

THE IMPACT OF ACCOUNTING INFORMATION  
SYSTEM ON INTERNAL AUDIT EFFECTIVENESS:  
THE MODERATION OF AUDIT COMMITTEE  
IN OMAN

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UNIVERSITI PENDIDIKAN SULTAN IDRIS

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THE IMPACT OF ACCOUNTING INFORMATION SYSTEM ON INTERNAL  
AUDIT EFFECTIVENESS: THE MODERATION OF AUDIT COMMITTEE  
IN OMAN

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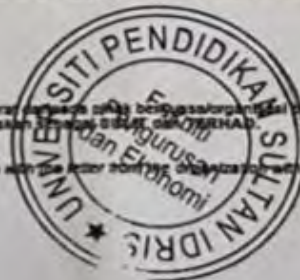
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## ABSTRACT

The aim of this research is to investigate the impact of Accounting Information System (AIS) on Internal Audit Effectiveness (IAE) among companies listed in Muscat Securities Market (MSM) by focusing on the moderating impact of Audit Committee (AC). One of the problems facing companies listed on the MSM in Oman is the absence of an understanding of how accounting information system factors can encourage internal auditors through the support of the audit committee to achieve effectiveness. The theoretical foundation for this research was built based on the stewardship theory. A quantitative approach was used to collect data from a group of respondents consisting of financial/account manager, accountant, internal auditor, and audit committee member, who were selected through an expert sampling technique. SPSS and Smart-PLS were used to analyze the data. The questionnaire was administered three times. The first administration involved a pilot test to investigate the reliability of the questionnaire involving 60 respondents. For the second administration, the questionnaire was distributed to 100 respondents to conduct an exploratory factor analysis to verify that the research variables could actually measure their impacts. For the third administration, the questionnaire was distributed to 397 respondents to conduct a confirmatory factorial analysis. The results of the study found that, the first direct hypothesis that examined the impact of reliability on internal audit effectiveness in companies listed in MSM showed a positive and significant impact, at  $\beta = 0.255$ ,  $t\text{-value} = 3.985$  and  $p\text{-value} = 0.000$ . The second direct hypothesis which examined the impact of relevance on internal audit effectiveness revealed a positive and significant impact, at  $\beta = 0.200$ ,  $t\text{-value} = 2.835$  and  $p\text{-value} = 0.005$ . The third direct hypothesis which examined the impact of integration on internal audit effectiveness revealed a positive and significant impact, at  $\beta = 0.107$ ,  $t\text{-value} = 2.002$  and  $p\text{-value} = 0.046$ . The fourth direct hypothesis which examined the impact of flexibility on internal audit effectiveness revealed a positive and significant impact, at  $\beta = 0.197$ ,  $t\text{-value} = 3.568$  and  $p\text{-value} = 0.000$ . Moreover, audit committee moderated the impact of accounting information system on internal audit effectiveness. In implication, companies should focus on audit committee to increase the knowledge of the accounting information system factors reliability, relevance, integration and flexibility.

## KESAN SISTEM MAKLUMAT PERAKAUNAN TERHADAP KEBERKESANAN AUDIT DALAMAN: MODERASI JAWATANKUASA AUDIT DI OMAN

### ABSTRAK

Penyelidikan ini dilaksanakan untuk mengkaji kesan Sistem Maklumat Perakaunan (AIS) terhadap Keberkesanan Audit Dalaman (IAE) dalam kalangan syarikat yang tersenarai dalam Pasaran Sekuriti Muscat (MSM) dengan memberi tumpuan kepada kesan moderasi jawatankuasa audit (AC). Salah satu masalah yang dihadapi oleh syarikat yang tersenarai dalam MSM di Oman ialah tiada pemahaman tentang bagaimana faktor sistem maklumat perakaunan boleh menggalakkan juruaudit dalaman melalui sokongan jawatankuasa audit untuk mencapai keberkesanan. Asas teori untuk penyelidikan ini adalah berdasarkan teori *stewardship*. Pendekatan kuantitatif digunakan untuk mengumpul data daripada sekumpulan responden yang terdiri daripada pengurus kewangan/akaun, akauntan, juruaudit dalaman, dan ahli jawatankuasa audit, yang dipilih melalui teknik pensampelan pakar. SPSS dan Smart-PLS digunakan untuk menganalisis data. Soal selidik telah diedarkan sebanyak tiga kali. Pentadbiran pertama melibatkan ujian rintis untuk menyiasat ketepatan soal selidik yang melibatkan 60 orang responden. Bagi pelaksanaan yang kedua, soal selidik telah diedarkan kepada 100 responden untuk menjalankan analisis faktor penerokaan untuk mengesahkan bahawa pembolehubah kajian sebenarnya boleh mengukur kesannya. Bagi pelaksanaan yang ketiga, soal selidik telah diedarkan kepada 397 responden untuk menjalankan analisis faktorial pengesahan. Hasil kajian mendapati hipotesis langsung pertama yang mengkaji kesan ketepatan terhadap keberkesanan audit dalaman dalam syarikat yang tersenarai dalam MSM menunjukkan impak yang positif dan signifikan iaitu pada  $\beta = 0.255$ , nilai- $t = 3.985$  dan nilai- $p = 0.000$ . Hipotesis langsung kedua yang mengkaji kesan hubungan ke atas keberkesanan audit dalaman mendedahkan impak positif dan signifikan pada  $\beta = 0.200$ , nilai- $t = 2.835$  dan nilai- $p = 0.005$ . Hipotesis langsung ketiga yang mengkaji kesan integrasi ke atas keberkesanan audit dalaman menunjukkan kesan yang positif dan signifikan pada  $\beta = 0.107$ , nilai- $t = 2.002$  dan nilai- $p = 0.046$ . Hipotesis langsung keempat yang mengkaji kesan fleksibiliti ke atas keberkesanan audit dalaman mendedahkan impak positif dan signifikan pada  $\beta = 0.197$ , nilai- $t = 3.568$  dan nilai- $p = 0.000$ . Selain itu, jawatankuasa audit meringankan kesan sistem maklumat perakaunan terhadap keberkesanan audit dalaman. Implikasinya, syarikat harus memberi tumpuan kepada jawatankuasa audit untuk meningkatkan pengetahuan tentang faktor kepercayaan sistem maklumat perakaunan, hubungan, integrasi dan fleksibiliti.

