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Article

Determinants of internal audit methodology during the COVID-19 era: Evidence from the Gulf Cooperation Council

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Abstract: Purpose: The paper aims to study the methodology and functional of Internal Audit (IA) during the transition to remote working methods necessitated by the COVID-19 pandemic crisis period. **Design/methodology/approach:** Data are collected over a sample of 352 internal audit departments in retail SMEs distributed in the Gulf Cooperation Council (GCC) region. The six variables are measured using a reflective model. An exploratory factor analysis is applied to gauge the measurement model's validity and reliability. **Findings:** The research findings revealed that internal auditing within the Kingdom of Saudi Arabia (KSA) and the Qatari retail sector is not sufficiently advanced. The focus of internal auditing primarily revolves around compliance audits rather than performance audits, thereby limiting their degree of agility and strategy which negatively affects the IA methodology. Conversely, for the United Arab Emirates (UAE) retail companies the research hypotheses were validated showing an IA functions evolution, an IA reassurance and IA agility that are conducted throughout a remote working and a strategic design that affect positively IA working methodology. **Originality:** The originality impregnates by the fact that reviews of traditional audit working methods were updated and shaped according to the deficiencies that couldn't be identified during a pre COVID-19 period. A traditional audit plan may not work in this situation. The originality of the study consists of estimating IA methodological review through an agile approach that provides internal reassurance and risk attenuation.

Keywords: internal audit; COVID-19; agility; reassurance; methodology; remote work; retail sector

1. Introduction

In the wake of the COVID-19 outbreak, organizations were undergoing rapid and unforeseen transformations in how they operate (Farcane et al., 2023). In such times of crisis, the IA (Internal Audit) functions, known as vital in the process of risk assessment, assurance, compliance and control, was deemed to rely on Information and Communication Technologies (ICT) (Jarva and Zeitler, 2023). This is because the internal auditor can provide relevant advice and assessments to the board of directors and its audit committee that support the organization and its governance (Owolabi and Dada, 2011). Indeed, the COVID-19 pandemic has significantly influenced the way work is conducted across various sectors, including Internal Audit Functions (IAFs) (Kljajić et al., 2022). This situation has made the IAFs realize that auditing remotely is both unfamiliar and unprepared. Implemented remote audits, in response to COVID-19 restrictions, will become part of the audit landscape in some form or another in the

near future. Therefore, organizations must ensure effective collaboration and further communication. IAFs must adapt to the current pandemic context to remain effective and relevant (Eulerich et al., 2022). The pandemic-induced mobility restrictions have compelled internal auditors to adapt to remote work, prompting them to leverage technology and innovative approaches to maintain effectiveness while operating remotely, thus demonstrating the feasibility of conducting audits virtually (Eulerich et al., 2022; Kljajić et al., 2022). IA, as a third line of defence[1] is in a unique position to play a key role in the response to the COVID-19 crisis, based on correct organizational knowledge and a highly relevant set of skills. As organizations adapt to the impact of COVID-19, IA functions play a crucial role in tracking critical illnesses, helping advising management and governance systems on the changing landscape of risks and controls. Nowadays, as managers and boards scramble to identify direct and indirect risks from coronavirus crisis and to adjust for a "new normal" functioning, IA's assessment and assurance roles have become much more valuable. Some companies have switched to remote working mode to ensure business continuity.

To empirically gain solid understanding on the changes of IA methodologies and what derives it, the paper aims to examine the IA methodology and its determinants during the COVID-19 in GCC. This study is among the few attempts to investigate the IA function during crisis, apart from that of Jarva and Zeitler (2023), Eulerich et al. (2022). Jarva and Zeitler (2023), Eulerich et al. (2022) reported that internal auditors perceived that transition to remote audit occulted very fast, however, the onsite examination and physical interaction is still crucial. Although Eulerich et al. (2022) indicated that the efficiency of remote audits is not different from their traditional counterpart; one of the key indicators of the IA success during the crisis is the support from management and the well- functioning technological tools (Eulerich et al., 2022; Jarva and Zeitler, 2023). Against this background, this study derives its contribution in the context of GCC emerging economies.

While Jarva and Zeitler (2023) and Eulerich et al. (2022) have broadly examined the efficiency of remote audits, this study focuses on the IA methodology and the related determinants that contribute to changes through its processes. Furthermore, several studies have explored the efficiency and implementation of remote auditing during the COVID-19 pandemic, while there is limited research specifically focused on the determinants that influenced the IA methodology within the retail sector in the GCC. Addressing this gap can provide valuable insights for exploring whether we can conceptualize a model that incorporate the influential factors of IA methodology effectiveness and, therefore, enhancing IA practices and resilience for similar future crises. The choice of SMEs stems from their lean and agile organizational structure, which allows them to respond effectively to external constraints. Therefore, it is crucial to understand how these factors specifically affected IA methodologies in retail SMEs during the pandemic.

This paper structures as follows: section 2 highlights the literature review and hypotheses development; section 3 reports the methodology and data sources. While section 4 highlights the results of the study, section 5 concludes the paper and provides the implications for the study.

2. Literature review

An insightful IA should inform stakeholders on the impacts and root causes of controlling system failures, integrate emerging risks identified into the company's risk strategy, and take these insights into account for improving management risks within organizations (Bantleon et al., 2021). While many aspects, related to an IA function, contribute for demonstrating compliance, providing assurance based on a risk-based approach; a very demanding exercise, that requires working with stakeholders and shareholders, has an in-depth understanding of the organization's strategy, culture and goals (Hummel et al., 2019). The coronavirus situation forced organizations to quickly adapt their operations and strategic plans, which presents new and ongoing challenges (Harymawan and Putri, 2023). One of them may be to conduct an audit entirely remotely (Jarva and Zeitler, 2023). Thereafter, the traditional audit plan may not work in this situation (Eulerich et al., 2022). In these times of reduced organizational bandwidth and management, IA functions should seek opportunities to reduce overlap with other areas that provide assurance, including external audit, compliance, and risk management (Albitar et al., 2020). Wherever possible, engage with such assurance areas to understand the scope of their work, coverage, and depth of testing to be performed, in order to identify and advance collaboration and face eventual challenges. Faced with such a scenario, the mission of the IA consists of "improving and protecting" organizations value while relying on agility and adaptability to maintain it (Betti and Sarens, 2021). The amount of information being shared can quickly overwhelm auditors using traditional auditing practices when remote working is at its peak (Newmark et al., 2018). As a result, audit teams must move data online, where advanced analytics tools can be easily integrated into collaborative processes.

