

# The African Journal of Comprehensive Auditing



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## **of the African Journal of Comprehensive Auditing**

The African Journal of Comprehensive Auditing is annually issued in December in three languages, i.e. Arabic, English and French, in order to provide staff of the AFROSAI member SAIs with various technical themes and regional and international news related to audit work .

It is worthy to mention that all articles and ideas published in the Journal do not represent the views of AFROSAI and its Board of Editors but rather express the views of their writers.

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## Section One

**Editorial**

**The African Journal of Comprehensive  
Auditing**

**“Digital Transformation and its Impact on Auditing”**

## Editorial of

**H.E Counsellor/ Hesham Badawy**  
**Editor-in-Chief of the Journal**



**H.E Counsellor/ Hesham Badawy**  
**President of the Accountability State Authority -**  
**Egypt**

### **"Digital Transformation and its Impact on Auditing"**

The world is strongly moving forward towards digital transformation, which has brought fundamental changes in various fields, including the fields of accounting and auditing through providing the access to modern technologies such as Big Data, Cloud Computing, the Internet of Things (IoT), cybersecurity, electronic payment systems, and digital services.

Digital transformation is considered to be one of the main motivating factors for achieving sustainable development. With the emergence of the digital transformation technologies, the methods of processing the companies' and institutions' accounts have changed. These technologies are used in recording the transactions of the companies as well as for the institutions. They help in speeding up and securing their utilization. All the above have posed many questions and challenges pertaining to the audit process; such as: What are the qualifications that should characterize those in charge of conducting the audit process? The methodologies and standards needed in order to keep pace with these rapid technological changes? What is the impact of the application of these technological techniques on the audit process?



Due to the fact that the Supreme Audit Institutions (SAIs), while conducting the audit processes, examine the auditees' accounts as well as the applied systems, such as the internal audit system that includes their internal control management, it has become imperative for the SAIs' members to have a deep understanding and a wide knowledge involving all the changes that were applied on the data processing tools in addition to the internal audit's procedures and guiding rules. That would enable the SAIs to carry out the external audit using mechanisms, methodologies and standards that would keep pace with the changes that took place within the audited entities. All the aforementioned elements require that auditors should have a profound knowledge in the field of data analysis which enhances the audit quality and improves its efficiency. Moreover, it necessitates to train auditors and to qualify them in order to enhance their ability to gather and soundly analyze the data to be able to achieve the audit objectives related to obtaining adequate and sufficient audit evidence pertaining to the soundness of the auditees' confirmation of their audited financial statements. They should be able to detect and analyze the deviations and contradictions using these modern technologies.

With regard to the impact of applying modern technologies to the audit process, it is well known that the availability and analysis of data will provide the auditor with an accurate understanding of the auditees which enhances the quality of the auditor's assessment of the inherent risks. The auditor will be able to assess to which extent the audited entities' responded in providing an efficient and effective audit environment that reduces these risks to the auditees' acceptable limit. Modern technologies would also enhance the auditor's ability to collect audit evidence. By using this digital technology, auditors will be able to transform the audit processes from manual audits to digital audits which contributes to the optimal use of audit elements through decreasing the level of audit risks, reducing the audit cost, shortening the audit period, spending lesser time in routine processing, devoting more time in examining and reporting, increasing the quality of remote work and enhancing its efficiency in order to contribute in promoting the audit work quality as well as the reports issued in this regard.



Moreover, applying technologies while conducting the audit process will enable the auditing bodies to use the advanced statistical applications in undertaking the statistical analyses which was not performed previously during the manual audit era. It is now possible to carry out operations closer to conducting a full examination of documents rather than the examination by sample which increases the accuracy and reliability of the audit processes and their reports and helps in diminishing any constraints that used to accompany the comprehensive examination in the past such as the high cost and the long time consumed.

In addition to that, real-time auditing which allows reviewing regulatory transactions in the real time, and mitigating the organizational risks, becomes possible. This will provide the auditor with more flexibility regarding the rapid response of the audit plan to any changes that may accompany the audit process as they occur and enable the auditor to focus more on the prioritized and important processes, and cancel the less important audit whose correction in the data processing systems will lead to their non-recurrence. This type of audit will also help the auditee's management in making concurrent decisions to improve its performance without waiting until the end of the fiscal year.

The reader of this issue of the Journal will encounter the AFROSAI member SAIs' contributions which address in details these technological developments and their impact on the audit process. This awareness of SAIs' members confirms the importance of these rapid technological developments for the purpose of increasing the efficiency and effectiveness of the audit process in achieving its objectives.

## The Scientific Articles

**Edited Article**

## **Environmental Auditing from the Perspective of Ethiopian Government Auditing**

**Edited by: Abera Tadesse Eticha - Senior Instructor - SAI Ethiopia**



## Abstract

Environmental auditing originated in the United States of America in the 1970s as a way of examining whether a company was complying with the multitude of new environmental laws and regulations. More recently, it is used as a valuable instrument for assessing a company's environmental management system, policies, and equipment. The main objective of the study paper is to explain the ways in which environmental audit contributes to improving and preserving environmental protection, respecting the concept of sustainable development from the results of the Office of Federal Auditor General (OFAG) audit reports.

From the comparison it is seen that the Office of the federal auditor general of Ethiopia do meet only a few of the best practice principles from international standards. Whereas OFAG also did environmental auditing, the study paper also shows the cases from the environmental audit process of Ethiopia for improving and preserving environmental protection and sustainable development. It may, therefore, be concluded that OFAG are lagging behind in environmental auditing. In addition, this paper examines the practical challenges & results from environmental audit.

**Key words:** Environmental audit, Government audit, Ethiopia.

## Introduction

Environmental problems constitute one of the key challenges on the African continent in the 21<sup>st</sup> century. Focus is gradually shifting to environmental issues. This is mainly the result of the development of new technologies, which has generated an increase in solid mineral mining, oil exploration, an increase in the number of plants and factories, and the overall upsurge in the application of manufacturing tools. The quality and richness of terrestrial, freshwater, and marine environments have been polluted and subsequently declined. It is therefore safe to say that new developments in industry and manufacturing are the root causes of environmental degradation over the past three decades. This has been exacerbated by rapid population growth, urbanization, energy consumption, overgrazing, over-cultivation of lands, and industrial advancements engendered by globalization.

The area Office of the federal auditor general of Ethiopia (OFAG) environmental audit focuses on environmental problems related to water, environmental problems related to forestry, environmental problems related to waste, environmental problems

related to fisheries, environmental problems related to energy, environmental problems related to biodiversity and environmental problems related to mining. (OFAG and AFROSAI-E environmental audit guide line, 2010).

### Research Objective:

The objective of this study is to investigate how environmental auditing techniques are being used in practice in Ethiopia by investigating the experiences and challenges in the environmental audit. Also explain the ways in which environmental audit contributes to improving and preserving environmental protection, respecting the concept of sustainable development from the result of the office of federal auditor general (OFAG) audit reports.

### Research Hypothesis:

The paper is focusing on Environmental auditing from the perspective of Ethiopian government auditing.

**Contribution of environmental audit =  
applicability of environmental audit  
standards + Skill of auditors + sufficient  
data + Supervision**

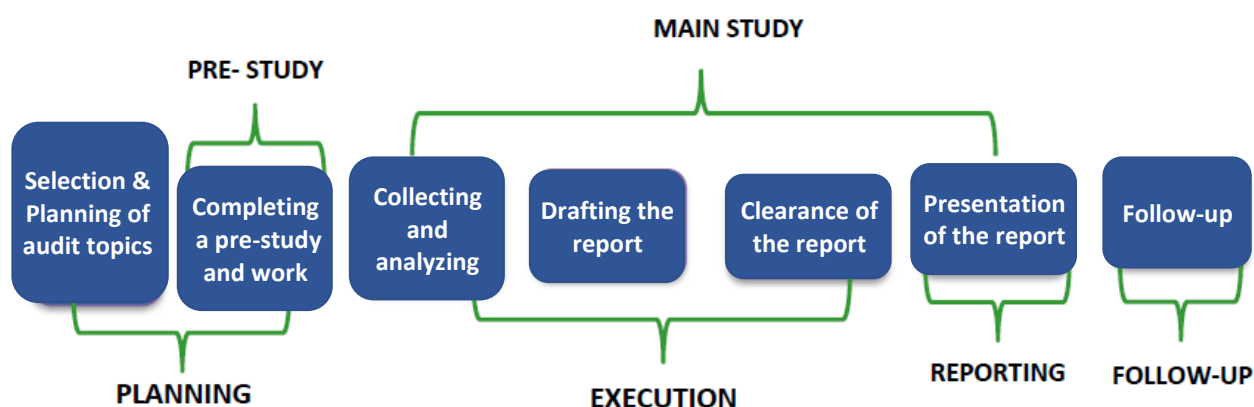
### Research Methodology:

The study focuses on environmental audit in the case of office of the federal auditor general of Ethiopia (OFAG) this paper uses a qualitative research method is used for the study. The strategies emphasize words rather than quantification in the collection and analysis of data Qualitative research is conducted in a natural setting and involves a process of building a complex and holistic picture of the phenomenon of interest (Bryman, 2001). In line with this, qualitative research has been used for the study. This consists of a desktop study using secondary data. (Gray, 2004).