## TABLE OF CONTENT

	Page
<b>DECLARATION OF ORIGINAL WORK</b>	ii
<b>DECLARATION OF THESIS</b>	iii
<b>ACKNOWLEDGEMENT</b>	iv
<b>ABSTRACT</b>	v
<b>ABSTRAK</b>	vi
<b>TABLE OF CONTENTS</b>	vii
<b>LIST OF TABLES</b>	xiii
<b>LIST OF FIGURES</b>	xv
<b>LIST OF ABBREVIATIONS</b>	xvi
<b>LIST OF APPENDIXES</b>	xviii
<b>CHAPTER 1 INTRODUCTION</b>	
1.1 Introduction	1
1.2 Background of Study	2
1.3 Problem Statement	10
1.4 Research Objectives	19
1.5 Research Questions	19
1.6 The Research Conceptual Model	20
1.7 Research Hypotheses	21
1.8 Significance of Study	22
1.9 Research Scope	24
1.10 Operational Definitions	25
1.10.1 Accounting Information System	25





1.10.2	Internal Audit Effectiveness	27
1.10.3	Audit Committee	27
1.11	Organization of the Remaining Chapters	28
1.12	Summary	29

## CHAPTER 2 LITERATURE REVIEW

2.1	Introduction	30
2.2	Internal Audit History	31
2.3	Internal Auditing in Oman	38
2.4	Corporate Governance in Oman	50
2.5	Overview of Muscat Securities Market	61
2.6	Overview of Accounting Information System	66
2.6.1	Accounting Information System in Oman	68
2.6.2	Definitions of Accounting Information System	73
2.6.3	Importance of Accounting Information System	76
2.6.4	Factors of Accounting Information System	78
2.6.5	Connection Between the Accounting Information System and the Effectiveness of Internal Audit	81
2.7	Internal Audit Effectiveness	95
2.7.1	Factors of Internal Audit Effectiveness	112
2.8	Audit Committee (AC)	118
2.8.1	Audit Committee (AC) in Oman	122
2.9	Supporting Theories	127
2.9.1	Stewardship Theory	129
2.9.2	Agency Theory	133
2.9.3	Adaptive Structuration Theory	136



2.9.4	Fundamental Theory Used in this Research	137
2.10	Conceptual Model	139
2.11	Hypotheses Development	141
2.12	Summary	160

### CHAPTER 3 RESEARCH METHODOLOGY

3.1	Introduction	161
3.2	Research Design	162
3.3	Research Strategy	163
3.4	Population and Sample	164
3.4.1	Population Framework	164
3.4.2	Unit of Analysis	165
3.4.3	The Sampling Technique	166
3.4.4	Sample Size	168
3.5	Instruments	169
3.5.1	Validity and Reliability of Instrument	174
3.5.2	Expert Judgments	175
3.5.3	Pilot Study	177
3.5.4	Missing Data and Outliers	186
3.5.5	Moderator Testing	188
3.5.6	Measurement of Accounting Information System	188
3.5.7	Measurement of Internal Audit Effectiveness	197
3.5.8	Measurement of Audit Committee	202
3.5.9	Ethical Consideration	209
3.6	Data Collection Procedures	210
3.7	Methods of Analysing Data	211

3.7.1	Descriptive Statistics Analysis	213
3.7.2	Correlation Analysis	214
3.8	Assessment of Linearity	217
3.9	Collinearity Test	219
3.10	Factor Analysis (FA)	220
3.10.1	Exploratory Factor Analysis (EFA)	223
3.10.2	Demographic Characteristics of EFA	223
3.10.3	Descriptive Statistics of EFA	225
3.10.4	Test of EFA	226
3.10.4.1	Internal Consistency Test	227
3.10.4.2	Inter-Item Correlation	228
3.10.5	EFA Test and Results	230
3.11	Data Analysis Using PLS-SEM SmartPLS	233
3.11.1	Assessment of Measurement Model	234
3.11.1.1	Convergent Validity	234
3.11.1.2	Outer Loading	235
3.11.1.3	Composite Reliability (CR)	235
3.11.1.4	Average Variance Extracted (AVE)	235
3.11.1.5	Discriminant Validity	236
3.11.1.6	Latent Variable	236
3.11.1.7	Cross Loading	236
3.11.2	Assessment of Structural Model	237
3.11.2.1	Coefficient of Determination (R <sup>2</sup> )	237
3.11.2.2	Effect Size (F <sup>2</sup> ) Analysis	238



3.11.2.3	Construct Cross Validated Redundancy (Q <sup>2</sup> )	238
3.11.2.4	Goodness of Fit of the Model (GOF)	239
3.11.2.5	Path Coefficient of the Research Hypothesis	240
3.12	Summary	242

## CHAPTER 4 RESEARCH FINDINGS

4.1	Introduction	244
4.2	Response Rate	244
4.3	Demographic Profile	246
4.4	Descriptive Statistics	249
4.4.1	Reliability Variable	250
4.4.2	Relevance Variable	251
4.4.3	Integration Variable	253
4.4.4	Flexibility Variable	255
4.4.5	Internal audit Effectiveness Variable	256
4.4.6	Audit committee Variable	258
4.5	Factor Analysis (FA)	260
4.5.1	Exploratory Factor Analysis (EFA)	261
4.6	Correlation Analysis	272
4.7	Data Analysis Using PLS-SEM Smart PLS	274
4.7.1	Assessment of Measurement Model	274
4.7.2	Assessment of Structural Model	284
4.8	Additional Analysis	300
4.9	Summary	302





## CHAPTER 5 DISCUSSIONS AND RECOMMENDATIONS

5.1	Introduction	303
5.2	Major Finding of the Research	304
5.2.1	Final Structural Equation Model	311
5.3	Discussion	312
5.3.1	Reliability and IAE	313
5.3.2	Relevance and IAE	317
5.3.3	Integration and IAE	320
5.3.4	Flexibility and IAE	323
5.3.5	Moderating Hypotheses	325
5.3.6	Audit Committee and Reliability	325
5.3.7	Audit Committee and Relevance	327
5.3.8	Audit Committee and Integration	328
5.3.9	Audit Committee and Flexibility	330
5.4	Limitation of Study	331
5.5	Research Implication	332
5.5.1	Theoretical Perspective	333
5.5.2	Practical Perspective	335
5.6	Recommendations	338
5.7	Suggestion for Further Studies	340
5.8	Conclusions	344

<b>REFERENCES</b>	347
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<b>APPENDICES</b>	396
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## LIST OF TABLES

Table No		Page
2.1	Summary of AIS Definition	75
2.2	Different Qualitative Factors of AIS	80
2.3	Literature Summary on AIS and IA Relation	85
2.4	Summary of The Major Literature Review	87
2.5	Summary of the Use of Audit Committee as a Moderator Variable with Other Variables	156
3.1	Variable Instrument of Study	173
3.2	Experts Information	175
3.3	Coding of Constructs Items	178
3.4	Reliability Tests Results	182
3.5	The Criteria for Alpha Levels	185
3.6	Reliability Tests	185-186
3.7	Missing Value Detection	187
3.8	Cohen's Guidelines of Correlation Strength	214
3.9	Correlation Analysis	216
3.10	Collinearity Test	220
3.11	EFA Demographic Characteristics	224
3.12	Descriptive Statistics of Items	225-226
3.13	Internal Consistency Test (Cronbach Alpha)	227-228
3.14	KMO and Bartlett's Test	230
3.15	Total Variance Explained	231-233
3.16	The Criteria for R-Squared	237