Previous researches focused solely on the relationships between IA quality, IA functions, and IA agility in relation to company performance. However, the importance of these factors has not been considered in the context of a necessary remote auditing. Therefore, this study introduces a fourth factor, strategic design, to enhance a remote IA methodology. This perspective necessitates, promptly, addressing factors such as assessing IA functions, adapting to remote working, ensuring continuous quality and assurance, maintaining agility, and implementing a strategic working design that can impact IA methodology.

2.1. IA functions evolution

As firms adjust to the new normal, individuals in charge of oversight must verify that the IA function has foreseen and assessed the numerous risks and their impact on the organization's goals, resources, and audit strategy. In the pandemic crisis context, IA has to be proactive, communicating with top management on new initiatives, projects, and external developments on a regular basis. Although each has a different role, the team is meant to be self-organized and multi-disciplinary. It is absolutely necessary to re-examine the audit subjects during coming years. If necessary, the board can also advise the IA function of any planned major changes that will impact planning. Companies have found themselves faced with this famous "Black Swan" event. Because it is considered improbable, is likely to have very strong consequences (Gray and Alles, 2021). Top management is considering more global reflections on this

famous "Black Swan" and on the major repercussions that could occur and which generates risks but also opportunities. In such view, agility may be the ideal audit approach as risks and priorities related to the COVID-19 rapidly change, and remote audit teams use technology to stay better connected. In organizational theory, dynamic capability is defined as an organization's ability to purposefully adapt its resource base (Betti and Sarens, 2021). That is why the Dynamic Capabilities Theory (DCT), developed by and Wernerfelt (1984) and Teece et al. (1997), arose as both an extension of and a reaction to the resource-based view's (RBV) inability to interpret the development and redevelopment of resources and capabilities in response to rapidly changing environments. Therefore, integrating the DCT into IA functions can significantly enhance the value and effectiveness of IAs by ensuring they remain relevant and responsive to changing organizational and environmental contexts (Teoh et al., 2017). As such, the internal audit role changed from a backroom function to a more visible one (Aghghaleh and Mohamed, 2014). Throughout such reflections, the IA functions evolve to take a proactive role in the implementation of enterprise risk management in organizations (Eulerich et al., 2022). Following scholars' advancement and the importance of IA function evolution during COVID-19 lockdown situation, the first research hypothesis is stated as:

H1: IA functions evolution positively affects IA methodology.

2.2. Remote work and IA methodology

While underlining the importance of IA functions evolution, it is essential to note that these functions adapt to remote working, as the transformation has been made possible by technology. Internal auditors should engage in continuous professional development and stay informed about emerging risks, Continuous learning ensures that auditors maintain the necessary skills and knowledge to address new challenges effectively (Kaawaase, 2022). Teeter et al. (2010) have analysed the transformation of traditional auditing into remote auditing by focusing on two aspects: interpersonal communication and data analysis. In this view, the DCT sees remote auditing as a process by which auditors combine ICT with data analytics to assess financial data and report on internal controls accuracy (Kaawaase, 2022). This involves collecting electronic evidence and interacting with the audited entity regardless of the physical location of the auditor. Such capabilities are known as dynamic auditing capabilities (Kaawaase, 2022), and where the DC is fronted as a theory that can provide explanations of companies' continuation with operations in a fast-changing environment. As such, Teeter et al. (2010) argue that remote audits have the potential to reduce latency, increase efficiency and coverage, and facilitate innovation in the internal audit process. Remote auditing, as a response to the business demand for an independent review of financial statements, does not require permanent on- site presence of auditors. It is conducted remotely, relying on ICT tools. The evolution of ICT tools and the potential occurrence of future crisis will therefore accelerate this transformation given the need to provide better professional practices (Willy, 2021).

Continuous auditing, within organizations, involves implementing technological tools to evaluate controls in real time and constantly review operations. This process helps obtain evidence of possible exceptions and issue the respective internal audit

reports. Remote or distance auditing, assuming the technological capabilities of continuous internal auditing, and vice versa, constitute an effective tool for professional practice in times of pandemic situation (Barretto et al., 2022). To this end, the regulatory international institutes of the profession, as the Institute of Internal Auditors (IIA) have published technical documents regarding remote auditing (Litzenberg and Ramirez, 2020). This implies a transformation of the profession, the audit with the current technological leap, has an opportunity for improvement. For Litzenberg and Ramírez (2020), remote auditing is not a single solution. Remote auditing can play a role and provide assurance when special circumstances prevent operations from being carried out on a regular basis (Jarva and Zeitler, 2023). Visibly, remote audit becomes a necessity and an anticipative working method for circumventing upcoming environmental crisis. The IA functions must evolve to adapt to this new reality, incorporating ICT tools and methodologies to maintain efficiency, effectiveness and compliance in a remote working environment. As such, the second research hypothesis is formulated as:

H2: Remote working positively affects IA methodology.