### Result and Discussions:

#### Environmental Audit Process:

In Ethiopia the environmental audit is conducted as performance audit with environmental focus the process is illustrated below.



**Figure 1: The performance and environmental audit process in Ethiopia**

**Source: Environmental/performance audit manual of SAI Ethiopia (2016)**

Audit Techniques used in the environmental audit in OFAG:

The different types of audit evidence are linked to different methods for collecting data, as illustrated in the box below.

No.	AUDIT EVIDENCE	METHODS
1	Testimonial evidence	Interviews Questionnaires Focus groups Reference groups
2	Documentary evidence	Document reviews
		File reviews
		Using existing statistics
		Using existing databases/GIS, GPS...
3	Physical evidence	Observation of people
		Inspection of objects
4	Analytical evidence	Computation, comparisons
		Logical reasoning and rational arguments

**Table 1: Environmental Audit GUIDS and Approaches  
(AFROSAI Performance Audit Guidelines, 2016)**



### Environmental Audit cases in the rift valley lakes of Ethiopia:

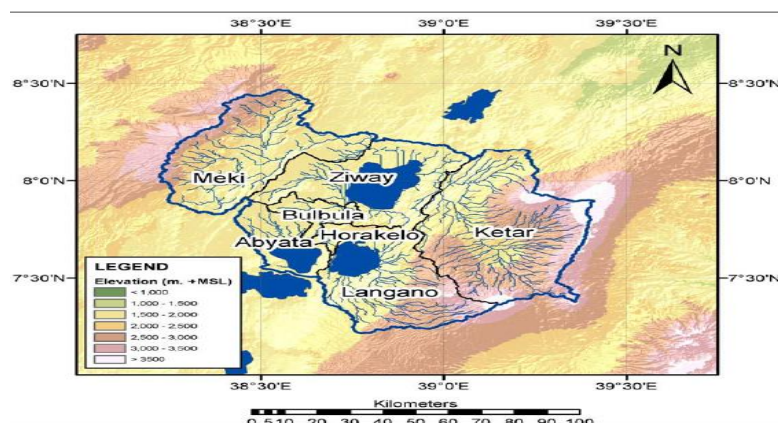
The choice of audit areas should take place without any outside pressure using the criteria materiality & significance.

In this case the paper trying to show the environmental audit that carried in the rift valley lakes and its main findings, conclusion given and recommendation as well as the impact of the environmental audit in the case.

The objective of the audit is to examine whether the rift valley authority is controlling, maintaining and making development activities in the catchments area that focus on the water utilization and pollution protecting, controlling deforestation, enhancing afforestation, Controlling soil degradation and Development and protection of living things in the lakes.

The scope of the audit is covered the year from 2015 to 2017 on Rift valley lakes from the five-watershed management the audit team was selected 3 water shed areas and other stakeholders included.

As of the audit report for your understanding the environment situation in watershed management the description of the site for the three watersheds is identified. For instance, the descriptions of catchments of ziway are area 10740 km<sup>2</sup>, Elevation ranges 3700-1500 m a.s.l, Rainfall from 1150mm-600mm, highly fragile, Water source tributaries Ketar and Meki rivers and Population density is 150 per/km<sup>2</sup>.



**Figure: 2 Description of the Zeway catchment**  
Source: (Jansen et al., 2010)

Lake Hawassa catchment located within the Central Main Ethiopian Rift Valley (MER) in the central Ethiopia. It has a total surface area of 90 km<sup>2</sup> and drainage area of 1250 km<sup>2</sup>. The mean depth is 11m, and the maximum 22 m. The lake is located between 06058' to

070 14' N latitudes and 380 22' to 38028'E longitudes with an elevation of 1680m a.s.l. River Tikur Wuha is the only inflow and there is no surface outflow.

### **A) Findings on Water utilization and pollution**

Availability of fresh water is becoming crucial global issue. Characterization of Wastewater Composition from Hospital Effluent and Evaluation of the Treatment Performance of the Five Series of Oxidation Ponds in Hawassa Referral Hospital, (Simachew, 2008) so, From the analysis of this research wastewaters from hospitals contain higher concentration of microorganisms, organic matter and nutrients, The effluent concentration of ammonium nitrate, nitrite, phosphate, BOD5 and COD was also above the permissible level of 10 mg/l, 5mg/l, 5mg/l, 10mg/l and 100mg/l, respectively and The oxidation ponds were not effective to treat wastewaters generated from the hospital and the effluent discharged from the ponds may have adverse effect to the receiving lake.

Chemical Composition of Industrial Effluents and Their Effect on the Survival of Fish and Eutrophication of Lake Hawassa, Southern Ethiopia, (Behailu, et al.2015).

In the study three factories effluent were assessed. These factories are Ceramic, Textile and Soft drink factories.

Heavy metals such as Zn and Fe of textile effluent were much higher than the acceptable limits set by EPA (2003) also there are high concentrations of sulfide and sulfate was found in ceramic effluents.

Results of the analysis on the chemical composition of effluents from different sources with respect to the provisional discharge limit in general, show that several parameters in the effluent are well above the limit.

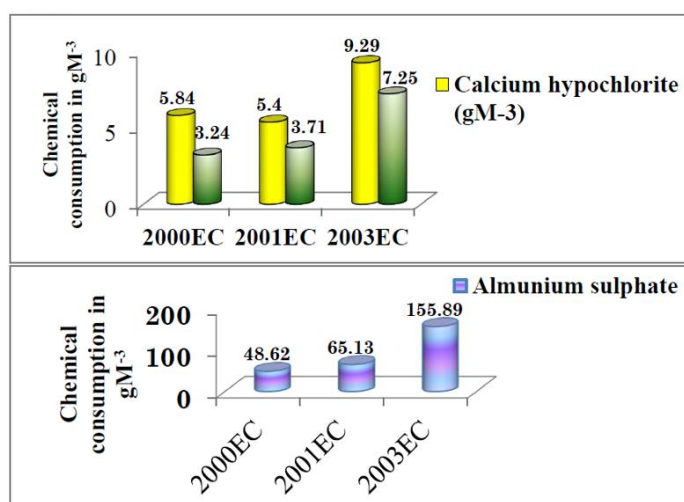
The pond experiments also strongly suggest that the effluent from textile factory is potentially hazardous to the survival of fish.

The soft drink effluent contained high amount of nutrients to cause eutrophication problem in the lake. Water samples were collected and analyzed for physicochemical, oxygen demanding, nutrient and micronutrient parameters. The result indicated higher levels of TDS, EC, PH, COD, BOD,  $\text{NO}_3^-$ ,  $\text{PO}_4^{3-}$ , Na, Mg, K and Ca were beyond the permissible limits of WHO, FAO and US-EPA water quality guideline values and also the Lake water around the farm is becoming less suitable for sanitation purposes.



**Source: Picture 1: Shows wastage from flower industries direct to the Hawassa Lake the picture taken while the audit was conducted. (2011)**

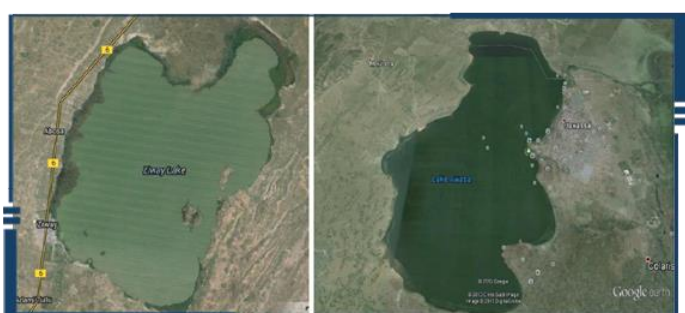
The other problem in the catchment is lack of pure water due to different environmental pressure increases the Chemical demand of drinking water treatment (Batu city water supply).



**Figure 3: Chemical utilization for the water treatment in Batu city 2011 audit report. The date is in Ethiopian calendar means 2008, 2009 & 2010 G.C respectively**

## B) Findings on Deforestation and illegal activities on natural resources:

Deforestation and changes of climate as well as pressure of different activities also affected the depth, width and amount & quality of water in the lakes during the audit is conducted.



Source: Picture 3: Shows shrinking of Lake Ziway & Hawassa from GIS data taken during audit was conducted.

The Study area in 2009 shows Lake Langano Located at in the CRV Area 401km<sup>2</sup> and mean depth 29m but while the audit was conducted in 2017 Lake Langano Area 241 km<sup>2</sup> mean depth 17m. This is due to the pressure around the lakes like activities carried around the lakes without buffer zone restrictions, deforestation, run off etc.