3.17	The Criteria for F-Squared	238
3.18	The Criteria for GOF	239
3.19	Analysing Techniques of the Study	241-242
4.1	Distribution the Sample of Study	245-246
4.2	Summary of Frequency Table for Demographic Profile	248
4.3	Reliability Variable	250
4.4	Relevance Variable	251-252
4.5	Integration Variable	253-254
4.6	Flexibility Variable	255
4.7	Internal Audit Effectiveness Variable	256-257
4.8	Audit committee Variable	258-259
4.9	Variables Indicators	267-272
4.10	Kolmogorov Smirnov Test	273
4.11	Construct Reliability and Validity	276-278
4.12	Discriminant Validity (Fornell – larcher critreria)	280
4.13	Cross Loading	281-282
4.14	Coefficient of Determination $R^2$	285
4.15	Effect size (F square) Analysis	288
4.16	Construct Cross Validated Redundancy ( $Q^2$ )	289
4.17	Goodness of Fit of the Model (GOF)	292
4.18	Direct Hypothesis	295
4.19	Indirect Hypothesis Using Audit Committee as a Moderator Variable	298
5.1	Summary of Research Findings	309-310



## LIST OF FIGURES

Figures No.		Page
1.1	Research Conceptual Model	20
2.1	Conceptual Framework	140
3.1	Normality Test	218
3.2	Normal Predicted Probability (P-P) Pilot	219
4.1	Measurement Model Cross Loading Result	283
4.2	Coefficient of Determination $R^2$	286
4.3	Construct Cross Validated Redundancy ( $Q^2$ )	290
4.4	Measurement Model Result	296
4.5	Moderation Variable Measurement Model Result	299
4.6	Analysis of Moderator Variable	301
5.1	Final Smart PLS -SEM Model	311





## LIST OF ABBREVIATIONS

AC	Audit Committee
AIS	Accounting Information System
IPPF	International Professional Practices Framework
AVE	Average Variance Extracted
BIS	Business Intelligent System
CG	Corporate Governance
CMA	Capital Market Authority
CR	Composite Reliability
EFA	Exploratory Factor Analysis
ERP	Enterprise Resource Planning
FA	Factor Analysis
FASB	Financial Accounting Standards Board
CCL	Commercial Companies Law
GCC	Gulf Cooperation Council
GOF	Goodness of Fit
IA	Internal Audit
IAE	Internal Audit Effectiveness
IAF	Internal Audit Function
IAS	International Auditing Standards
IASB	International Accounting Standard Board
ICE	Internal Control Effectiveness





IES	International Education Standard
XBRL	Extensible Business Reporting Language
IIA	Institute of Internal Auditors
IS	Information System
ISPPIA	International Standards for Professional Practice of Internal Auditing
IT	Information Technology
IoT	Internet of Things
IAD	Internal Audit Department
BRD	Business Requirement Document
ASU	Auditor Super User
PLC	Public Limited Company
FCPA	Foreign Corrupt Practices Act
BOD	Board of Directors
SCG	Sustainable Cooperate Governance
CFE	Certified Fraud Examiner
MAIS	Management Accounting Information Systems
MSM	Muscat Securities Market
MTG	Management Training Ground
NIB	National Irish Bank
PCAOB	Public Company Accounting Oversight Board
SMEs	Small Medium Enterprises
SOEs	State- Owned Enterprises
SWOT	Strength, Weakness, Opportunity and Threats





## APPENDIX LIST

- A Internal Audit Effectiveness Journey
- B Covering letter
- C Questionnaire
- D Data Collection Letter
- E Summary of Exploratory Factor Analysis (EFA)
- F Published Articles





## CHAPTER 1

### INTRODUCTION



This chapter begins with the study's background, which discusses the concept of accounting information system and the effectiveness of internal audit. The problem statement for the study will be elaborated on in the second section of this chapter. The next section of this chapter identifies the research objectives, research questions, and research hypotheses. Subsequently, this chapter includes the study's significance, conceptual framework, the scope of the study, and the definition of terms. Finally, it ends with a summary of this chapter.







## 1.2 Background of the Study

The necessity of auditing has grown considerably as the scale and volume of modern organisations has grown. Politics, government, commerce, and the community at large have all become interested in the topic of governance. There is a growing desire for good governance with regard to openness and answerability in the governmental and commercial sectors. The internal audit function inside companies plays a vital part in accomplishing these goals (Taiwo, Samuel & James, 2016).

However, since internal audit plays a vital function in the organisational system, it is mandated to carry out regular assurance activities and being a critical partner of the organisation. This will contribute to its efforts to improve organisational procedures to guarantee their efficiency as well as effectiveness (Savouk, 2007; Mihret, James & Joseph, 2010).

IIA (2017) internal auditing is an independent activity with objective assurance that is designed to add value and improve an activity in a company. Internal audit is viewed as a "first defence line" in contrast to poor corporate governance and financial reporting. Corporate governance (CG) is a management method that guarantees an organization's external partners that it is performing its obligations to them (Zaroug Bilal & Omar Twafik, 2018). In 2002, the first country in the Middle East that issued the GC code is Oman (Hidaya Al Lawati et al., 2020). In 2016, the code was updated, giving audit committees new roles and accountabilities in carrying out their responsibilities, which include management oversight and resource provision (Capital Market Authority (CMA), 2015). According to the Sustainable Stock Exchange





Initiative (2021), the Muscat Securities Market in Oman had 167 companies listed, with a domestic market capitalisation of approximately 18,903.17 million US dollars. MSM possess its own regulatory powers over listed companies and exchange members. The Capital Markets Authority (CMA) aims to manage the capital market, which comprises listing powers, monitoring of MSM, legislative review and development, and law enforcement under its jurisdiction.

In recent years, practitioners and scholars have placed greater importance on the development of internal audit (IA) and internal auditors' functions in an organization's activities than in the past (Baharudin et al., 2014; Changwony & Rotich, 2015; George et al., 2015). At the time of writing, concerns like performance assessment and the usefulness of internal audit (IA) have garnered considerable interest (Belay, 2007; Mihret & Yismaw, 2007; Mihret et al., 2010; Abu Azza, 2012; Ramachandran et al., 2012; Endaya & Hanefah, 2013; Wubishet & Dereje, 2014; George et al., 2015). Internal auditors, the subject of this research and essential workers in government agencies, are obliged to perform autonomously and impartially to improve the quality of government services. Internal auditors also aim to establish a good system of internal control, prevent unnecessary misconduct, assure effective corporate governance, uphold answerability, and enhance transparency (Belay, 2007; Van Peursem, 2005; Coram et al., 2008).

