's dynamic, integrated capability to build and govern data infrastructure, collect analytical competencies and effectively link insights into human capital data and decision making. This change moves HRM from impression-based into evidence-based, predictive model that improves organization's performance and competitive advantage.

2. Dimensions of HR Analytics Maturity

The maturity levels of HR analytics refer to a series of structural and functional dimensions which are indicative of the efficiency of an organisation and its competitive capacity in the transition to evidence- and data-driven management (Rigamonti et al., 2024: 244). This maturity is made up of the following key dimensions:

Technological Dimension: This dimension includes all of the structures and IT infrastructure, such as electronic systems, used to gather, maintain and securely store employee data. It also relates to the appropriateness of tools and software for data extraction, and flexible query interfaces for processing complex data.

Organizational Dimension: This dimension is oriented towards the resources and the structural processes used to manage analytics. It covers the presence of analytical skills and competencies in the workforce, high level management support and the presence of an operating model and clear governance structures establishing analytical roles and responsibilities within the organisation.

Functional Dimension: Dimension that is related to the nature and scope of analytical methodologies and techniques used. These can span from measuring operational indicators, creating descriptive reports, to moving to diagnostic analyses, and then on to predictive and prescriptive modelling methods to give solutions to management issues in advance.

Diffusion Dimension: This dimension reflects how much a data-driven culture is expressed at different levels of the organization, the level of access users have to the analytical results, and how much users rely on the results of their analyses to inform their strategic goals and decisions regarding staffing.

Second: The Dependent Variable: Quality of Management Accounting Information

1. The Concept of Management Accounting Information Quality

The basis of decision making in organizations and also to steer process of their work in contemporary institutions is management accounting information. It is intrinsically linked with the value of the outputs produced by accounting systems, which is what its real value is. Information quality is the ability of the processed data to satisfy the expectations of management and the need of the decision maker to have facts and inputs that are accurate and reflect the operational and financial reality of the organization. This, in turn, helps in forecasting future developments and preventing any future risk that may affect the competitive position of the organization (Susanto, 2008: 11).

The Quality of Management Accounting Information is how well accounting outputs meet the qualitative characteristics and attributes necessary to add value for internal users. Relevance, accuracy, timeliness and completeness are all these properties. In combination, these aspects provide a criterion for evaluating the information provided by an accounting system to determine if it is a faithful representation of economic activity and meets management's needs (McLeod & Schell, 2007: 65).

In the context of the advanced accounting thought, quality of information has shifted from a technical perspective toward the usefulness of the information in the decision-making process. In this context the quality of the outputs is judged in terms of their capacity to diminish environmental uncertainty and to assess the alternatives, available to different levels of management, in an objective way. Good information has a positive effect on the behavior of decision makers and gives them

a solid basis for tactical and strategic formulation (Duggan & Reichgelt, 2006: 19).

Moreover, the MAIQ concept goes beyond the quality of the data itself, it points to the multi-dimensionality of the data processed in a management system. Quality outputs can go beyond the traditional historical financial statements, and they can include quantitative and qualitative measures as well as financial and non-financial information, internal or external information, and information derived from different contexts and settings – all of which then have to be interpreted by accounting systems to fulfill a range of managerial needs (Heidmann, 2008: 46).

This conceptual change in the character of the management accounting information sets up a structural causal relationship between the performance of the accounting system and the quality of accounting information. Information quality is not something that is added to an information product; it is a consequence of the integrity of the data collection, processing and verification processes in the system. This way, information sent to different levels of the organization and departments is free of bias and ambiguity (Ramadhan et al., 2018: 2770).

Another aspect of the situational dimension of the management accounting information quality is the degree of congruence between the output quality and the particular context where it is used, and the ability of the output to respond to the urgent needs of management. The clearer, concise, and more focused the accounting outputs are at communicating the economic realities, the more effective management will be at solving operational constraints and using available resources to manage them (Gelinas & Dull, 2008: 17).

Moreover, the quality of management accounting information is an internal control instrument that allows management to put in place control instruments and to assess the performance effectively of the organization. Such outputs can be trusted and are likely to be consistent when they link the broader organizational purpose to the tasks of individual operational units, enhancing transparency and accountability, both within and across the organization (Belkaoui, 2002: 9).