2.3. IA quality and reassurance

Companies are exposed to a variety of hazards and control challenges that have never existed before, but which necessitate a quick reaction in an ever-changing environment. The main objective of the risk management system is to help companies deal with uncertainties (Barretto et al., 2022). IA standards recommend that the choice of audit assignments shall be based on a risks assessment. And IA is, unsurprisingly, navigating unfamiliar turbulent fields. Threats posed by the COVID-19 were unexpected and unprecedented. Internal auditors and respective organizations face unique challenges, but they are also in an exceptional position to collaborate and provide expertise and guidance as trusted advisors during this period. As stated by Teoh et al. (2017), "quality assurance and improvement program is necessary to ensure regular quality in audit function and assurance on the internal audit function is in conformance with the definition of internal auditing, international standards for the professional practice of internal auditing (standards), and the code of ethics." In fact, the IA strategy's goal is to assist the IA functions and to allocate, effectively, financial and human resources to meet shareholders and key stakeholders' expectations throughout independent and objective evaluation of organization's risk management, and control processes (Erasmus and Coetzee, 2018). Although audit quality is always a priority, efficiency takes precedence over delivering, at the end, a perfectly finished task. IA strategic designing for IA functions and methodology allow for contingencies in the event that the team needs to shift gears unexpectedly.

Despite the fact that each member of the IA department has a distinct role, the team is intended to be self-organized and multi-disciplinary (Aprisma and Sudaryati, 2020). Indeed, the IA functions have an essential role in reassuring governance, in periods of change and uncertainties, as to the maintenance of a sufficient control and risk management environment (Willy, 2021). As a result, information asymmetry reduction improves company's resilience to external environmental distortions. As business managers balance the twin imperatives of crisis management and business

sustainability, the IA function can help them make informed decisions by assessing risks and eventual opportunities. In addition, internal auditors are perceived as allies, whose objective is to support the administration and operation, generating valuable recommendations. So, instead of a rigid, one-phase planning of a traditional audit, agile auditing is based on fluid, iterative planning that takes place on an ongoing basis. Such scheme unveils also the question of digital transformation that must fit with the organization's needs and objectives (Jin et al., 2022). Throughout the experience, the focus consists on collaboration and communication between the audit team and peers. Following the literature review analysis, the third research hypothesis is formulated as:

H3: IA reassurance positively affects IA methodology.

2.4. IA agility

The concept of 'agility', synonymous with flexibility and continual adaptation, has extended to various domains, including internal audit, as a response to the disruptions prevalent in today's economic environment (Teoh et al., 2017). As risks and priorities related to the coronavirus change rapidly, agility may be the best audit approach, and remote audit teams use technology to stay connected. In this regard, Betti and Sarens (2021) analysis reveals that a digitalized business environment influences the internal audit function as increased agility in audit planning and a higher level of digital knowledge are required. The essence of internal audit agility rests primarily in cultivating a mind-set of openness to change (Betti and Sarens, 2021). Internal auditors are deemed to possess a very thoroughly understanding of the business, which enables them to assess comprehensively the implications of their audit and review. However, the literature widely agrees that environmental turbulence influences the relationship between dynamic capabilities and internal performance (Wilden et al., 2013). Conversely, undynamic capabilities can impede on internal one (Sumiyana et al., 2024). A crucial performance indicator for internal auditors is their ability to endorse organizational success and facilitate communication between the board of directors and the corporate management team (Teoh et al., 2017). Agility in internal audit is above all a matter of "mindset" and "openness to change" (Betti and Sarens, 2021). It has always been relevant for internal auditors to have a deep understanding of the business, so that when executing their reviews, they assess the full implications of their findings for the organization. Confirming an organization success and bridging the gap between the board of directors and the corporate management team is an important performance indicator. The IA must keep in constant communication with the rest of the company to be up to date on the strategic plans and all changes that it undergoes, in order to visualize the implications of their revisions in the business and, consequently, adjust their audit performance mission and plan. Difficulty in effective communication may stem from either inadequate information or the complexity of the communication itself (Endaya and Hanefah, 2013). According to The IIA's Audit Executive Center COVID-19 Survey, 78% of audit department heads and chief audit executives assumed their first strategic responses focused on a short-term impact assessment. Instead of a rigid, single-phase planning of a traditional audit, agile auditing revolves around fluid, iterative planning

on an ongoing basis.

Collaboration and communication between the audit team and the top management is the focus throughout the encountered experiences and issues. Several studies, including those by Davidson (1991), Quinn and Hargie (2004), and Golen (2008), underline the significance of effective communication skills across organizational functions, aligning with the objectives of the IIA. Research by Smith (2005) offers insights into enhancing these skills, while previous works by Golen (2008) address communication barriers and strategies for overcoming them. Additionally, numerous studies emphasize the pivotal role of effective communication and interpersonal relationships between managers and staff in enhancing profitability, productivity, service and product quality, and cost reduction (Clampitt and Downs, 1993). Considering the IIA standards and prior research, Haag and Bulliqi (2022) refer for dynamic capability approaches to set up a framework for auditing companies' transformability. Then, it is quite suitable to approach agility through communication, skills and competencies.

IA play an important role in providing the near-term, data-driven risk outlook needed to make confident decisions in these uncertain times. Certainly, the coronavirus poses numerous risks (e.g., customer and employee health and safety, disruption of supply chains, cost reduction, new processes, and revenue loss) that require immediate attention; however, IA must also address emerging or evolving risks that will affect organizations' future sustainability. Because of government initiatives to assist organizations in dealing with the pandemic situation, audit teams are even seeing an increase in workload, forcing them to perform real-time assurance work in order to deal effectively with emerging risks (Eulerich et al., 2021). This is obviously critical for the management team and the organization as a whole, as it keeps everyone focused on achieving goals and mitigating risks (Martinelli et al., 2020). Internal auditors must be empathetic and persuasive enough to dialogue virtually with personnel from different areas and levels to convince them about proper risk assessment and management (Çağlayan and Kıral, 2022). IA's transformation into an agile function capable of responding effectively to its new objectives requires reforms that impact its methodologies and procedures, communication, and deliverables all at the same time. If appropriate, the board should consider whether management is working to design and implement action plans to mitigate risks related to IA findings. A broad view point to the audit methodology, since technological advances and their ICT tools and techniques have managed to reduce information and data processing times, improvements in dialogic interaction auditee-auditor and dedication of time saved to information analysis, are pillars of the construction of an audit method appropriate for new times. Following the literature review analysis, the fourth research hypothesis is stated as follows:

H4: IA agility positively affects IA methodology.