As a result, it is crucial to have a competent internal audit function/unit as a constituent of a modern governance structure in different environment. Therefore, internal audit (IA) challenges in corporate governance have attracted much interest in the past few years for several reasons. Internal audit, for example, is linked to the





platform for internal control and risk management; improves the effectiveness and efficiency of the organisation by providing critical feedback and recommendations about the performance of an organisation, and minimises informational asymmetries during judgement. It is also considered as an essential internal assurance in the organisations and financial reporting procedure of companies, to name a few (Mihret & Yismaw, 2007; Cohen & Sayag, 2010; Soh & Bennie, 2011). The Omani government has taken a number of initiatives to improve financial reporting. Furthermore, in order to strengthen the Omani economy, the Omani government has taken numerous initiatives to increase the competency and efficacy of the financial sector and the MSM.

Internal auditing is now considered an important administrative component and a main constituent of good corporate governance. In the past few years, progressive developments in the worldwide economy, the intricacy of legislation, and technical improvements have established new instruments and avenues for internal audit growth that aid administration and contribute to the firm. These capacities also led to the current perception of the internal auditor with a number of qualities and experiences that are tailored to the needs of the setting (Olga, 2017). The evolving role of internal auditing is reflected in its current interpretation. Internal auditing is a fair, impartial assurance and advisory procedure intended to contribute observations and improve organizational activities. According to IIA (2020), internal auditing helps the organization to meet its goals by executing structured and measurable strategies to evaluate and improve the efficiency of the company's risk management, management, and governance systems."





Now, internal auditing is defined in a much wider sense, with the goal of assisting the organization in achieving its total goals. In view of the development of internal audit, a fresh idea has emerged that pays special consideration to audit literature: internal audit effectiveness. Internal audits must effectively conquer the obstacle of being effective in order to be a fundamental element of good governance. In this scenario, a clarified notion of internal audit effectiveness is crucial and highlight the key aspects that contribute to the internal audit's "added value" (Hella & Mohamed, 2016). With the increased request for auditing work, there are conceptual and technological discussions about assessing the efficacy of internal audits in the workplace. In numerous research projects, scholars from various nations and participants of the Association of the Institute of Internal Auditors endeavour to develop appropriate methods to assess audit work practically and theoretically (Olga, 2017).



Effectiveness becomes the most critical factor influencing an organization's success.

As a result, the organization must choose to engage in some tasks that will benefit them. Internal auditing must be effective in order to meet the audit activity objectives. Internal audit effectiveness is a metric used to assess if the internal audit function is achieving its objectives (Adhista, 2015).

However, the accounting information system (AIS) is an instrument that can assist organizational administration in better monitoring and developing the firm's operations and accomplishments. AIS includes locating, gathering, analyzing, and presenting accounting data to workers and decision-makers at various levels of the organization. In addition, accounting information systems are used by many businesses to automate and combine their activities (Hla & Teru, 2015). The system of accounting information is a control system that can be manual or computer-based. It improves an





organization's cohesion by assigning a numerical value to previous, current, and potential economic occurrences. An accounting information system's core role includes information creation, collection of data, maintenance of data, system of data information accounting, management of knowledge, and data/security control.

The legacy of the past AISs were primarily paper-based methods that appear out of date in today's fast-paced business climate. The information technology (IT) transformation has changed the landscape of company operations, particularly accounting. Hence, IT and information systems (IS) applications are leading the way. The widespread use of such software improves internal audit effectiveness and openness within businesses while also allowing for the ongoing provision of financial reports across the fiscal year (Melitski & Manoharan, 2014). Furthermore, successful use of application can boost client enjoyment, which contributes to corporate success. Enhanced quality, cost savings, increased service quickness, informed judgments, and more effective data flows are just a few of the numerous advantages of AIS that have been discussed in research. However, the most extensively acknowledged critical component in attaining corporate success is management's guarantee of efficient accounting information as well as excellent reporting tools (Iskandar, 2015).

Nevertheless, obtaining numerous advantages is contingent on a number of situational and extrinsic elements that may obstruct or promote these advantages. The view of the user on the usage of IS applications, together with AIS, organizational and societal culture, IT facilities, IT abilities, and management's encouragement, are all possible impacts. As a computer-based application, AIS ushers in a new pattern of transition from traditional accounting to a computerised system that the majority of





people are unprepared for or find challenging to adjust to (Eb, Pretorious, Awosejo, & Zuva, 2013). Information technology has evolved into a necessary component of a company's accomplishments (Qatawneh, 2012).

Accounting information systems (AIS), one of a company's most important technologies, have revolutionised the way data is gathered, analysed, saved, and distributed. AIS is a must when it comes to running a business and putting in place the system of internal control (Sambasivan, & Assefa, 2013). Gel (2010), as well as Romney and Steinbart (2012), defined accounting information system as a group of elements and components linked and interacting with the environment. They functioned as a unique overlapping connection with one another and the combining mechanism. Each component is dependent to each other to fulfil the aims set forth by the holistic accounting system, which facilitates the decision makers by offering information and data. Therefore, via modern technology, an uncomplicated system, or a hybrid of the two, the accounting information systems gather, store, save, and process data to offer insights to decision-makers. AIS is considered as a tool, which infused into the IT field. The ultimate aim is to facilitate the administration and control theme related to the economic and financial area of the organization (Ismail & King, 2014). AIS includes all of the linked segments that have been put together the primary purpose is to collect raw or ordinary data, which is subsequently translated into financial data for decision-makers to report on people, processes, information, programs, and IT infrastructure, as well as internal controls (Adenike & Michael, 2016).







Business analysts, consultants, accountants, and managers are examples of systems users. The processes for saving, gathering, and extracting information are referred to as "procedures." All financial data relating to an organization's business processes is referred to as data. The computer-based program utilized to acquire, save, handle, and analyze the company's financial data is referred to as software. The hardware that allows AIS to function is known as the information technology infrastructure. Internal controls apply to safeguarding data from illegal access and restricting access to firm employees. As a result, with the increasing intricacy and number of financial and operational activities, AIS adds to all enterprise modules. Auditors in today's commercial sector should be well-versed in both technology and accounting.



with the establishment of an effective audit committee (AC) as the basis of sound corporate governance (Bedard & Gendron, 2010). As a result, increasing focus has been placed on internal audit effectiveness (IAE) and the function of the AC in assisting the board of directors in fulfilling its financial and fiduciary responsibilities (Puri et al., 2010). The AC is responsible for evaluating a firm's financial information and assisting internal audit and financial accountants as a corporate governance instrument. The AC is also responsible for keeping an eye on the IAE. To carry out these obligations, the AC must work with the IAE, which is responsible for carrying out the committee's obligations in its capacity. Furthermore, the AC and IAE must be linked to senior executives to avoid being dominated by different organizational activities (Soh and Bennie, 2011).





Several archival studies mentioned that the internal audit is impacted by the characteristics of AC (Adel & Maissa, 2013; Abbott et al., 2010; Barua et al., 2010; Callahan & Soileau, 2010; Cahill, 2006; Mat Zain et al., 2006; Stewart & Kent, 2006).