Researchers' concept of the quality of management accounting information is to consider the combination of the qualitative characteristics that must be present in the financial and non-financial outputs of a management accounting information system, such as relevance, accuracy, timeliness, and comprehensiveness. These features allow management to strategically and operationally decide on actions based on sound data and improve the efficiency of organizational performance.

2. Dimensions of Management Accounting Information Quality

The features of management accounting outputs are crucial in determining the efficiency of operational and strategic decisions. The quality of information and its usefulness for decision makers in an organisation is a result of a combination of technical and functional dimensions (Astuty 2015: 84). The five dimensions most commonly mentioned in books of accounting are:

Relevance Dimension: This dimension is related to the usefulness of management accounting information in making a real difference to management decisions. It offers meaningful data that assists decision makers in predicting the future or verifying and assessing previous predictions and hence helps minimize uncertainty in the environment and ensure efficient allocation of resources in the organization.

Accuracy Dimension: The dimension that aims to make sure that accounting information provided to management is free of material error and bias. Processed outputs shall be accurate and reliable and represent the actual operating and financial experience of the operations of the organization, thereby enabling management to plan and control the organization's operations with confidence.

Completeness Dimension: This dimension is related to the completeness of the provision of all essential facts and data in order to solve a specific managerial situation, omitting or neglecting important facts and data. This will allow management to see the big picture and to make an overall assessment of the alternatives before decision making.

Timeliness Dimension: This dimension is concerned with the timeliness of management accounting information, in terms of ‘when' and ‘how much time'. This helps the organization to keep the information current and timely so that it may be able to seize new opportunities and address new challenges quickly.

Broad Scope Dimension: This dimension is related to the extent of management accounting's output and its scope is beyond the narrow historic financial dimension. It includes the presentation of forecasts, non-financial indicators and data on the external environment, including the data on competitors and markets, and expands the strategic perspectives of management in long-term decision-making.

Section Three: The Statistical Aspect

The study employed descriptive analysis, including measures of central tendency and dispersion, and utilized Partial Least Squares Structural Equation Modeling (PLS-SEM) via the SmartPLS software.

First: Coding of scale items

Table (1) Coding of Scale Items

ParaHRAMaphs	Encoding	variable	variable
3	MQ	Technological Dimension	HRAM
3	ME	Technological Dimension	
3	MA	Functional Dimension	
3	MS	Diffusion Dimension	
3	DF	Relevance	MAIQ
3	IB	Accuracy	
3	IN	Completeness	
3	IK	Timeliness	
3	IV	Broad Scope	

Source: *Prepared by the researchers.*

Second: Descriptive Analysis

The descriptive analysis of the scale is presented in Table (1) using mean as a measure of central tendency and standard deviation as a measure of dispersion of the data. The results revealed that the mean score for all items that were measured in the variable "Human Resources Analytics Maturity" were above the hypothesized mean score of 3 on a five-point Likert scale, which indicated that these items were present in the organization under study. Likewise, the items pertaining to the variable 'Quality of Managerial Accounting Information' had an average score that exceeded the hypothetical mean of 3, thus showing that they were prevalent among the research sample. Moreover, the descriptive analysis showed that the standard deviations of the respondents' answers were low indicating the accuracy of the answers given and the respondents' understanding of the survey items.

HRAM Descriptive Analysis

Table (2) Descriptive analysis of the study variable items

Standard deviation	Arithmetic mean	variable	variable
1.11	3.548	MQ1	HRAM
1.32	3.784	MQ2	
1.165	3.709	MQ3	
0.101	3.723	ME1	
1.103	3.760	ME2	
0.190	3.766	ME3	
0.99	3.49	MA1	
0.01	3.798	MA2	
1.001	3.701	MA3	
1.203	3.781	MS1	
1.220	3.762	MS2	
0.21	3.767	MS3	