Source: Picture 4: deforestation activities around the lake Zeway, photo taken during physical observation.  
(2011 G.C)

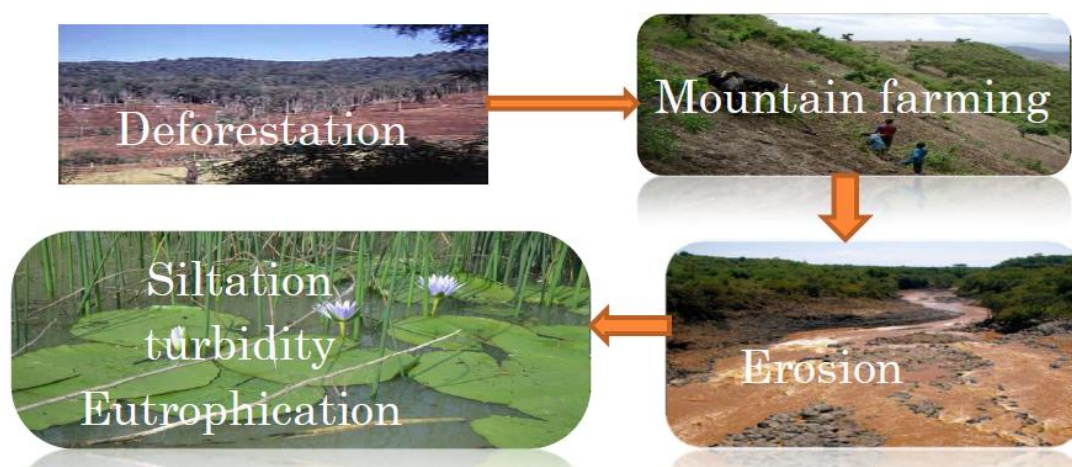
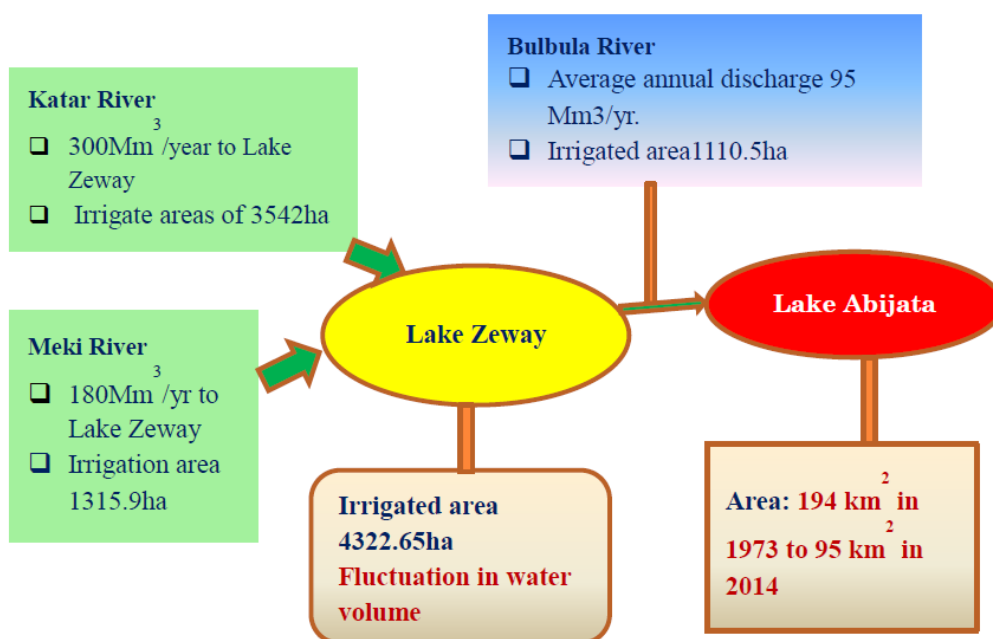


Figure4: The relationships of problems appear due to deforestation



The other problem the auditors had investigate is due to the environmental changes the agriculture activities are depends on this water sources, lakes then this affects the amounts of water in the lakes.



**Figure 5: The relationships of hydrology and irrigation activities were carried in Zeway catchment**



**Source: Picture: 5 when peoples were carried activities that affect the water bodies around the lake Zeway without restriction in Ethiopia**

So, due to the above factors or problems peoples living in the watershed suffering in increased treatment cost, increased water price per M3 and public health implication mostly in children while using the polluted water.

year	H <sub>2</sub> O production (m <sup>3</sup> )	Chemical consumption & cost			
		Al <sub>3</sub> so <sub>4</sub> in Kg	Calcium hypochlorite (kg)	Poly electrolyte (Kg)	Cost of the chemicals
2015 G.C	780387	37950	4560	2530	-
2016 G.C	716929	46700	3870	2663	Birr 250,000
2017 G.C	1085020	169150	10085	7864	Birr 2,500,000

**Source: Table 3: Chemical demand and cost analysis of drinking water treatment of Batu town taken 2011 audit report**

### Conclusion & Suggestion:

Finally, the audit had recommended in order to ensure ecosystem connectivity & sustain development in the watershed, Sound watershed management upstream with clear ecological objective, enforce large scale farms to use modern irrigation facilities like sprinkler, and drip irrigation, Water pricing enforce (pay for water used and waste released), Companies should practice to treat their waste, Afforestation & physical structure's and maintaining and protecting activities from buffer zone are

the major activities recommended by the auditors in the audit report.

This paper suggests that to improve the sustainable development government conduct researches in environmental audit and gap between commitment and action on the environment like; tax on technologies help to improve environmental problems, mining effect on the environment, Application of environmental taxes and Readiness to assimilate carbon trade opportunities.

**Edited Article**

## **Real-Time Audits: Digitally Advanced Auditing**

**Edited by: Keatlegile Ndimande - Senior Manager – SAI South Africa  
Thabo Ditodi - Senior Manager – SAI South Africa**



## Introduction

Over the years, the objective of most supreme audit institutions (SAIs) has been to remain relevant and add value to their stakeholders while executing their mandates. From a South African perspective, our SAI has a constitutional mandate to strengthen our country's democracy by enabling oversight, accountability and governance. Our endeavours are aimed at enhancing public sector accountability and evincing value-add to our public sector through auditing.

The transformation of the auditing environment to promote on-time reporting through real-time and continuous monitoring of public funds has long been seen as imminent. The public call for enhanced public accountability has heightened expectations for increased value-add and assistance from SAIs to prevent the loss of government funds, on a timely and real-time basis. To support and elevate the accountability levels of our public sector, our SAI advocated for and championed the guidelines for implementing preventative controls in pillars of a sound control environment -

leadership, financial and performance management, and governance – are in place.

We regard real-time audits as providing the much-needed benefits of timeously identifying and addressing deficiencies and gaps in our public sector. The AFROSAI-E research paper *SAI resilience in addressing the auditor expectation gap during disaster periods* (2020(b): 32), defines a real-time audit as the 'continuous' aspect of continuous auditing and reporting. In our view, a real-time audit is proactive in its approach and aims to identify deficiencies in real time with the intention that those charged with governance will immediately address the deficiencies. In contrast, a conventional or statutory audit is reactive and focuses on evaluating and reporting transactions after they have occurred.

With the emergence of covid-19 pandemic and the need for government to timeously respond and provide necessary relief to citizens, it was evident that key preventative controls had to be flexible. This meant that

a significant amount of money had to be spent within a short period, which heightened the risk of abuse and maladministration. This magnified the need for the audit profession to be agile and adaptive to allow for current and ongoing feedback that will enable improved transparency and accountability. The late auditor-general of SAI South Africa, Mr Kimi Makwetu, said, *even in the midst of a crisis, transparency and accountability for government spending to the benefit of citizens cannot take a backseat.*

The World Economic Forum's *The Future of jobs report 2020, October 2020* (page 6) states that the roles that are set to become increasingly redundant by 2025 remain largely consistent with those identified in 2018 across a range of research papers on the automation of jobs. Some of the 34 jobs that are being displaced by new technologies include data entry clerks, administrative and executive secretaries, accounting and bookkeeping and payroll clerks, accountants and auditors, assembly and factory workers, and business services and administrative managers.

Are we as auditors of SAIs responsive to this changing environment? Do we have the necessary diverse skills to continue to be relevant to our stakeholders? Are we also involved in developing the enhanced calibre of the future generation of auditors?

This article will explore how we can enhance our relevance to our communities in the midst of an ever-evolving technological environment, a global crisis, numerous financial scandals, increasing corruption and the public call for real-time solutions to the various economic challenges faced by our societies. This is based on SAI South Africa's real-time audit of the covid-19 emergency relief funds and insights gained regarding the characteristics of a *relevant auditor*.