Prior research into the roles, challenges, and benefits of internal auditing in firms in Oman has been conducted (Stanlrry Lazarus et al., 2021). As a result, the Internal Audit Department (IAD) played a key role in the organization, where meaningful benefits were gained from IA practices and problematic aspects for the IAD in the company.

The results of earlier research into the impact of audit committees on the effectiveness of financial reporting in the Muscat securities market suggested that the more audit committees there were, the better the effectiveness of financial reporting in the Omani setting (Al-Zahra Al-Aamri et al., 2021). Many people may think of audit committees as being important to Omani institutions' financial reporting effectiveness, and in recent years, the audit function has been expanded to include the financial reports of institutions as audit committees have become more straightforward in preparing and conducting financial report analysis, as audit committees are considered a continuous part of report quality (Al-Zahra Al-Aamri et al., 2021).

By discovering the topics that enhance the performance of Omani enterprises, the company's performance will improve and contribute to better financial performance for the country. The challenges that the Omani enterprises encountered were insufficient financial reporting, negligence of financial reporting, and less monitoring (Al-Zahra Al-Aamri et al., 2021).





Based on recent literature, enterprises in Oman have experienced some obstacles and difficulties in various areas for small, medium, and large firms. The aforementioned issues and challenges attract the researchers to investigate the economic setting of Omani firms and the importance of investigating the matters that aid to improve the performance of Omani firms. When the performance of firms improves, it will also lead to the improvement of the country's overall economic performance (Tariq Tawfeeq Abdullah & Essia Ahmed, 2020).

The study provides the internal auditors of the companies listed on the Muscat Securities Market with a way to improve their use of the accounting information system by exploring its factors. Specifically, these research conclusions recommend which particular factor of the accounting information system internal auditors return with to improve the chances of delivering the assurance, advice, and risk anticipation that stakeholders need in the Muscat Securities Market in Oman.

This research focuses on the most recent studies associated with accounting information system factors, the effectiveness of internal audits, and the audit committee, focusing on the work done in the Oman context.

### **1.3 Problem Statement**

One of the problems faced by the companies listed in Muscat Securities Market (MSM) in Oman is the absence of an understanding of how accounting information system factors can encourage internal auditors through the support of the audit committee to



achieve effectiveness. Companies in Oman are not interested in adopting a plan for technology audits or having specialized IT auditors within their teams (Audit Board, 2022; IIA Oman, 2022; Deloitte, 2022). While emphasizing the importance of accounting information system factors such as reliability, relevance, integration, and flexibility, the internal auditors will understand the importance of these factors in achieving effectiveness in conducting their work. IAE is critical for an organization's performance since it can increase top managers' knowledge of their risk and control responsibilities (Anderson & Eubanks, 2015). According to Sarans and De Beelde (2006), the IAE can act as a consultant by monitoring information systems and detecting deficiencies in control systems.

Internal audit's major role in risk management is to measure and monitor a company's risks and make suggestions for appropriate risk mitigation strategies (Dessalegn et al., 2013). Internal audit is accountable for three matters: reviewing and enhancing risk management, assessing the internal control system of a company, and evaluating the governance processes of a company (Hysen et al., 2017). Ensure that effective risk assessment, policies, and procedures are in place, as well as compliance with applicable laws and regulations.

In the Omani context, however, no effort was made to evaluate the positive correlation of AISFs on IAE and the positive moderate effect of the audit committee on the two variables. Changwony and Rotich (2015) discovered that the efficacy of IA is accomplished by effectively applying, engaging, and managing IA to define organizational business risks and systems so that corrective actions and process improvement may be taken. Effective internal audit systems, according to Abbas and



Iqbal (2012), assist firms in reducing operational risk and improving the consistency of financial reporting contributes to the creation of shareholder trust.

The scope of AIS in the Muscat Securities Market was reflected by the auditors' usage of the XBRL E-filing portal, which is an iFile Tool solution, according to the Capital Market Authority (2021). The Capital Market Authority is Oman's most important regulator. The precise specifications of the iFile tool and the E-Filing XBRL platforms have been stated to give listed and/or licensed companies operating in Oman a better knowledge of the system. However, according to CMA (2021), the White Paper for Auditors (financial reporting) is one of the papers used for gathering evidence, including the Business Requirement Document (BRD), Auditor Super User (ASU), and XBRL E-Filing portal. The white paper for auditors is a form of a document, which covers the end-to-end requirements of the solution provided to collect financial data in a structured format using XBRL standards. According to Deloitte, in 2022, 75 billion Internet of Things (IoT) devices will be online in 2025. Thus, to keep pace with current and future trends, it is mandatory to have IA in all PLCs in Muscat.

Moreover, businesses' largest vulnerability remains cybersecurity/data protection, which is rated as a "high risk" by over 90% of internal audit executives; other top risks include third parties, legislative changes, and business and crisis response (Audit Board, 2022). Since there are high risks related to cyber security, the audit committee of companies must take the necessary measures to protect data and maintain the reliability of financial reports, thus reducing operational risks. Internal audits could be more effective if these measures were used by adapting to new technologies and having IT auditors in their teams. COVID-19's global impact wreaked





havoc on internal auditing, causing what is likely the most significant disruption in the profession's history (Deloitte, 2022). The pandemic increased hazards in almost every aspect of business operation. In Oman, IA functions were obliged to cut their budgets by 10% during COVID-19 (IIA Oman, 2022). The main reason for conducting this research is to reduce operational risks by utilizing IT auditors and a plan for technology audits based on AIS factors that lead to internal audit effectiveness. Internal auditors must assess an organization's process maturity in managing existing IT risks (KPMG, 2020). Internal auditors will not be effective in their function of risk management if the IT organization is not designed to optimize added value from IT. Internal audit is well-versed in the many threats, and the function will always be a challenge to maintain that their organizations are safe. Effective internal audit groups, on the other hand, will strive to assist management in navigating future obstacles and making better-informed decisions, taking full advantage of the concurrent possibilities that each risk presents (Deloitte, 2022).

All businesses are vulnerable to fraud, and there have been countless cases in the last few decades where fraud has resulted in the collapse of whole businesses. Enron and WorldCom in the United States, as well as Satyam, are two significant cases. Due to the present economic slump, several High-profile frauds, such as those at Reebok and Citibank, have drawn attention to fraud risk management. Global regulations such as the United States Foreign Corrupt Practices Act (FCPA), the United Kingdom Bribery Act, and the Sarbanes-Oxley Act have gradually shifted management's responsibility for implementing an effective fraud risk management strategy.