Source: *SmartPLS output*

MAIQ Descriptive Analysis

Table (3) Descriptive analysis of the study variable items

Standard deviation	Arithmetic mean	variable	variable
1.002	3.331	DF1	MAIQ
0.191	3.709	DF2	
1.210	3.769	DF3	
0.980	3.980	IB1	
0.901	3.667	IB2	
1.091	3.88	IB3	
0.819	3.991	IN1	
1.190	3.923	IN2	
0.178	3.768	IN3	
0.922	3.456	IK1	
1.097	3.778	IK2	
0.843	3.569	IK3	
1.188	3.988	IV1	
0.158	3.791	IV2	
0.193	3.945	IV3	

Source: *SmartPLS output*

Third: Evaluation of the scale model

1. Evaluation of the measurement model for the HRAM variable
Using the SmartPLS program, a measurement model was built for the human resources analytics maturity variable, the results of which are presented in Table:(4)

Table (4): Results of the measurement model for the HRAM variable

AVE	Composite stability	Cronbach alpha	saturations	Paragraphs
0.776	0.769	0.787	0.790	MQ1
			0.761	MQ2
			0.783	MQ3
0.587	0.78	0.777	0.774	ME1
			0.767	ME2
			0.803	ME3
0.778	0.787	0.804	0.792	MA1
			0.769	MA2
			0.769	MA3
0.776	0.778	0.798	0.734	MS1
			0.774	MS2
			0.785	MS3
0.767	0.780	0.778	0.765	TD1
			0.745	TD2
			0.736	TD3

Source: *SmartPLS output*

Table (4) shows the results of the measurement model test, which showed that all items achieved the acceptable limits of saturation, and the variables also achieved the acceptable limits for Cronbach's alpha, composite reliability, and AVE.

2. Evaluating the measurement model for the MAIQ variable
Using the SmartPLS program, a measurement model was built for the variable quality of management accounting information, the results of which are presented in Table:(5)

Table (5) Results of testing the measurement model for the MAIQ quality variable

AVE	Composite stability	Cronbach alpha	saturations	Paragraphs
0.654	0.732	0.745	0.802	DF1
			0.876	DF2
			0.851	DF3
0.656	0.743	0.778	0.727	IB1
			0.801	IB2
			0.738	IB3
0.644	0.731	0.765	0.779	IN1
			0.814	IN2
			0.782	IN3
0.698	0.767	0.754	0.739	IK1
			0.763	IK2
			0.747	IK3
0.677	0.768	0.743	0.736	IV1
			0.754	IV2
			0.746	IV3

Source: *SmartPLS output*

Table (5) presents the results of the measurement model test, which demonstrated that all items met the acceptable thresholds for factor loadings; furthermore, the variables satisfied the acceptable limits for Cronbach's alpha, composite reliability, and AVE.

Fourth: Hypothesis Testing

The main hypothesis stated that "there is a significant effect of HR analytics maturity on the quality of management accounting information." To test this hypothesis, a structural model was constructed, as shown in Figure (2) below:

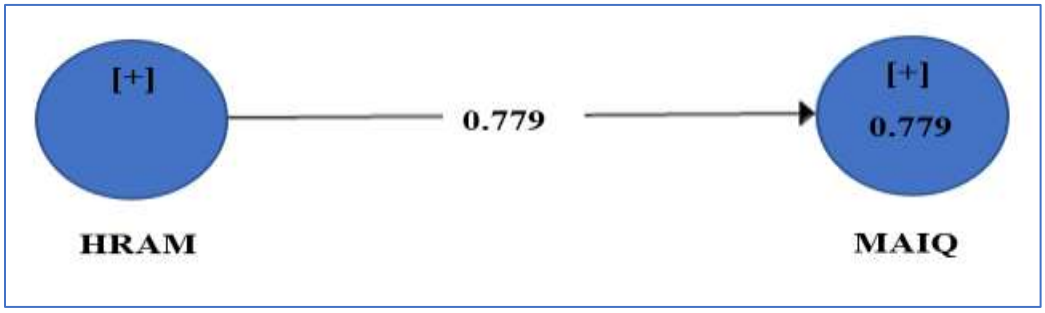


Figure (2) Structural model for testing the main hypothesis
Source: SmartPLS output

Note: The numbers on the arrows represent path coefficients, while the numbers in the circles represent coefficients of determination; the symbol [+] indicates that the items associated with the variable have been hidden, as they are not required for evaluating the structural model