2.5. Strategic design

It is especially difficult to conduct an audit remotely. During the mission opening meeting, the auditors are required to explain the remote audit approach to the audited entity (Al-Taee, 2021). Practitioners must still adhere to the same stringent auditing

standards and produce high-quality documentation results. Working remotely introduces new challenges, such as the need to maintain effective collaboration, which is especially important for internal audit teams. Collaboration is and has always been essential for internal auditors. They rely on clear communication and constant information sharing with their team members to do their job efficiently and securely. The IA functions has unlimited and unrestricted access to all corporate operations, records, systems, and personnel to obtain any required information and to pursue their written document for a company's financial assessment. They follow certain methodologies in order to accomplish them successfully and effectively.

Furthermore, strategic design is the use of forward-thinking design principles for helping businesses becoming more innovative and competitive (Teoh et al., 2017). The addition of a "strategic" adjective expands such conception so that IA creativity is in relation with innovation. Somehow, many methodologies are used by auditors while performing their work. To start, a risk-based approach highlights the auditing strategy in which auditors focus on by identifying and controlling various types of risks that could lead to material misstatement. Auditors employ a variety of approaches in the course of their work. To begin, the risk-based approach is an auditing method in which auditors concentrate on identifying and controlling several sorts of risks that may result in substantial misstatement (Wang and Fargher, 2017). This strategy is used by auditors to concentrate their attention on the high-risk areas of financial statements that potentially include inaccuracies. This technique requires auditors to assess the risk of material misstatement on financial statements based on their understanding of the client's company and control environment. Following the literature review analysis that deals with strategic design and methodology the fifth research hypothesis is stated as the following:

H5: Strategic design positively affects IA methodology.

Based on the stated research hypotheses, the relationships among the research variables are depicted in the following **Figure 1**.

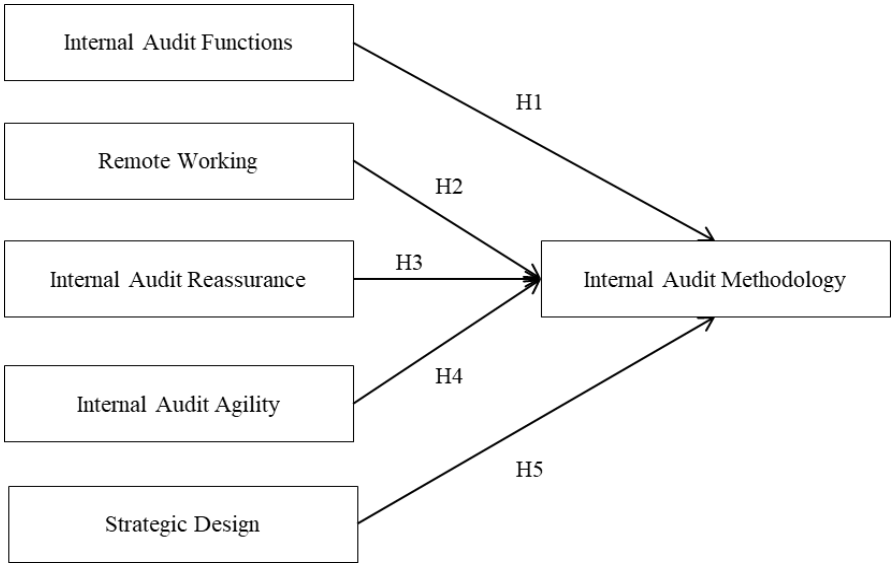

Figure 1. Influence of various factors on internal audit methodology.

3. Research methodology

To investigate the adaptations and innovations in IA methodologies during the COVID-19 period, we employed a structures questionnaire (see Appendix) as our primary data collection tool. The decision to use a questionnaire was driven by several factors. Firstly, questionnaires allow for the efficient gathering of quantitative data from a large and geographically dispersed sample, which is crucial driven the widespread impact of the pandemic on IA functions globally. Secondly, this method enables the standardization of responses, ensuring that the data collected is comparable and can be systematically analysed. The questionnaire was designed to capture the nuances of IA practices during the pandemic. It included a combination of closed-ended questions, using a 10-point Likert scale to measure the extent of various adaptations. The closed-ended questions focused on key areas such as the evolution of IA functions, the impact of remote working, the strategies for maintaining audit quality, and the agility of audit processes. The measurement model scales each of the six variables, totaling 25 items. The four items for IA functions were adapted from Eulerich et al. (2022) (IAFE1-4). Similarly, the four items for remote working were adopted from Nugrahanti and Pratiwi (2023) (RW1-4). For IA quality and reassurance, the four items were adapted from Jin et al. (2022) (IAR1-4). The constructs for IA agility (four items—IAA1-4), strategic design (four items—SD1-4), and IA methodology were adopted from Teoh et al. (2017) (IAM1-5). Companies were contacted directly, and the surveys were completed manually by a member of the IA department. Completed surveys were verified to ensure that all necessary questions were answered, thereby avoiding any missing values. Given that participants were contacted prior to the on-site visit, the sampling method used is purposive. Since internal auditors are the targeted sample, the quantitative data could not have been established without their participation and involvement for providing interpretation for the stated research objectives. Among the UAE retail companies, which total 481,252 surveyed internal auditors duly completed the survey. In Qatar, 84 retail companies were contacted, with 52 completing the survey. In Saudi Arabia, out of 166 retail companies, 48 duly completed the survey. In order to make an informed decision with regard to the five research hypotheses, data were collected over a sample of 352 retail SMEs distributed as follows: 71.59% in UAE, 14.77% in Qatar, and 13.64% in KSA. As far as the six variables are measured using a reflective model, exploratory factor analysis (EFA) is applied to gauge the validity and reliability of the measurement model (Taherdoost et al., 2022).