According to Audit Board's (2022) Focus on the Future report, internal auditors, on the other hand, met the extraordinary difficulties via transformative activities and resiliency. One of the studies revealed a possible source of concern: 39% of respondents said that their organization's IA function does not have an IT auditor (IIA Oman, 2022). In addition, 28% of respondents said the audit committee is not pursuing innovation and transformation initiatives, which is slightly lower than the 29% stated in the 2020 study; 22% of internal auditors said they do not plan for technology audits (IIA Oman, 2022). However, it appears that at the organizational level, senior management must be aware of the framework to ensure that the IA function's independence is not jeopardized (IIA Oman, 2022). An AIS is capable of meeting users' internal and external needs and adapting and integrating with other systems (Sacer et al., 2013; Bocij et al., 2015).



implementation (Fitriati et al., 2017). As a result, the AIS is viewed critically Internal auditors and quality assurance functions are essential for successful company decision-making and management (Susanto, 2018). As a result, AC is crucial in meeting investors' expectations for clear, relevant, and sufficient information in order to reduce information asymmetry and agency costs while aligning shareholder and management interests (Samaha et al., 2015). According to Hidayat Al Lawati et al. (2020), these institutions (MSM) are important and deserving of scrutiny because they are the economic pillars and tie to Oman Vision 2040. Oman was the first country in the Middle East, North Africa, and emerging markets to issue the CG code in 2002, according to Baydoun et al. (2013). The CG's ineffectiveness lack Oman is exacerbated by the legal system's immaturity in protecting minority shareholders' wealth and the country's high level of ownership concentration (Hashim and Amrah, 2016; Young et al., 2008).





Corporate governance in Oman is not as advanced as in other developed countries (Rehman & Hashim, 2019). Meanwhile, Oman's present corporate governance rules do not address the BOD of foreign nationals (expatriates), foreign investor protection, or related investment (Ali Rehman, 2021). According to Krechovska and Prochazkova, sustainable cooperate governance (SCG) is not even addressed or covered in the current Omani corporate governance regulations (CMA, 2020). In terms of board of directors (BOD) participation and voting rights, Oman's current corporate governance statute provides no protection for international investors or foreign investment (Ali Rehman, 2021). Regulators also discourage companies from informing stakeholders or investors about their SCG or similar projects. Only corporate governance laws and financial reporting standards are given serious consideration (Ali Rehman, 2021). Internal audit is important for the organization's sustainability, so auditors have to acquire and build up their abilities to properly fulfil their tasks as obligated by their expert associations. Several problems face an internal audit, such as administrative disruption, financial excesses, intentional and unintentional excesses, disruption of the organization's systems and resources (IIA, 2017).

One of the recent studies has examined internal audit effectiveness by assessing the AIS positive impact as measured by reliability, relevance, integration, flexibility, and timeliness on internal audit effectiveness in Iraq (Oday Almaliki, 2021). Research on internal audit effectiveness continues to be of interest to a large number of stakeholders. Despite the long-standing research on internal audit effectiveness and its significance in the Middle East (Al-Ajmi 2009), there is limited archival research in the Middle East, in general, and specifically in Oman. But, this is not the reason for





conducting this research. Despite accepting a few pieces of research conducted in the Middle East (Al-Ajmi, 2008, Khasharmeh & Aljifri, 2010), such research only used the size of an audit firm as a proxy for internal audit effectiveness. Moreover, it was conducted in settings in the Middle East other than Oman. Thus, the researcher explores internal audit effectiveness in Oman and uses multiple factors for AIS. Several features make the study of internal audit effectiveness in Oman crucial. One feature of Oman is that high-quality financial reporting is of great interest to shareholders and investors.

Few studies have included the relationship between AIS and IAE, using experience in top management or information technology as a moderator (Oday Almaliki et al., 2018). Still, no studies have included AIS, IAE, and audit committee as moderators among the studies' variables, which is the researcher's contribution.

According to this research literature, it became apparent that the existing information about the relationship between AIS and IAE was an interesting subject for many researchers who studied it in general form (Neogy, 2014; Napitupulu et al., 2016).

When the management of the internal audit is poor, the stakeholders or organization owners will view them as not credible, which consequently results in poor outcomes such as loss of confidence (Flayyih et al., 2018). Thus, efficient internal auditing brings financial stability, trust, and market confidence (Alabdullah & Ahmed, 2020) as the company's accounting information system lies in the internal auditor's participation (Nwoye et al., 2020).





The scandal of an accounting company in Oman has sparked its activity in internal audits to gauge its integrity and exceptional economic data (Nwoye et al., 2020). According to the World Bank (2020), Oman's governance score for 2020 linked to corruption control is almost the same as the score achieved in 2016. According to the Certified Fraud Examiner (CFE) (2021), the reported fraud cases in Oman are rising annually. The lack of internal auditing and the ethical culture formed by the AC are the reasons for such fraudulent acts. For this reason, it reveals that governance plays a small role in controlling fraud and corruption (Halbouni, Nada & Abeer, 2016). All businesses are vulnerable to fraud, and there have been countless cases in the last few decades where fraud has resulted in the collapse of whole businesses. Enron and WorldCom in the United States, as well as Satyam, are two significant cases. Due to the present economic slump, several High-profile frauds, such as the Reebok and Citibank cases, have brought fraud risk management to the forefront. Global regulations such as the United States Foreign Corrupt Practices Act (FCPA), the United Kingdom Bribery Act, and the Sarbanes-Oxley Act have gradually increased management's responsibility for establishing an effective fraud risk management strategy.

Together with the observations and findings, the positive correlation impact of accounting information systems on internal audit effectiveness and the role of the audit committee as a positive moderator may increase the level of effectiveness of internal auditors and improve internal auditor work (Shamki & Alhajri, 2017). However, there is no data linked to companies listed in Muscat Securities Market (MSM) that investigates the impact of the accounting information system on internal audit effectiveness with role of the audit committee as a positive moderator. The purpose of the study was to examine how closely the outcomes of companies listed in Muscat





Securities Market (MSM) matched those of worldwide corporations.

This research tries to improve the internal auditor's work effectiveness to achieve the goals of their audit activity in the companies listed in the Muscat Securities Market and tries to find the reasons behind the internal auditors' inability to achieve effectiveness (Bilal, Twafik, & Bakhit, 2018). To achieve the effectiveness of the internal auditor, the audit committee has to utilize the four features to identify successful and efficient AIS, which are reliability, relevance, integration, and flexibility (Napitupulu et al., 2016). This issue reflected on the enablers that enhance the role of ACs to handle their responsibilities effectively and provide the accurate and required information on time to enable the ACs to judge and evaluate the companies' financial situations in MSM and disclose this to the shareholders.



The more reliable the AIS, the more the internal auditors can be representative and there is no purposeful or systematic bias or material error when it comes to faithfulness (Bukanya, 2014). Also, internal auditors can be more relevant due to AIS relevance, where accounting information is more relevant to the responsibilities and tasks of the users and able to evaluate past, current, or future events that have an impact on the user's economic decisions (Bukanya, 2014). The integration of AIS supports internal audits by having information combined from various sources to improve business decisions (Hiedmann et al., 2008). Flexible AIS enables internal auditors to adapt to various changing conditions and user needs (Hiedmann et al., 2008).