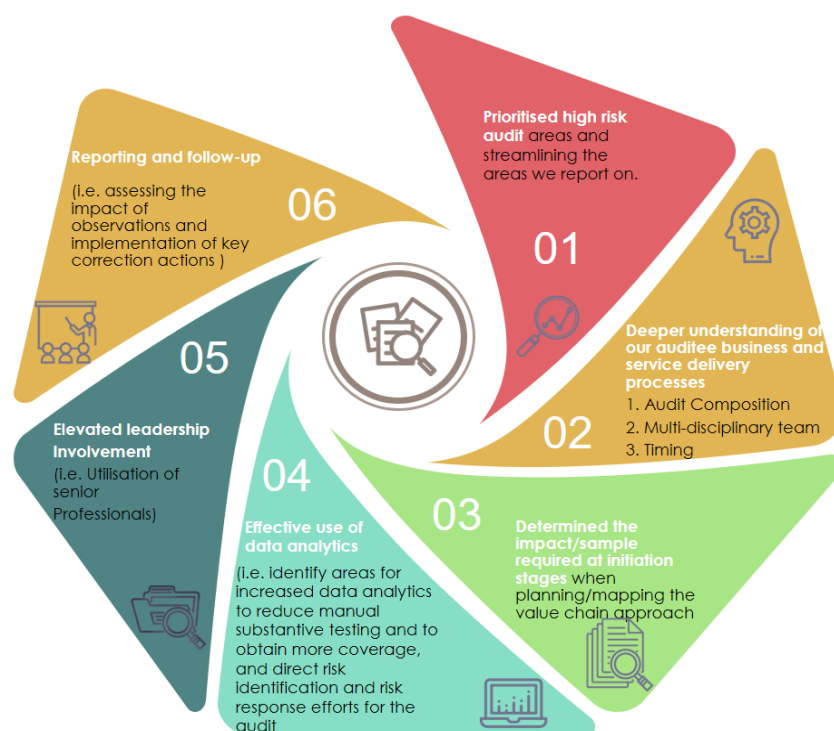
#### Our lived experience of real-time audits

In April 2020, the South African president, Mr Cyril Ramaphosa, announced a R500 billion covid-19 relief fund. The fund aimed to respond to the pandemic focusing on two areas - health and frontline services, and social and economic support. Our SAI

proactively identified the need to add value by performing real-time audits on expenditure for these funds. Taking on this assignment cultivated certain risks and challenges to the SAI, such as:

- The audits had to be performed under strenuous circumstances, for example auditee staff and our audit teams were also subjected to the risk of covid-19 infections. At times, offices and documents were not accessible due to positive cases. Teams had to take necessary precautions to comply with covid-19 protocols in order to prevent reinfections and remote online working had to be implemented.
- The timelines according to which the real-time audits had to be performed were extremely tight. In addition, these audits had to be performed concurrently with normal statutory audits. This meant that our resources were significantly stretched. Throughout this period, it was thus critical and challenging to ensure that our staff remained safe, motivated and engaged.
- There was a perceived risk of impairing our independence as a SAI. Performing real-time audits can result in the perception that auditors are assuming management functions in how relief programmes could better be implemented. To mitigate this, our role in these audits was clarified with all stakeholders and formalised in engagement letters.
- Most of our government processes and systems were not adequately geared to respond to a disaster. Consequently, auditing government's response to the relief efforts in the midst of the pandemic necessitated trial-and-error runs to ensure that the audit processes were structured and focused on high-risk areas, and that the quality of the audit work was not compromised.
- The immense risk of reputational damage compelled us to ascertain throughout the process that work was adequately planned, supervised and reviewed. The persistent presence of our leadership expedited the review and supervision of the audit work.

The figure below depicts the methodology that was adopted for the real-time audits.



**Methodology adopted for real-time audits. Prepared by Thabo Ditodi and Keatlegile Ndimande**

From the abovementioned risks and challenges, and from our lived experience of performing real-time covid-19 audits, we identified the following critical success factors that would enable SAIs to effectively implement successful real-time audits:

- There needs to be alignment with leaders of government departments and political leaders. The executive leadership of our SAI proactively engaged our stakeholders to unlock any potential inefficiencies and delays that could arise. All the role-players worked closely together to ensure that the performance of the real-time audit did not encourage management to delay service delivery.
- Use of multidisciplinary audit teams was critical. This included assigning data analysts, forensic investigators, regularity auditors, education specialists, medical doctors and engineers, among others, to these audits. The presence of our leadership in these audits was elevated, which enabled us to have the agility required to get these audits performed.

- We leveraged on our audit teams being principled, professional and objective. Deepening our understanding of how the relief funds were being implemented was invaluable, facilitated value-add discussions with our stakeholders, and ensured that our recommendations were practical and implementable in the midst of the pandemic.
  - Successfully implementing real-time audits requires the availability of reliable, accurate data and the use of technology. According to the World Bank paper on the role of SAIs in governments' response to covid-19 (2020: 6), SAIs without e-audit systems or connectivity to government systems will have greater difficulty implementing real-time audits in the midst of the pandemic. Having obtained data from various government sources, the use of data analytics improved our risk assessment process and allowed for increased audit coverage while reducing the extent of manual substantive audit testing. Efficiencies from the use of data analytics enabled us to cover all three areas of government, i.e., national, provincial and local government (municipalities).
  - Collaboration with other government agencies, especially law enforcement agencies, proved useful. Various law enforcement agencies were ready and eager to respond to our observations and recommendations. In some instances, some of the matters are now at the prosecution stage, assets have been seized, and recovery efforts have been pursued.
- The key observations from these audits magnified control deficiencies that we had reported previously. Because these deficiencies were magnified, there was increased public pressure for those charged with governance to immediately implement corrective actions.
- Poor record keeping was a common feature in many of the covid-19 initiatives implemented by our government. This was due to inadequate digital systems to enable easy retrieval of information, which were not in place even prior to the pandemic. Another key common feature was the lack of integration of government systems to enable the leadership of the auditees to do the necessary data interrogations and validations to avoid providing the relief to ineligible applicants.



One of the major values derived from the real-time audits was increased and expedited accountability on the use of state funds. Where reported, observations and recommendations were appreciated by our auditees' leadership. In most instances, control deficiencies and gaps that permitted abuse and maladministration were addressed by enhancing internal controls.

#### Relevant auditor

The value and benefits of real-time audits cannot be over-emphasised. The fourth industrial revolution brought about a sharp shift in how entities are run to ensure efficiency in service delivery, not just in the private sector, but in the public sector as well. We are now beyond the era in which auditors were inundated with documentation that does not allow for in-depth, insightful analysis. The desire for the historical audit approach has significantly diminished, with users now demanding a proactive, forward-looking and real-time audit approach.

Technological advances, economic changes and the need to be better prepared for future crises, as evidenced by the impact of covid-19, make a compelling case for proactive, current

and relevant insights that will provide comprehensive responses and solutions to both current and future economic challenges.

As assurance providers within the public sector, it is crucial that SAIs are continuously evolving to remain in tune with the latest technological advances, and are capacitated with the necessary skills and expertise to adapt to changing client environments. It is also important that we improve our processes to be more efficient and agile, while providing value add to the auditees we service.

Ethics and integrity remain the cornerstone of every SAI. It is essential that SAI employees continue to raise awareness and share knowledge about ethical challenges and appropriate solutions in order to ensure common understanding amongst audit professionals. As SAIs, we should embrace and encourage robust and honest conversations about the challenges we face as a profession.

Auditors must ensure continuous professional development in all aspects in order to remain relevant. The culture of lifelong learning and reading should be embedded in us individually, as well become the culture of the organisation.



## Conclusion and way forward

There is definitely a shift in the profession, and the relevance and value-add of our SAIs is being challenged. How SAIs have responded, or not responded, during the covid-19 pandemic shows whether they are agile enough to adapt to the changing environment, or will remain stagnant and at risk of being irrelevant.

As SAIs, we have demonstrated that real-time audits can be performed and validated the value of such audits. The key question for each of us in the profession is whether we are ready or gearing ourselves up for this major shift in how the audit process will evolve in the near future. If you are a leader or a manager in your SAI, are you creating an enabling environment that prepares the current audit professional, and those who are in the pipeline, to be the *auditor of the future*?