Using the maximum likelihood (Jin et al., 2018), and the Promax oblique rotation (Finch, 2006), a total of six successive runs was required to refine the initial measurement model to 19 manifests only. At each run, a manifest was removed due to its weak extracted communality, i.e., a communality that is lower than 0.5 which is equivalent to explained variance of less than 50% (Hogarty et al., 2005). The communalities of the retained 19 manifests are all greater than 0.5 as shown in **Table 1**. The factors extracted from EFA are then used with structural equation models (SEM) in order to evaluate the research hypotheses. It is important to mention that EFA and SEM computations are run under SPSS® 23, and Amos™ 23.

3.1. Goodness of fit of the measurement model

EFA also provides an efficient tool to examine the appropriateness of the sample size; the Kaiser-Meyer-Olkin (KMO) statistic reported a value of 0.816, inferring a meritorious sampling adequacy (Shrestha, 2021). Furthermore, EFA examines whether the correlations between the manifests are strong enough to consider the collected data appropriate for factor analysis. The latter is possible via Bartlett's test, which null hypothesis assumes an identity correlation matrix among manifests. For this paper, Bartlett's test is significant which infers that the correlations between the manifests are strong enough, $\lambda 2\ (171) = 3607.789$ and $p < 0.01$. As a result of EFA, six factors are extracted following Kaiser's criterion, where only factors with eigenvalues greater than 1 are retained as reported in **Table 1** (Morton and Altschul, 2019). This six-factor model explains 67.360% of the total variance.

Table 1. Results from the EFA.

Variable	Manifest	Eigenvalues	h^2	λ	AVE	r_{max}^2	Cronbach's alpha
Internal audit methodology	IAM1	1.155	0.688	0.826	0.681	0.208	0.859
	IAM2		0.869	0.970			
	IAM4		0.524	0.649			
Internal audit functions evolution	IAFE1	1.631	0.725	0.861	0.650	0.096	0.845
	IAFE2		0.637	0.799			
	IAFE3		0.587	0.756			
Remote working	RW1	1.869	0.677	0.811	0.666	0.129	0.855
	RW3		0.704	0.837			
	RW4		0.638	0.800			
Internal audit reassurance	IAR1	5.310	0.633	0.859	0.650	0.180	0.882
	IAR2		0.730	0.861			
	IAR3		0.619	0.695			
	IAR4		0.687	0.799			
Internal audit agility	IAA2	1.007	0.526	0.659	0.628	0.208	0.836
	IAA3		0.621	0.780			
	IAA4		0.796	0.917			
Strategic design	SD2	1.828	0.589	0.738	0.707	0.173	0.877
	SD3		0.786	0.907			
	SD4		0.761	0.868			

3.2. Validity and reliability of the measurement model

On another note, the convergent validity of the measurement model is examined for each manifest individually by comparing its loading to a benchmark of 0.6 (Hair et al., 2010). **Table 1** shows that all manifests exhibited loadings that are greater than 0.6, whence convergent validity is supported for all manifests. Convergence validity is further supported by the average variance extracted (AVE) values for all variables, where all AVEs are greater than 0.5 (Ab Hamid et al., 2017). Discriminant validity is

also supported for all variables, where their AVEs are greater than their maximal shared variances. The latter can be obtained by squaring their maximum correlations which are displayed in **Table 1**. A visual inspection of **Table 1** indicates that all variables have their AVEs greater than their maximal shared variances, whence discriminant validity is supported. Finally face validity is supported for all variables as far as the initially intended manifests for each variable load significantly on it (Bright et al., 2012). The reliability of the measurement model is investigated with the Cronbach's alpha coefficients, where all values greater than 0.7 infer a strong reliability (Trizano-Hermosilla and Alvarado, 2016). Following **Table 1** inspection, all variables have their Cronbach's alpha coefficients greater than 0.7, which supports the reliability assumption of the measurement model.

4. Results interpretation

4.1. Correlation analysis

Standardized scores are then computed for the six extracted factors representing the six variables stated in the research hypotheses. Theses scores are used in the forthcoming analyses to stand for the manifests. Firstly, a correlation analysis is run in order to examine the trends of associations between the dependent and independent variables. The results are reported in **Table 2**. It is clearly evident that all independent variables are positively and significantly correlated with the dependent variable. For instance, internal audit functions evolution is positively correlated with internal audit methodology, r (352) = 0.311 and $p < 0.01$. The latter infers that when the levels of internal audit functions evolution increase, those of internal audit methodology tend to increase. Nonetheless, a significant correlation does not necessarily imply a supported causality. The latter is evaluated via SEM.

Table 2. Correlation matrix.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Internal audit methodology (1)	1.000					
Internal audit functions evolution (2)	0.311***	1.000				
Remote working (3)	0.359***	0.107**	1.000			
Internal audit reassurance (4)	0.424***	0.247***	0.242***	1.000		
Internal audit agility (5)	0.456***	0.310***	0.140***	0.211***	1.000	
Strategic design (6)	0.390	0.149***	0.147***	0.416***	0.312***	1.000

Note: Significant at: * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

4.2. Results from SEM

The results from SEM are reported in **Table 3** For every research hypothesis the standardized path coefficient is reported with its statistical significance. As depicted into **Figure 2** below, it is clearly evident that internal audit functions evolution has a positive impact on internal audit methodology with a standardized path coefficient of 0.131, $p < 0.01$. Therefore, research hypothesis H1 is supported. Remote working has a positive impact on internal audit methodology with a standardized path coefficient of 0.282, $p < 0.01$. Therefore, research hypothesis H2 is supported.