## 1.4 Research Objectives

- 1- To examine the impact of reliability on internal audit effectiveness in companies listed in MSM.
- 2- To examine the impact of relevance on internal audit effectiveness in companies listed in MSM.
- 3- To examine the impact of integration on internal audit effectiveness in companies listed in MSM.
- 4- To examine the impact of flexibility on internal audit effectiveness in companies listed in MSM.
- 5- To examine whether the audit committee moderates the impact of accounting information system factors (reliability, relevance, integration, flexibility) on internal audit effectiveness in companies listed in MSM.

## 1.5 Research Questions

The study should address the concerns below to fulfil the goals as mentioned earlier:

- 1- What is the impact of reliability on internal audit effectiveness in companies listed in MSM in Oman?
- 2- What is the impact of relevance on internal audit effectiveness in companies listed in MSM in Oman?
- 3- What is the impact of integration on internal audit effectiveness in companies listed in MSM in Oman?

- 4- What is the impact of flexibility on internal audit effectiveness in companies listed in MSM in Oman?
- 5- Does the audit committee moderate positively the impact of accounting information system factors (reliability, relevance, integration, flexibility) on internal audit effectiveness in companies listed in MSM in Oman?

## 1.6 The Research Conceptual Model

This research intends to inspect the impacts of AIS factors on IAE by considering the moderation impact of the audit committee in this research. Therefore, the researcher develops a hypothesised conceptual model, as shown in Figure 1.1.

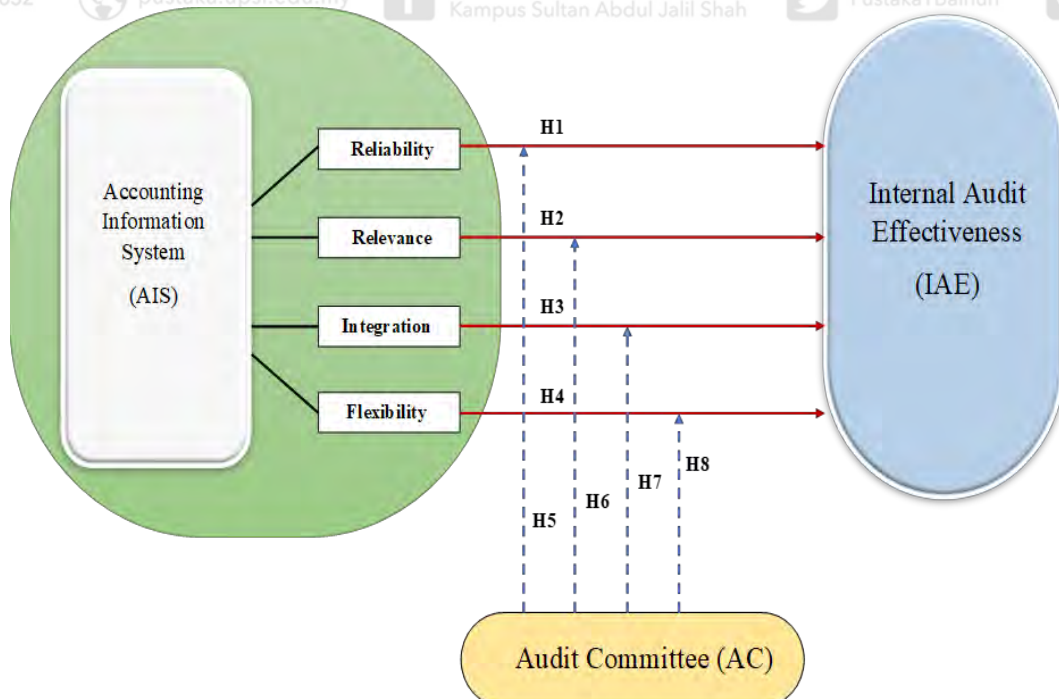


Figure 1.1. Research Conceptual Model

## 1.7 Research Hypotheses

To fulfil the research aims and respond to the expressed concerns, the investigator suggests several hypotheses to measure the impact of AIS on IAE between the research variables. These include direct hypotheses to measure the impact of AIS factors on the IAE and moderating hypotheses to measure the audit committee's impact on the IAE and AIS factors relationship.

### A: Direct Effect Hypotheses:

- 1- **H1:** Reliability positively impacts internal audit effectiveness in companies listed in MSM in Oman.
- 2- **H2:** Relevance positively impacts internal audit effectiveness in companies listed in MSM in Oman.
- 3- **H3:** Integration positively impacts internal audit effectiveness in companies listed in MSM in Oman.
- 4- **H4:** Flexibility positively impacts internal audit effectiveness in companies listed in MSM in Oman.

### B: Moderating Effect Hypotheses:

- 5- **H5:** The role of the audit committee moderates positively the impact of reliability on internal audit effectiveness in companies listed in MSM.
- 6- **H6:** The role of the audit committee moderates positively the impact of relevance on internal audit effectiveness in companies listed in MSM.





- 7- **H7:** The role of the audit committee moderates positively the impact of integration on internal audit effectiveness in companies listed in MSM.
- 8- **H8:** The role of the audit committee moderates positively the impact of flexibility on internal audit effectiveness in companies listed in MSM.

## 1.8 Significance of the Study

The study will be useful to MSM-listed companies and other organizations in Oman when discovering how the internal audit effectiveness is impacted by the accounting information system. As a result, corporate executives can use the study's outcomes and suggestions to help them decide whether or not to use Enterprise Resource Planning (ERP). The results can also be utilised by government bodies and small-medium-sized enterprises (SMEs) to set standards and change governance legislation and rules. Other scholars will be able to use the findings to build a framework for additional research into the topic. It will provide a conceptual foundation for the impact of accounting information systems to achieve the effectiveness of the internal audit. The study's findings will provide an excellent foundation for other scholars to know what to anticipate as well as effective procedures. Finally, the research findings on accounting information systems in the Omani economy will make it easier to conduct additional analyses.

The research will provide realistic and factual advice on how to improve IAE in companies listed in MSM. It will guarantee that knowledge is accessible for investment judgements on the platform to be implemented and the obstacles to be encountered and





avoided. Data from the study will be used by regulatory agencies for example International Accounting Standard Board (IASB) and tax officials to enhance internal audits based on the factors of the AIS: more reliable, more relevant, more integrated, and more flexible.

The research proposed a hypothetical conceptual model to determine the relationship between the research variables from an empirical perspective. The hypotheses were tested using a quantitative approach. Based on the experiment results, all the hypotheses are supported.

On the other hand, from a practical perspective, research will provide the necessary experimental results for target companies listed in MSM in Oman to consider the ability and skills of accounts \ financial managers, accountants, internal auditors, and audit committee members to ensure the decision-making process and achieve business success. Theoretically, this research is essential because it includes a new audit committee. In contrast, earlier research has placed attention on different aspects, for instance, programs and different parts, paid capital, and governance. (Ibrahim & Samad, 2011; Shukeri, Shin & Shaari, 2012; Vieito, 2012). Internal audit effectiveness is impacted by accounting information systems. By investigating the impact of accounting information system on internal audit effectiveness, the researcher uses audit committee as a positive moderator.