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**Edited Article**

**Cloud Computing (Advantages & Risks) &  
Governance Computerization of overnmental  
Institutions**

**Edited by: Accountant / Ayman Ismail Mohamed – SAI Egypt**

## Introduction

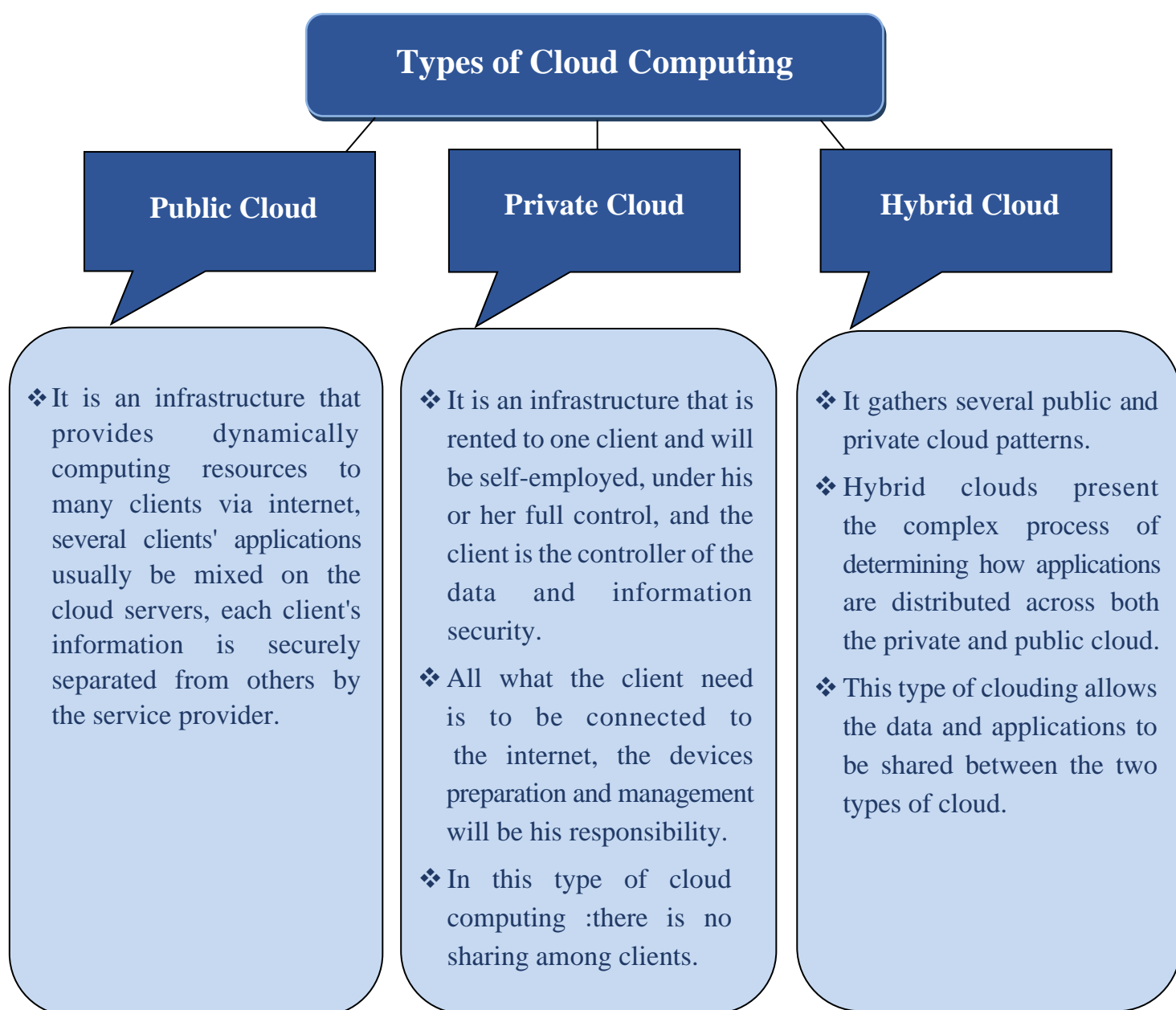
Recently, the public tendency for most institutions and the governmental institutions is to rely on the technological development in the practical field, Perhaps the most notable example is the "Cloud Computing Services", which has an impact on the institutions' performance, especially in view of the dramatic and accelerated increase in the volume of data stored in governmental departments. This service requires providing a huge infrastructure with a high quality in data storage and processing, and this is why there is an increase in the volume of costs and investments in this field. It also requires the judge in using the service and adjust the mechanisms of its use because of the problems related to reliability, privacy and the information security that is stored in cloud on the internet, this is what constitutes a concern for institutions and specially the governmental ones as the data and information held by these institutions has its privacy and confidentiality as it contains data and information related to citizens, public affairs. Etc.

This imposes greater restraint and control over the use of this technology, and therefore the importance of cloud computing governance for government institutions has emerged. This article aims to clarify some of the concepts on cloud computing, their characteristics and the challenges that enterprises may face in using the service and to provide a vision of how to address those challenges by establishing clear controls and a framework governing use in government institutions, in the light of the increasing adoption of ICT.

### Cloud Computing (1): -

It is a huge group of computer resources and systems that are located in data center, and it is available at any time through the internet, which provide a lot of integrated computer services without being restricted to local resources aiming to facilitate for the user (whether the user is an individual or a company) through a simple interface ignoring a lot of technical details. These resources include space for data storage, backup and self-sync, software processing capabilities and task scheduling..... etc.

It is worth noting that, the National Institute of Standards & Technology (NIST) provided an objective and specific definition of the term (Cloud Computing); as it is considered as a model that allows the network to access when it is needed and appropriately to a package of computer resources "such as, networks, servers, storage, and other services...." which can be financed and launched quickly with minimal management efforts exerted or interaction of service providers.



### The Cloud Computing Patterns (2,3): -

Cloud computing can be classified into three forms based on the options available to the service provider and the need of the customer who wants the service; as follows:

#### **1- Software as a Service (SaaS):**

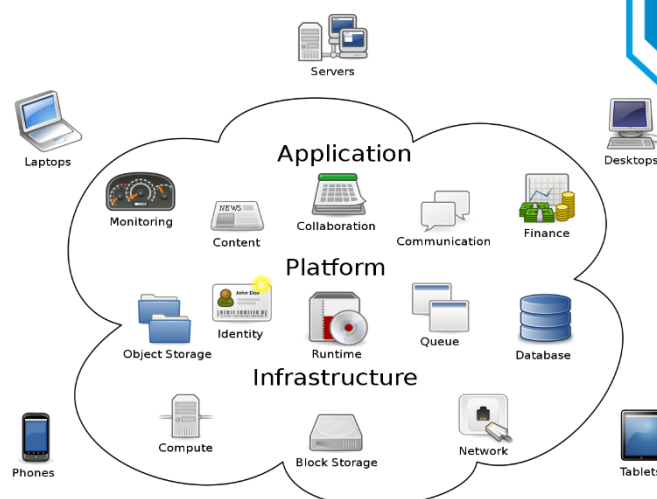
It allows users to remotely run applications, and this is considered the most famous form. The user is not responsible for anything other than configuring the settings and allocating the service to suit his or her needs.

#### **2- Platform as a Service (Paas):**

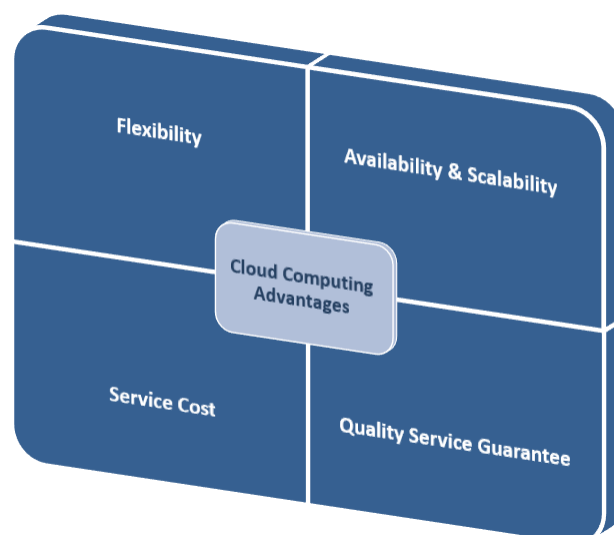
Clients only develop, install and manage their own applications and data, while the service provider manages other operational matters such as: operating system, networks, backup and protection. This form of service is less expensive than using infrastructure as a service.

#### **3- Infrastructure as a Service (IaaS):**

The client is responsible for providing information infrastructure either through purchase or rental, and the responsibility of the service provider lies in the management of the network and the server.



**Graph shows what cloud computing is. (via Internet)**



### Cloud Computing Challenges: -

Despite the benefits and the multiple privileges of the service, number of challenges remain, including:

- **Performance:**

The biggest problem; as the data are huge and service delivery may lack proper performance.

- Security and Privacy:

Although the service providers follow the safety standards policies, some companies remain concerned about security when using service specially when the information is highly important and information technology sources are outside the firewall.

- Control:

Some companies feel worry as the service providers have the full control of the platforms and do not usually design specific platforms for each company and their business practices.

- Data Transfer Rate Costs:

By using this service, companies can save wasted money on devices and programs, and can afford a higher data transfer rate fees for the network which is significantly higher for dense data applications.

- Accuracy and Reliability:

This service still does not provide permanent 24-hour reliability. There have been some cases of computing services experiencing outages for a few hours.