Table (6) Results of the structural model evaluation for the main hypothesis

Adjusted R-squared	Coefficient of determination (R^2)	Effect size f2	Path Coefficient Result	p Value	t Value	Path coefficient	VIF	Path	Hypothesis
0.796	0.749	1.776	Acceptance	0	21.37	0.779	1	HRAM → MAIQ	H1

Source: *SmartPLS output*

The results presented in Table (6) indicate that the path coefficient (direct effect) was 0.779, with a coefficient of determination (R^2) of 0.796. To verify the significance of the path coefficient, the t-value and p-value met the required thresholds shown in Table (6), demonstrating the significance of the relationship; consequently, the hypothesis is accepted.

Testing Sub-hypotheses

The sub-hypotheses derived from the main hypothesis are stated as follows:

H1-1: There is a significant positive effect of the technological dimension on the quality of management accounting information.
H1-2: There is a significant positive effect of the organizational dimension on the quality of management accounting information.
H1-3: There is a significant positive effect of the functional dimension on the quality of management accounting information.
H1-4: There is a significant positive effect of the diffusion dimension on the quality of management accounting information.

To test these sub-hypotheses (H1-1 through H1-4), the researchers constructed a structural model, the results of which are presented in Table.(7)

Table (7): Results of the structural model evaluation for the sub-hypotheses

Adjusted R-squared	Coefficient of determination (R^2)	Effect size f2	Path Coefficient Result	p Value	t Value	Path coefficient	VIF	Path	Hypothesis
0.784	0.789	0.054	Acceptance	0.000	3.792	0.332	1.201	MQ → MAIQ	H1-1
		0.195	Acceptance	0.000	2.753	0.213	1.276	ME → MAIQ	H1-2
		0.174	Acceptance	0.000	3.754	0.657	1.324	MA → MAIQ	H1-3
		0.215	Acceptance	0.000	2.756	0.265	1.289	MS → MAIQ	H1-4

Source: *SmartPLS output*

Table (7) presents the results of the structural model evaluation regarding the sub-hypotheses. The path coefficients for sub-hypotheses H1-1 through H1-4 met the required t-value and p-value criteria, indicating the significance of these relationships and leading to the acceptance of the sub-hypotheses. Furthermore, the coefficient of determination (R^2) reached 87%; thus, the dimensions of the "HR analytics maturity" variable explained 78% of the factors accounting for the "management accounting information quality" variable, with the remaining percentage representing factors not addressed in the study.

Section Four: Conclusions and Recommendations

First: Conclusions

The findings from initial statistical analysis of the study suggest that there is a statistically significant positive relationship between maturity of human resources (HR) analytics and quality of management accounting information. This is because it highlights the need to use analytics to improve the information environment that is conducive to the administration's activities in the university. It also emphasizes the possibilities of using HR-related information to create more relevant information for administrative and accounting decision making.

The preliminary descriptive results indicate that the average answers of the sample were above the hypothetical middle point in the scale used to answer the questions on the dimensions of HR analytics maturity, meaning that respondents' perception of the current status of these dimensions at the university was relatively positive. However, an analysis of the maturity level of the aggregate on each dimension is needed after verifying final statistical values to determine the actual level of maturity.

Organizational value of HR analytics maturity is related to the ability to leverage the existing data and information, through analytics, in order to make it actionable for planning, monitoring and performance evaluation. However, the utility of such analytics does not only rely on the presence of digital technologies, but also on the presence of clear organizational procedures, human resources with the ability to interpret the data and mechanisms that ensure that the analytical result is incorporated into administrative decisions.

The sub-dimension analysis preliminary results show differences in path coefficients of the dimensions of HR analytics maturity with the management accounting information quality dimensions. It means that, if these results are verified when the final products are reviewed, the size of maturity could not explain the quality differences in information equally. These dimensions should therefore be given priority according to how much and how effectively they do contribute to the specific performance, and not as dimensions of equal importance.

Management accounting information is an essential component for decision making in university institutions and it must be of good quality. Appropriate, accurate, complete, timely, and comprehensive information increases management's understanding of the internal condition, the need, the use of resources, and the evaluation of results. These features are especially relevant within the context of a University, where a variety of academic, administrative, and financial operations take place.