Internal audit reassurance has a positive impact on internal audit methodology with a standardized path coefficient of 0.246, $p < 0.01$. Therefore, research hypothesis H3 is supported. Internal audit agility has a positive impact on internal audit methodology with a standardized path coefficient of 0.357, $p < 0.01$. Therefore, research hypothesis H4 is supported. Strategic design has a positive impact on internal audit methodology with a standardized path coefficient of 0.172, $p < 0.01$. Therefore, research hypothesis H5 is supported.

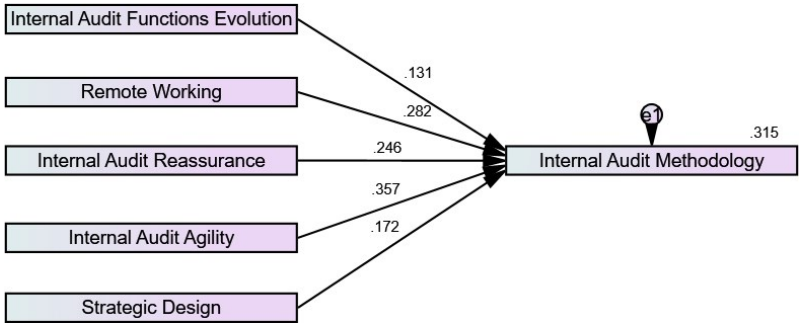

Figure 2. The causal model.

Table 3. Results from SEM: Standardized path coefficients and decision for the research hypotheses.

Research hypothesis	Standardized path coefficient	Conclusion
H1: Internal audit functions evolution → Internal audit methodology	0.131***	Supported
H2: Remote working → Internal audit methodology	0.282***	Supported
H3: Internal audit reassurance → Internal audit methodology	0.246***	Supported
H4: Internal audit agility → Internal audit methodology	0.357***	Supported
H5: Strategic design → Internal audit methodology	0.172***	Supported

Note: Significant at: * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

4.3. Cross-country comparisons

In order to complete the analysis, cross-country comparisons are reported in **Table 4**. It is clearly evident that H1, H4, and H5 are only supported for UAE, while H2 and H3 are supported for all countries.

Table 4. Hypotheses test across countries.

Research hypothesis	Qatar	UAE	KSA	Conclusion
H1	0.115	0.181***	0.135	H1 is supported only for UAE
H2	0.292**	0.249***	0.297**	H2 supported for all countries
H3	0.340***	0.192***	0.417***	H3 supported for all countries
H4	0.106	0.350***	0.189	H4 supported only for UAE
H5	−0.022	3190***	−0.089	H5 supported only for UAE

Note: Significant at: * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

4.4. Findings discussion

Findings have shown that IA functions remain the same for retail companies in Qatar and Saudi Arabia. As H1 has been validated for the UAE, IA functions evolution depends from IA implementation. Following Teoh et al. (2017) findings, the maturity

level of IA function may vary compare to others country, and where applicable the IA function does not contribute to firm performance. Findings have shown that IA functions remain the same for retail companies in Qatar and Saudi Arabia. However, updating to remote working and digital workflows necessitate a review of IA skills in relation with IT requirements. This requires an auditor's agility to adapt to environmental constraints. New technologies change the way IA work, create opportunities for developing new products and services, and subsequently alter markets and organizations. Understanding the challenges posed by these technological innovations is critical for IA to continue providing value. Reviewing internal competencies and knowledge in light of these new repercussions becomes a necessity. Managers anticipate that IA functions will be able to advise the company on implementing new technologies while controlling associated risks and integrating effective controls.

Following H2 validation for retail companies operating in said nations, remote working imposed as a necessity to cope with current and environmental constraints. Following this, even when there is no possibility of personal interaction, some audit tasks must continue. In other words, internal auditors transitioned to remote auditing to maintain continuity in their audit plans. These findings corroborate with those of Eulerich et al. (2022). Respondents believe that remote audits are as effective and efficient as in-person audits and perceive stakeholders rely on the results of both types of audits to the same degree. Based on this finding, it is believed that the DCT is operational, as it illustrates the flow of communication and cooperation among respective IA departments.

According to the hypotheses test across countries, H3 was also validated for retail companies operating in the three nations. Intuitively, challenges like less effective communication and difficulties in evidence collection in remote auditing can diminish audit quality (Jin et al., 2022). Jin et al. (2022) found that auditee support for the remote audit is a significant determinant of perceived quality. Thus, our findings underscore the crucial role of ICT in remote audits, consistent with the suggestions of Teeter et al. (2010). In fact, IA's evaluation and assurance responsibilities have significantly increased in importance as boards and managers race to identify direct and indirect risks from the coronavirus outbreak and to provide, accordingly, plausible solutions to implement. These findings align with those of Jin et al. (2022) who suggest that by improving audit quality, the good remote-auditing practices identified can help auditors reduce audit risk. In addition to that, while there are many risks associated with the coronavirus that need to be addressed right away (e.g., threats to customer and employee health and safety, disruption of supply chains, cost-cutting measures, new procedures, and revenue loss), IA also needs to consider any risks that are emerging or changing that could have an impact on the organization's state in the future. Based on these findings, there is a need to enhance IA methodology and continuously review audit quality. This ongoing assessment is crucial for adapting to changing environments and maintaining the effectiveness if internal audits working methodologies.