In this context, The Arab Republic of Egypt plays an influential and effective role for facing and reducing these challenges, as the Egyptian State is able to provide the highest level of protection for data traffic through submarine cable landing stations in the Mediterranean and the Red Sea which are linked to several land routes through Egyptian territory. The network redirects the international data traffic from one route to another, when necessary, with a high level of flexibility and high-speed interchangeably at no more than 50 milliseconds; this is due to the technological boom which is happened recently in the technology field in Egypt.

Nowadays, Egypt has become one of the centers of power in this regard because of its distinguished position as a global digital hub linked the world continents together, and the optimal exploitation of the network infrastructure solutions provided by the Egyptian government which is characterized by lowest data transfer time and highest level of flexibility in the networks as well as the multiplicity of routes of international traffic across the Mediterranean.

Egypt has become one of the largest centres for the passage of submarine cables for the transmission of internet, as there are 17 cables "representing 17% of all submarine cables around the world" pass through it which ranked it as the second after the United States of America (USA) in terms of the number of cables that pass through it. Also, Egypt has a unique geographical position that makes it the ideal point of meeting in the field of submarine internet cables in the world and considered to be the shortest way links among Africa, Asia and Europe. In addition to that, Egypt is constantly working to remain the leader in this field by developing and diversifying its infrastructure across multiple levels, plus the investment in building new networking systems and solutions to meet the increasing global demand for international capacities, and to maintain the highest level of availability and protection.



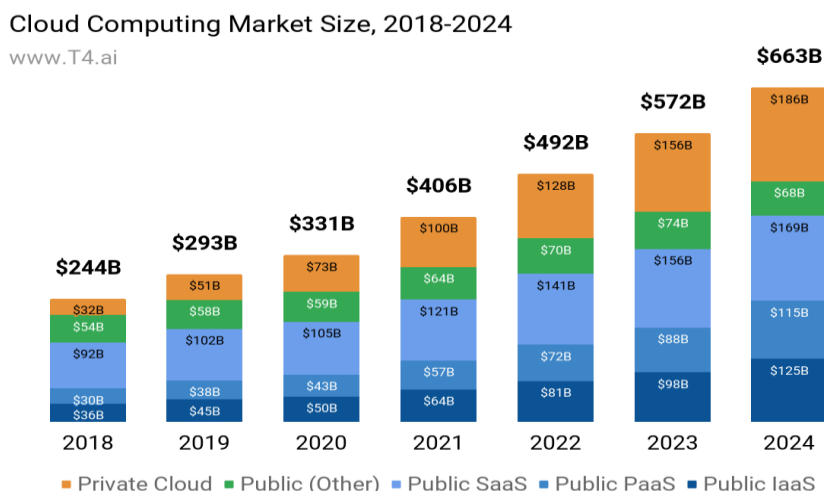
Graph shows the longest submarine cable route under supervision of 2Africa Foundation which newly joined by Egypt.

([read at](#) November 2021).



### The development of Cloud Computing market: -

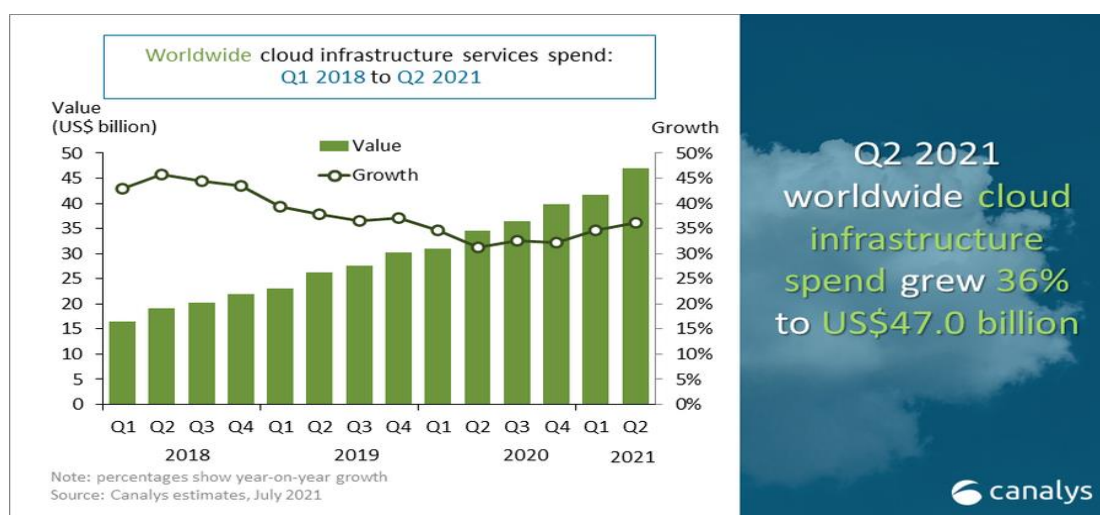
The following chart shows the development of cloud computing market:



Graph shows the development happened in the cloud computing market size (via Internet; t3.ai)

([read at](#) November 2021).

Considering the development of this service, the spending on the cloud infrastructure had been increased all over the world, the following chart shows this:



Graph shows the worldwide cloud infrastructure spend (via Internet; Canalys estimates)

([read at](#) November 2021)



What is the Cloud Auditing? (4): -

The Cloud Auditing is a periodic check to evaluate the provider performance and determine the quality of performance to meet the applied standards and the best practices.

To perform Cloud Auditing, Cloud Security Alliance (CSA)<sup>(1)</sup> generates set of auditing guidelines and instructions to be followed and it is considered basic tools to evaluate and improve the comprehensive cloud auditing.

The Cloud Auditing Concept refers to characteristics that have been developed by (CSA) in 2019 to present the information that service provider will need to deal with control frames. The goal of auditing is to generate a method that make the performance data and security of cloud services providers available to the potential clients.

How do you conduct a cloud audit? (4): -

An audit of a cloud environment is similar to an IT audit. Both examine a variety of operational, administrative, security and performance measures focusing on the nuances of cloud environments.

Cloud system audits seek evidence that the service provider uses best practices and adheres to appropriate standards in its service delivery.

Cloud Supplier provides many resources as a service on demand. Audits help ensure that these offers are delivered with appropriate attention to specific controls, particularly those that include safety and risk management policies.

To perform a cloud audit efficiently, the following basic steps should be followed:

- |                         |  |
|-------------------------|--|
| 1- Gathering evidence   | Collect relevant documents and evidence, such as screenshots.  |
| 2- Interview            | Ask cloud vendor personnel how the provider operates and delivers its services. CSA has cloud audit questions and checklists that can be useful for both external and internal auditors. |
| 3- Analysis             | Look at how well the vendor's processes align with CSA and ISACA measures.   |
| 4- Compile results      | Combine analysis with the evidence from documentation and interviews into work papers that are used to prepare a final report and recommendations.                                       |
| 5- Prepare final report | Submit it to the organization's management, usually during a formal audit briefing.  |
| 6- Take action          | Management sets dates for responses to the recommended actions and assigns a team to respond to the audit report.  |

**Cloud Computing within the Framework of Corporate Governance (5,6,7): -**

Corporate Governance is the system by which the activities of institutions are directed and monitored at the highest level, to achieve their objectives and adhering to the necessary standards of responsibility, integrity and transparency.

Cloud Computing Governance stems from corporate governance, standards and controls and falls within the framework of IT governance.

All corporate employees must understand and accept their responsibilities concerning the computing service and considering the benefits and opportunities of it and don't disregard the risks of this service in short and long run. In addition, there is a need to define reliable clear strategy that aligned to the corporate strategy. The enterprise reliance of service must be according to its needs and contribute in taking clear and transparent decisions. In addition to, governance demands high

and compatibility with legal legislative and regulatory frameworks to guarantee the legal use of this technology to achieve its privileges and avoid its risks.

To reach a good use of service at the enterprise level, especially at the governmental departments, a set of controls should be adhered to that contribute to good computing governance.

#### Good Governance Controls for Cloud Computing (5,6,7): -

- 1- Cloud Computing Security.
- 2- Used Internet Applications.
- 3- Facing accidents and disasters.
- 4- Data Segmentation, Classification and Encryption.
- 5- Cloud Computing Management.

#### Requirements of Governmental Cloud Computing Governance (5,6,7): -

Cloud Computing Service Governance is subject to a set of requirements, including:

##### **1- Build-up a government policy for cloud computing:**

The governmental institutions should set a clear governmental policy and strategy aims to achieve the best use of the service, and this policy should focus on a set of objectives:

- Setting standards for granting licenses to service providers based on providing security and integrity of data when storing or transferring it.
- Establishing partnership that brings together IT experts and public sector institutions to develop requirements for governance and safe use of service.
- Establishing strict conditions at the contracts that make a link between the cloud service provider and the beneficiary government institutions to be safe.

##### **2- Create a Cloud Computing Governance Body:**

Institutions that work according to the service should build-up a governance body whose main role is to organize, develop and operate the service, and also setting the standards and regulating rules, to avoid obstacles and difficulties that the institutions may face whether in terms of using the service or in terms of relationship with service providers. The need for this body is clearly appeared for several considerations, including:

- Security considerations: confidentiality, privacy and in appropriate access to the data.
- Data storage location: the inability to determine accurately the storage location by the service provider, which is considered as risks for information security and data confidentiality.
- Competitive considerations: service providers are competing for providing the best at competitive prices, or monopolizing the service by one provider with lower quality.