Because of the nature of this study, it is clear that simply gathering or electronically storing data is not sufficient to reap the benefits of human resource analytics. Instead, it entails moving away from the management of data and towards its analysis, interpretation, and integration with management's particular requirements. This change enables building an information base that can better inform administrative planning efforts (if reliable data are available, and the skills are available to use them).

There is a clear need for integration between human resource information systems and the university's accounting and administrative systems. The disintegration of such systems, or simply the duplication of information in such systems, may affect the speed of information access and also data consistency. Hence, information integration is an organizational strategy that can facilitate information flow and increase its value to decision making.

Lastly, the character of the two variables studied highlights the need for human and organisational factors to enable successful transition towards data-driven management. Leveraging analytics is dependent on staff engagement with data and interpreting indicators that emerge from the data and on an organizational culture that supports the use of evidence and information, not only based on personal experience or on a procedural manner.

The results of the study emphasize the need to treat the maturity of human resources (HR) analytics as an organisational skill rather than focusing solely on technology, processes, skills and procedures. This requires a management perspective that aligns investments in analytics with the enhancement of the quality of information for planning, control and resource allocation.

The study finds that the improvement of the quality of the management accounting information in the university is a part of a greater institutional development path, one that would combine data reliability, analytical efficiency, the speed of information transmission and outputs that would meet the administrative needs. If management of the magnitude and significance of the relationships between the variables can be based on solid and trustworthy statistical results, this integration makes HR analytics a promising field for informational support for management.

Second: Recommendations

The study proposes that the university administration implement a stepwise approach in the implementation of analytics usage in HRM in cooperation with the administrative, financial and information technology departments. This plan should cover the identification of information needs, assessing current information systems, prioritizing information needs, and determining measurable indicators of progress in the implementation of this plan.

It is recommended to create a system to exchange data between the used systems in the university. This would minimize the amount of redundant data entry and record inconsistencies, and ensure consistency in data that would be available to use in the preparation of administrative and accounting reports and for decision making.

Training at regular intervals for employees working in human resources, financial and administration. The programs will concentrate on data analysis, on data indicators, on digital analytical tools, on the interpretation of results and also on the university's actual needs. Program effectiveness should be assessed using metrics of skills improvements and the level of utilization of analytics in day-to-day work.

Standard for assessment of the relevance, accuracy, completeness, timeliness and extent of information should be clear and responsibilities for data entry, updating and verification should be explicitly defined. In addition, periodic checks should be made to ensure that administrative and accounting reports follow these guidelines.

The study suggests, the creation of an integrated dashboard which relevant departments can access information related to human resources (in the scope of their permitted access rights). This would assist in tracking the staffing and training requirements, analysing performance indicators and provide assistance with strategic planning and resource allocation.
University departments and units should be encouraged to use analytical information and indicators in the planning process and to monitor performance, and should record the data-based underpinning for critical decisions. This can be done by integrating analytical indicators into periodic meetings, performance reports and administration monitoring processes.

Schedules should be set for updating human resources (HR) data, responsibilities should be defined for ensuring its accuracy and completeness, and procedures should be in place to look for errors and inconsistencies before using the data in reports. This helps to stop wrong information from being passed on to accounting and administrative outputs.
It is recommended to put in place a clear governance framework for HR data, such as determining access and usage rights, securing HR data from tamper, documenting HR data processing operations, and ensuring adherence to legislation and institutional policies. With any growth in the use of analytics, it's crucial that data remains confidential and reliable.

The study suggests that the University assess HR analytics development projects by the measurable impacts, including the timeliness of the reports, minimize case of having wrong data, reduce redundancy data, having complete information, and the extent to which the HR analytical outputs are used in decision making. This will support allocation of resources towards the best and most beneficial activities.

The study proposes to conduct further studies with a wider sample of respondents from different universities and test models that account for organizational, technical and human factors that could contribute to understanding the link between HR analytics maturity and management accounting information quality. Research designs that enable the understanding of changes over time are also desirable in order to improve the interpretation of the results and to identify the extent to which the results are generalizable.

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