However, H4 has been validated for the UAE retail companies. Instilling an agile culture within an audit team aids in overcoming estrangement when collaborating remotely. Agility principles help keeping stakeholders connected and accountable by

developing iterative planning and quick, proactive communication. Short, daily stand-up meetings, for example, encourage team members to provide progress updates and gradually achieve goals. There are also intelligent audit management platforms that are specifically designed to promote auditing agility by assisting teams in prioritizing tasks and meeting deadlines. Indeed, the internal auditor must always audit the risks that can cause the most damage to the organization. At this level, the internal auditor must have a strong ability to adapt and to be able to direct his work towards the extremely changing risks, which can influence organizations in this period of crisis. The ideal is to transition from a traditional mode of operation, in which audit plans are developed annually, to a slightly more agile mode that provides quarterly audit plans that are tailored to the pandemic context or any durable crisis period. Internal auditors need to develop reactive approaches and employ continuous automation or control modes based on highly agile subscription solutions.

Undoubtedly, the internal audit plan must be adapted to new risks mapping to better cover additional ones or those exacerbated by a current crisis situation, particularly fraud, inventory problems and cyber risks. The IA department should be proactive and keep up a constant communication regarding the most recent initiatives, projects, and outside developments with senior management and other internal and external stakeholders. The findings on DCT on IA agility serve as an important factor to adapt constantly audit methodology by interiorizing ICT skills and remote working flow (Teoh et al., 2017). Such view entails reducing asymmetric information and promoting a better transparency of financial and accounting statements. Such pre-requisites are crucial for any further decision making based on financial information. However, as long as IA functions were not further reviewed as it is stated in H1 and not supported for Qatari and Saudi Arabia retail SMEs; it seems that the redefinition of traditional IA strategy seems, as well, not validated for the same countries. In fact, the internal auditing practices within the Saudi Arabian corporate sector are underdeveloped (Endaya and Hanefah, 2013). Primarily, internal auditing tends to prioritize compliance audits over performance audits, and constraints such as resource shortages and a lack of qualified staff impede their level of independence. The findings reveal a lack of dynamic capability in effectively applying acquired knowledge and integrating it into the development of new internal audit methodologies. Furthermore, the absence of effective communication can hinder the identification of risks and confine the internal audit function primarily to compliance duties. H5 was validated only for the case of retail SMEs operating in the UAE. Such advancements shed the light on the fact that remote audit working was adopted for providing usual assurance; however, reviewing the IA functions and capability to be agile were not in the mainstream of enhancing a strategic design that fits within the scope of reviewing a methodology that circumvent the constraints of the said pandemic situation. Such findings align with those of Lois et al. (2020), and to which internal auditors were given the preparation to build virtual auditing teams for improved workflow synchronisation. Therefore, strategic implementation and design focus on ICT tools in order to enhance the efficacy of traditional methods. Only all research hypotheses were validated for the case of the UAE.

5. Conclusions, implications and limitations

The main findings of the paper indicate that internal audit reassurance and remote audit have a significant and positive relationship toward the IA methodology review. While the evolution of IA functions, IA agility and strategic design matter only in the UAE, this study contributes to the literature by substantiating the effects of COVID-19 pandemic on the field of IA and its methodology adaptation in the GCC. IA must demonstrate an ability to adapt to changes in fluctuant environment, an ability to execute quickly, and an ability to anticipate future risks. The current global crisis necessitates that business professionals abandon their usual logic, of the not-so-static annual audit plan, and propose to work on the new risks associated with the pandemic situation and subsequent crisis. Our findings align closely with the advancements of the DCT, which emphasizes the importance of integrating, and reconfiguring internal competencies to address changing environments. By demonstrating that IA functions must incorporate advanced ICT skills and adapt to remote working processes, our study supports the notion that agility and technological integration are crucial for maintaining audit quality and effectiveness in disruptive environments. Existing studies, such as those by Teeter et al., (2010), have highlighted the role of technology in transforming traditional auditing practices. Our findings extend this discussion by providing empirical evidence that remote auditing, facilitated by ICT, not only maintains but can enhance audit methodology by improving efficiency and reliability. This is particularly relevant in the context of the COVID-19 pandemic, where traditional in-person audits were largely infeasible. Moreover, our study identifies specific factors—such as the necessity for continuous auditing and the role of the technological tools—that are critical for IA functions in a remote working environment. These insights build on previous research by Jin et al. (2022) and Eulrich et al. (2022), who have explored the impact of remote auditing practices on audit quality and risk reduction. Our findings are consistent with the conclusions, reinforcing the importance of remote auditing practices in reducing audit risk and enhancing overall audit quality.

However, our study also provides new insights into the role of strategic design in IA methodologies, particularly within the context of SMEs in the GCC region. By highlighting the need for a lean and agile organizational structure to respond to external constraints, we contribute to a deeper understanding of how SMEs can leverage DCT to enhance their IA practices. This continuous auditing leverages technology to improve efficiency, speed and reliability, aligning with DCT's emphasis on adapting capabilities to maintain competitive advantage.

The fact that business continuity was not given enough attention in the past is one of the reasons why many companies are currently having trouble coping with the COVID-19 challenges. The IA department is, frequently, in the greatest position to inform management of how these difficulties affect the organization's risks and opportunities and to offer careful consideration of the steps taken and planned. The COVID-19 pandemic continues to disrupt the economy and the daily lives of citizens, prompting various levels of corporate activities to implement relief programs and other mitigation measures. Following that, agile auditing centers on flexible, iterative planning on a continuous basis as opposed for a rigid and a one-phase planning of a

traditional audit. The focus throughout the experience is on collaboration and communication between the audit team and stakeholders.

The investigation is limited to a quantitative approach. So far, the literature review analysis contributed for developing keys aspects that intervene within an IA methodology in a "remotely" operational mode. It is estimated that possible future crisis will emerge, and AI revolution will enhance better means for ensuring IA tasks and objectives. The quantitative approach cannot seize, in depth, obstacles, team lag, and other deficiencies to which qualitative one can shed the light on futures research directions. Semi-structured interviews make research hypotheses contextual before testing them on a sample. Such epistemological design calls for investing into a mixed research methodology.