### **3- Build-up a government infrastructure for cloud computing:**

Rely on the service provider in everything related to the usage of service, especially with regard to data storage, the special nature of data and information held by such institutions is considered to be as a risk arising from the use of this service by government institutions, so they must provide an infrastructure characterized by the security and quality in terms of data centers, hardware, software, applications for access, processing, data exchange, the adoption of private cloud computing.

### **4- Build-up training policy for human resources for cloud management:**

Employees should be trained on use and manage the service effectively and efficiently, aiming to achieve the desired goals of use and to avoid the probable risks which are related to data confidentiality and privacy.



The technological development presents a critical factor in improving organization's performance and increasing its effectiveness and efficiency. However, it may produce risks concerning security, confidentiality of the organization's data and all of the probable risks occur through hacking the organization systems. Therefore, the specialized governance bodies must set of standards and regulations to reach the greatest privileges in using information technology and those standards will be applicable also on the technological services and techniques and eventually will be applied on the cloud computing as it presents an advanced and developed techniques.



## Resources

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- (2) Deloitte Development - 2014.
- (3) IBM, <https://www.ibm.com/eg-en/cloud/learn/cloud-computing>, Sai Vennam, Cloud Computing, 18 August 2020.
- (4) TechTarget, <https://searchcloudsecurity.techtarget.com/definition/CloudAudit>, Paul Kirvan, Cloud Audit, November 2021.
- (5) Dr. Adnan Moustafa, Arab Informatics Supervisors Association, May 1<sup>st</sup>, 2020.
- (6) Jeams, K. Trala &. (The use of cloud computing securely) 2014.
- (7) Jol, Steven. (Towards a cloud computing evaluation & governance framework) University Utrecht, Netherlands. 2014.

### **For more details, you can back to:**

- (1) Cloud Security Alliance.
- (2) Cloud Computing – Chartered Institute of Internal Auditors.
- (3) ICAEW "Institute of Chartered Accountants in England & Wales" – How to audit the Cloud.
- (4) Linford.com "CPA Firm" – (Cloud Audits & Compliance).

**Edited Article**

**The Role and Impact of Technical and  
Organizational Provisions on the Financial Solvency  
of Insurance Companies**

**Edited by: Mr. Djalal TOUITOU –Accountant Judge of the 2<sup>nd</sup>  
Degree - SAI Algeria**

Auditing insurance companies is one of the international standards for solvency (1) requirements and solvency (2), which were established by the European markets in 2002 and 2009, respectively<sup>1</sup>, in order to strengthen the financial positions of companies and their ability to meet their obligations. In order to make the financial statements reflect the reality of their financial position, a set of standards has been set that defines the accounting recording mechanisms for various insurance operations through the international accounting standards (IFRS<sup>2</sup>) and (IAS<sup>3</sup>), as well as the international auditing standards came with a set of guidelines and directives that help the auditor to perform his tasks in a way that allows him to discover intentional and unintentional errors that affect the real picture of the financial position of the institution, especially in light of the complexity of financial operations in insurance companies. The IFRS17 standard is the latest international financial reporting standard for insurance companies' contracts, where the auditor can adopt it as a reference in completing his task to the fullest.

In 2005, the Organization for Economic Co-operation and Development (OECD<sup>4</sup>), in cooperation with the Pension Fund, established the principles of supervision and control for insurance companies. In turn, the Supervisory Authority of Insurance Companies and Cooperatives (ACAM<sup>5</sup>), in October 2007, prepared its first report on the basic principles of corporate governance in insurance companies, and this work was done upon the accumulation of efforts on the necessity of putting principles relating to this sector pertaining to auditing and finance, similar to the International Organization for Supervision and Supervision of Insurance (IAIS<sup>6</sup>)

Insurance companies define "solvency" as the process of providing sufficient assets to meet the future financial obligations of the insurance companies, which makes it able to permanently guarantee its own resources to pay the obligations arising from insurance and reinsurance business, which also prevents it from the risks of potential bankruptcy, and this is with the aim of durability The financial position of the company.

1) LAURE DREYFUSS Marie, la directive Solvabilité 2, Éditions L'Argus de l'assurance, 2012, p6.

2) International Financial Reporting Standards.

3) International Accounting Standards.

4) Organization for Economic Co-operation and Development.

5) Autorité de Contrôle des Assurances et des Mutuelles.

6) International Association of Insurance Supervisors.



The importance of auditing technical and organizational allocations is usually represented in protecting and considering the interests of stakeholders, taking into account the legal and regulatory frameworks in order to achieve their financial solvency. However, recent studies have proven the presence of a formation of technical and organizational allocations without real investment, which led to the presence of huge unproductive and stored financial allocations. This has led the national economy to miss convenient and low-risk investment returns.

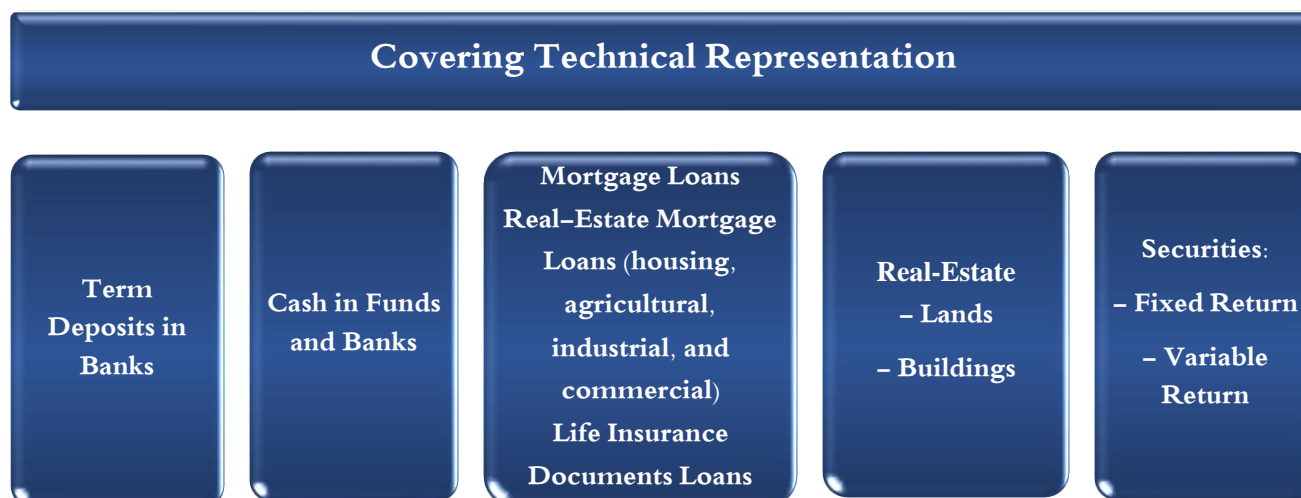
The provisions play an important role, rather the main role, in achieving the solvency of insurance companies, which makes auditing the latter the key to the success of any audit task on insurance companies due to the interdependence and complexity of these provisions, starting from how they are formed to the way they are used. Provisions are considered a right of policyholders and pertain to future

periods of time, and are considered amongst the sources of the company's general revenue.

- **Representing the Provisions:** it means how to choose the appropriate assets to meet these provisions, by means of cash in the fund and at the banks, through the cash balances in the treasuries of the company's head office and its branches, and where insurance companies make various investments, where the investments of life insurance companies are long-term, while the property insurance and liability companies are short-term. Therefore, they invest in term deposits in banks, investments in movable values through the possession of securities, and investments in real estate with the aim of owning or trading in them, in addition to mortgage loans, considering their investments the basic principles of liquidity, guarantee, and profitability.

The following figure shows the areas of representation of technical provisions:

Figure No. (1): Technical provisions Representation



**Source:** Krash Hossam, Towards a Proposed Model for Solvency Standards in Algerian Insurance Companies in Light of the Experiences of some International Systems: A Memorandum for Obtaining a Master's Degree in Economic Sciences, Farhat Abbas University, Setif, 2014, p. 56.<sup>7</sup>

### Provisions and Reserves:

- **Provisions:** they are obligations of the insurance company and are a right of policyholders and are not considered a right of shareholders, in addition to the fact that the formation of provisions is in line with the applicable accounting principles, including the principle of caution and the foundations of accounting measurement.
- **Reserves:** they depend on the final result of the company's business at the end of the fiscal year and are formed in the event of profits being achieved only, as they represent a set aside from the company's net profits, and are considered a right of shareholders.

Table No. (2): The Main Differences between Provisions and Reserves

Provisions	Reserves
A right of the policyholders.	A right of the shareholders.
A commitment of the establishment.	A part of the owned capital of the establishment.
Formed whether the company made a profit or a loss.	Formed unless the company made a profit.
A burden on revenues.	A burden on profits.