The thesis is unique by: (i) providing empirical evidence related to the accounting information system's impact on internal audit effectiveness that has not been widely explored previously in businesses listed in MSM, as stated by Badara and Saidin



(2013); (ii) providing a case for the accounting information system's impact variables on the efficacy of internal auditing; and (iii) being the first thesis on this topic in the Sultanate of Oman's MSM organizations.

## 1.9 Research Scope

The research question investigates the essential issues related to the factors of the accounting information system (reliability, relevance, integration, flexibility) and its positive effects on the effectiveness of internal audits in companies listed in MSM in Oman. Additionally, it examines the positive moderation impact of the audit committee on the relationship of AIS and IAE in companies listed in MSM in Oman. Accounting information system users are the population of this study. In particular, financial account\managers, accountants, internal auditors, and audit committee member users in the selected companies listed in MSM in Oman are the target population from which the sample was taken. The non-probability sampling is the research sample chosen randomly from a sampling frame (Saunders et al., 2015). The non-probability sampling would perfectly fit the research design and approach used in this study due to time and access constraints when the random sampling was selected. A questionnaire was administered to a group of accounting information users – MSM in Oman ( $N = 397$ ), excluding those who did not complete the questionnaire ( $N = 15$ ). Data were collected online through a structured questionnaire by sending and posting an online questionnaire. Then, random sampling was chosen. This technique implies that a sample is drawn randomly from the target population (Saunders et al., 2015); and because of the pandemic situation and the present circumstances. The questionnaire

was sent to a group of people via online means to collect respondents by being selective in sending the questionnaire to people who work at companies listed in MSM in Oman and who are mainly known to the researcher as they use the accounting information system. The scope of the study is limited to recruiting 468 respondents working in companies listed in MSM in Oman who is still working in these listed companies and Their email accounts will be used to contact them. This recruitment phase will span a maximum of three months and will conclude when either 468 responses have been found or three months have passed. Each study participant will be asked to complete a brief questionnaire to assess the impact of AISF on IAE and the audit committee's positive-moderate impact.

The operational definitions used in this research are presented in the following subsections.

### **1.10.1 Accounting Information System (AIS)**

An accounting information system (AIS) is a resource that enables trustworthy information to help the administration execute its scheduling, regulating, and leading functions. In addition, the rapid advancement of technology has given rise to the possibility of collecting and employing financial accounting data from a professional viewpoint (Elena, Raquel & Clara, 2011).

### **1.10.1.1 Reliability**

Reliability refers to AIS' ability to be representational and truthful without any deliberate or systematic bias or substantial inaccuracy (Bukenya, 2014). The reliability was operationalized using ten items, according to Napilpulu et al. (2016) and Shagari et al. (2017).

### **1.10.1.2 Relevance**

Accounting information's relevance to users' duties and tasks, as well as its ability to appraise past, current, and future occurrences, impact users' economic decisions (Bukenya, 2014). Relevance is measured using ten items chosen from Teru et al. (2017), Al-Dalabeeh and Al-Zeaud (2012), and Abdallah Shagari et al. (2017).

### **1.10.1.3 Integration**

The extent to which an accounting information system is integrated allows the integration of information from various sources to improve business decisions (Hiedmann et al., 2008). (Azhar Susant, 2008; Stair & Reynolds, 2010). The integration is operationalized using ten items obtained from Chenhall et al. (1986), NapiLpulu et al. (2015), Tan (2016), and Qatanani and Hezabr (2015).

#### **1.10.1.4 Flexibility**

Heidmann et al. (2008) defined flexibility as the degree of AIS adaptation to diverse changing environments and user needs (Hiedmann et al., 2008). Flexibility is operationalized using ten items obtained from Napitupulu et al. (2016), Shagari et al. (2017), and Tan (2016).

#### **1.10.2 Internal Audit Effectiveness**

Internal auditing is an unbiased, objective assurance and advice service that adds value and improves a company's activities. It helps a company achieve its goal by using a consistent, systematic strategy for assessing and improving the efficacy of risk, management, and governance systems (IIA, 2017). IAE was operationalized using ten items selected by Alzeban and Gwilliam (2014) and IIA (2017).

#### **1.10.3 Audit Committee**

The board of directors includes an audit committee. Its key purpose is to perform the board's monitoring function by reviewing presentable financial reports for investors and other financial information users to operate the management's internal control structures and execute its corresponding audit procedures (Al-Moataz, 2003). The audit committee is operationalized using ten items selected from Bedard and Gendron (2010), Adel and Meissa (2013), the IIA, "The Audit Committee: Internal Audit Oversight"

(2012) and F.M. Burke et al. (2008).

### 1.11 Organization of the Remaining Chapters

This paper is divided into five chapters, as presented in the following sequence:

The first chapter serves as an introduction to research. The chapter introduces the research topic and highlights the problems, problem statements, and research purpose. The chapter also discusses research issues and objectives. Finally, the significance of the research is explained in addition to the research outlook. The second chapter summarises the conceptual definition of AIS, the view of Muscat Securities Market companies, corporate governance in Oman, internal audit effectiveness, the audit committee concept, and related studies in the same field and discusses previous studies. It also illustrates the relevant theories and conceptual models for hypothesis development.

The third chapter provides knowledge and rationale for the research's resources, theoretical framework, experimental outline, and procedure (with data analysis) to attain the study's aims. The resources and practices employed in the study must be stated. The questionnaire outline, sampling process, sampling frame, research tools, information-acquiring techniques, and the data analysis methodologies will all be addressed in the methods section.

Thus, for the present study, the researcher would adopt a positivist approach. The research design is descriptive and will follow a quantitative research paradigm. The data collection method used is a sample random sampling method. The research information is provided and examined in the fourth chapter. Again, tables, numbers, and remarks can show the real outcomes of the research and assessment, allowing noteworthy insights to be emphasised. Finally, the fifth chapter presents the research findings and recommendations. First, it focuses on explaining how search results relate to specific questions and research objectives. Then the chapter displays a summary of the search results. In addition, the chapter presents the practical, empirical, and theoretical implications of this research and provides some recommendations for future work to expand the results. Finally, it gives limitations and research conclusions.

## 1.12 Summary

This study aims to analyse the anticipated understanding of AIS factors relationships among IAE and the moderator (audit committee) impact on companies listed in MSM. Consequently, this chapter illustrates the study framework and elaborates on AIS and its positive impact on internal audit effectiveness in general. The chapter presented and discussed the statement of the issue, the problems posed by the study, and the particular goals. The importance of this research is discussed within the scope. Furthermore, the operational definitions are developed together with the conceptual definitions. The following chapter provides a literature review, including AIS, IAE, and audit committee concepts. It introduces accompanying theories and develops a conceptual model and hypotheses development.