Practical implications involve the interrelation of IA outcomes and governance actions in a crisis periods. It reverts to the fact that IA disruptions during remote working can lead to consequences that are reflected throughout upper management decision-making. In addition, IA department should review, internally, their workflows procedural streams in line with auditors' functions review for updating their working methods as well as to provide accurate statements of facts. Such visibility can lead for a further forecasting about the retail company's evolution and risks assessments where recommendations are to be formulated in their earliest periods.

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Notes

[1] The first one is related to the Board responsibilities and the second for executives and superior management.

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Appendix (questionnaire)

The COVID-19 pandemic is precipitating unprecedented challenges across all sectors, compelling organizations to adapt swiftly to a rapidly changing environment. Internal auditing, a critical function for ensuring organizational governance, risk management, and control, has been no exception. As remote working became the norm and business operations faced significant disruptions, internal auditors had to re-evaluate and modify their methodologies to maintain their effectiveness and relevance.

This survey article aims to explore the adaptations and innovations in internal audit methodologies employed during the COVID-19 period. By examining the experiences and practices of internal auditors, we seek to understand how they navigated the complexities introduced by the pandemic, the tools and techniques they leveraged, and the lessons learned that could shape the future of internal auditing.

Based on your own audit experiences throughout the pandemic crisis, kindly fill the 25 questions of the survey while referring for a scale that goes from 1 as strongly disagree to 10 as absolutely agree.

Please be assured that your responses will be strictly confidential and can be provided upon request.

Being informed that any particular treatment or procedure may involve risks which are currently unforeseeable; I (Participant name), state hereby that my participation in the research study is voluntary. Any refusal to participate will involve no penalty or loss of benefits to which I am entitled. I may as well discontinue participation at any time without no penalty or loss of benefits to which I am entitled.

		Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Very Strongly Agree	Extremely Agree	Absolutely Agree
Internal audit methodology											
1	Despite the unfavorable consequences of COVID-19, my audit firm demonstrated the necessary capability to establish an audit plan.	○	○	○	○	○	○	○	○	○	○
2	Reviewing internal audit process workflows simplified working remotely.	○	○	○	○	○	○	○	○	○	○
3	Adapting new audit methodologies is a necessity to cope with a quickest respond for companies' restructuration needs and actions.	○	○	○	○	○	○	○	○	○	○
4	The internal audit examined the control environment for weaknesses in processes and critical controls that must be in place in a post COVID-19 time.	○	○	○	○	○	○	○	○	○	○
5	Under COVID-19 circumstances, the internal audit verified the suitability and effectiveness of the system of internal controls in all fields of activity.	○	○	○	○	○	○	○	○	○	○
Internal audit functions evolution											
6	Changing COVID-19 circumstances have driven internal auditors to find the right combination of skills for providing necessary assurance on the controls that have been put in place to reduce relevant risks to acceptable levels.	○	○	○	○	○	○	○	○	○	○
7	During COVID-19 period, the internal audit department gained an understanding about the constraints that undermine the organization's achievement of key objectives; therefore auditors' functions have been reformulated.	○	○	○	○	○	○	○	○	○	○

		Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree	Very Strongly Agree	Extremely Agree	Absolutely Agree
Internal audit functions evolution											
8	During COVID-19 period, the internal audit recognizes, at the same time, internal deficiencies and opportunities to improve individual functions reformulation and operating performance.	○	○	○	○	○	○	○	○	○	○
9	During COVID-19 period, a large number of internal audit functions have increased their visibility within their organization by giving themselves the means to provide greater strategic value.	○	○	○	○	○	○	○	○	○	○
10	Remote auditing increased, or at least maintained, actual performance.	○	○	○	○	○	○	○	○	○	○
11	Remote auditing reduced expected audited companies' assurance and satisfaction.	○	○	○	○	○	○	○	○	○	○
12	Internal auditors must adapt their working methods to continue auditing, often remotely.	○	○	○	○	○	○	○	○	○	○
13	Remote audit allows internal auditors to consider other approaches, beneficial to the audit process one.	○	○	○	○	○	○	○	○	○	○
Internal audit reassurance											
14	Remote auditing will undoubtedly test internal auditors' ability to provide high quality consulting and assurance services.	○	○	○	○	○	○	○	○	○	○
15	During COVID-19 period, the internal audit has provided an assurance of encountered risks at all organizational entities.	○	○	○	○	○	○	○	○	○	○
16	During COVID-19 period, internal audit acted as an internal advisor on operational and strategic issues.	○	○	○	○	○	○	○	○	○	○
17	In COVID-19 turbulent times, head of departments helped internal audit for managing essential services and responded to various emergencies.	○	○	○	○	○	○	○	○	○	○
Internal audit agility											
18	Auditing and reporting cycle times are excessively long and lack of necessary agility while working remotely.	○	○	○	○	○	○	○	○	○	○
19	During COVID-19 period, the internal audit reviewed operations and plans to see whether results are consistent with settled objectives and goals and whether the operations and plans are being applied as intended.	○	○	○	○	○	○	○	○	○	○
20	Coronavirus related risk mitigation strategy will continue to evolve in the months ahead.	○	○	○	○	○	○	○	○	○	○
21	The COVID-19 pandemic crisis period forced internal auditors to quickly adapt their operations and strategic plans, which presents new and ongoing challenges.	○	○	○	○	○	○	○	○	○	○
22	Workflows have been reconfigured and assigned at the level of the expertise of each internal auditor.	○	○	○	○	○	○	○	○	○	○
23	During COVID-19 period, the application of new internal audit methodologies has provided the company's ability for creating value.	○	○	○	○	○	○	○	○	○	○
24	During COVID-19 period, the internal audit took advantage of the proximity between internal control, risk management and internal audit to create synergies and redesign workflows implementation.	○	○	○	○	○	○	○	○	○	○
25	During COVID-19 period, internal auditors have developed specific know-how associated with the practice of auditing; know-how that came in handy in turbulent times.	○	○	○	○	○	○	○	○	○	○