7) Krash Hossam, Towards a Proposed Model for Solvency Standards in Algerian Insurance Companies in Light of the Experiences of some International Systems: A Memorandum for Obtaining a Master's Degree in Economic Sciences, Farhat Abbas University, Setif, 2014, p. 56.

**Source:** Prepared by us based on Thanaa Muhammad Taima, Accounting for Insurance Companies, Theoretical Framework and Practical Application according to the Latest Accounting Standards for Insurance and Reinsurance Companies, ITRAC for Publishing and Distribution, Cairo, Egypt, first edition, 2002, p. 43.

There are various provisions formed by insurance companies. Some of them are technical provisions formed by insurance companies without redressing the law, and others are organizational provisions formed by insurance companies by force of law.

### **First: Technical Provisions:**

They are provisions that meet the needs of the insured in order to meet his/her obligations towards the insured, as they are subject in their assessment to technical rules, and they represent about 70 to 80% of the budget liabilities<sup>8</sup>.

### **1- Applicable Risks Provisions:**

This provision is formed in order to cover future losses of contracts that are subscribed and non-negotiable<sup>9</sup>, and the provision for unexpired risks can be defined as the amounts required to be allocated in order to cover the risks that must be incurred, as these provisions aim to cover all compensation claims and all costs related to the applicable insurance contracts<sup>10</sup>.

### **2- Disaster Provisions under Payment:**

Insurance companies face accidents that occur during the year and are actually reported to the company before preparing the final accounts, but they are not paid or settled during the same year. Settlement and payment may take place during the year or the following years. Therefore, insurance companies reserve amounts of revenue to settle the losses of these risks that occur as accidents that have not yet been settled, or those that

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8) BELHIMER Hocine, **la gestion actif-passif Dans une compagne d'assurance**, faculté des sciences économique, commercial et sciences de gestion, ministère de l'enseignant supérieur et la recherche scientifique, université setif-algerie, p6.

9) EWALD François, THOURAT Patrik, **gestion de l'entreprise d'assurance**, édition dunod, paris 2013, p170.

10) Wajdi Ben Saad, **optimisation du calcul des provisions technique en assurance non-vie**, Gat Assurance, université de Cartage, Tunisie, 2014, p10.

have been settled and not yet paid, or those that have not yet been reported, and these amounts are kept in the form of a provision for the financial year for which the accounts are prepared<sup>11</sup>.

## **Second: Organizational Provisions:**

In accordance with Article 4 of Ordinance no. 95/07, dated January 05, 1995, amended and supplemented, relating to insurance, insurance companies must have and record in their budget liabilities the rated and deductible balances, which will be mentioned as follows:

### **1- The Guarantee Provision<sup>12</sup>:**

The guarantee provision is made to enhance the insurance company's ability to fulfill its obligations towards the insured and/or beneficiaries of insurance contracts. The guarantee provision is provided by deducting 1% of the amount of premiums or contributions issued and/or accepted during the financial year,

net of cancellations and fees. The provision or formation of this provision ceases when the total amount consisting of this provision and the company's capital and its founding funds equals the higher amount resulting from one of the following ratios:

- 5% of the amount of technical credits;
- 7.5% of the amount of premiums or subscriptions issued or accepted during the last fiscal year, net of cancellations and fees;
- 10% of the annual rate of the amount of losses paid during the last three (3) financial years.

### **2- The Supplementary Obligatory Disaster Provisions under Payment<sup>13</sup>:**

This provision is dedicated to cover any potential shortfall in the technical provisions resulting from a lack of their evaluation and declarations of losses after the closing of the fiscal year, as well as the expenses associated with them.

11) Nizal Faris Al-Arbeed, Accounting in Insurance Companies, Al-Warraaq Publishing and Distribution Corporation, Amman, Jordan, without edition, 2013, p. 34.

12) Article 5, Executive Decree No. 13-114 of March 28, 2013, relating to the regulated obligations of insurance and/or reinsurance companies, Official Gazette No. 18, p. 5.

13) Article 6 of Executive Decree No. 13-114, op. cit., p. 6.

### 3- Natural Disaster Risks Provisions<sup>14</sup>:

The conditions and modalities of creating and determining this provision are subject to Article 2 of Executive Decree No. 04-272 of August 29, 2004, relating to technical obligations resulting from securing the effects of natural disasters. This provision constitutes 95% of the technical result of the insurance branch.

### 4- Counter- Regulated Obligations’ Entitlement Provision<sup>15</sup>:

It aims at counteracting the entitlement of regulated obligations to meet the obligations, in the event of a decrease in the value of the total assets representing the regulated obligations. This provision corresponds to the investments representing the regulated obligations and the calculated difference between the total amount of the market value and the total amount of the net accounting value of the concerned investments, only in the case if this difference is negative.

In order to find out the impact of auditing on technical and organizational provisions on insurance companies,

we conducted a survey study in 2019 on the Algerian Insurance Company on a sample of 37 people involved in the process of formation, employment, monitoring and auditing of technical and organizational provisions, in addition to internal and external auditors, where the study was built on a set of hypotheses. The results were as follows:

**First:** The audit of insurance companies is characterized by a set of procedures related to the nature of insurance activity, in order to achieve the objective of effective internal control.

This has been proven by the fact that the internal auditor is linked to the highest level in the organizational structure of the insurance company, with the presence of an audit committee in the company, where the various internal control systems are monitored and evaluated, with a follow-up to the various recommendations made, concluding the audit work on the company’s activities, in a framework for respecting international and Algerian auditing standards.

14) Article 7 of Executive Decree No. 13-114, op. cit., p. 6.

15) Article 8 of Executive Decree 13-114, op. cit., p. 6.

**Second:** Auditing the formation of the technical and organizational provisions for the insurance company within the framework of the methods known to the company in accordance with the legislation and regulation in force. Through the results of the study, it was found that the company is forming the technical and organizational provisions in accordance with the applicable rules, and they are also subject to scrutiny and continuous monitoring, which positively impacted its financial solvency.

**Third:** There is an integration between the work of auditing and internal audit over the damage insurance companies in general and the National Insurance Company in particular. Its validity has been demonstrated through the existence of an organizational structure for the company where the tasks and responsibilities of the various stakeholders in the company's activities and functions are defined, with reliance on various reports during the audit tasks. The latter becomes a reliable tool by the internal or external auditor during the exercise of audit tasks.

**Fourth:** There is an integration between the internal and external audit works on the technical and organizational allocations in the National Insurance Company. They are correct, as the various stakeholders in the audit work, whether from inside or outside the company, check the adequacy of the technical and organizational provisions, each seeking the assistance of the other through the various reports submitted, and their examination of the company's existing internal control systems.

#### **Findings of the Study:**

- The National Insurance Company has a comfortable solvency margin throughout the study period.
- The National Insurance Company respects the legislation on the formation of regulatory provisions, as it has stopped forming a guarantee provision for reaching the required maximum limit.
- The National Insurance Company raised its capital in 2017 to 30 billion Algerian Dinars to enhance its financial solvency, thus enabling it to occupy a strong position in the Algerian insurance market.



- Despite the difficulty of covering its legal obligations with the values of the state, which is characterized by a guarantee of at least 50%, the National Insurance Company was able to do so.
  - The existence of audit systems in the company through the Audit and Control Directorate, where it carries out audit and control work on the various activities of the company. Its various financial operations are approved by an independent external auditor.
  - The National Insurance Company is subject to state's control through the Insurance Directorate of the Ministry of Finance, as well as the financial inspectors of the General Inspectorate of Finance, judges and auditors of the Algeria Cour de Comptes, in accordance with international and Algerian auditing standards.
- Recommendations and Suggestions:**

In light of the findings of the study, the following recommendations are highlighted:

- The need to amend the regulation and legislation related to the requirements of coverage, so that the company can properly invest the surpluses arising from the technical and organizational provisions.
- The need to rely on mathematical and statistical methods, especially those related to forecasting and measuring the company's solvency, in order to reach more accurate results.
- Increasing the volume of audit and control work on the company's activities at the level of agencies as well as directorates, as limiting auditing to the central level may lead to deficiencies in the submitted reports.
- Increasing the efficiency of the human resources involved in evaluating and forming provisions in order to ensure their correctness and legality, by giving an important role to the actuarial expert.



**Translated Article**

**The Management Control and the Internal Control: What is the difference?**

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What is the difference?

[January 2021](#) – Theme (s): [Internal Control](#)

The Management Control and the Internal Control are two distinct missions, based on different but complementary approaches that aim to secure the company and its performance in the best way.

### **DIFFERENT Objectives**

**The Management Control aims to lead the company's performance,** using a number of techniques such as budgets, reporting, rolling forecasts or financial paths. The General management expects that the management control allocates the budgets according to the desired objectives and to verify the proper use of allocated resources.

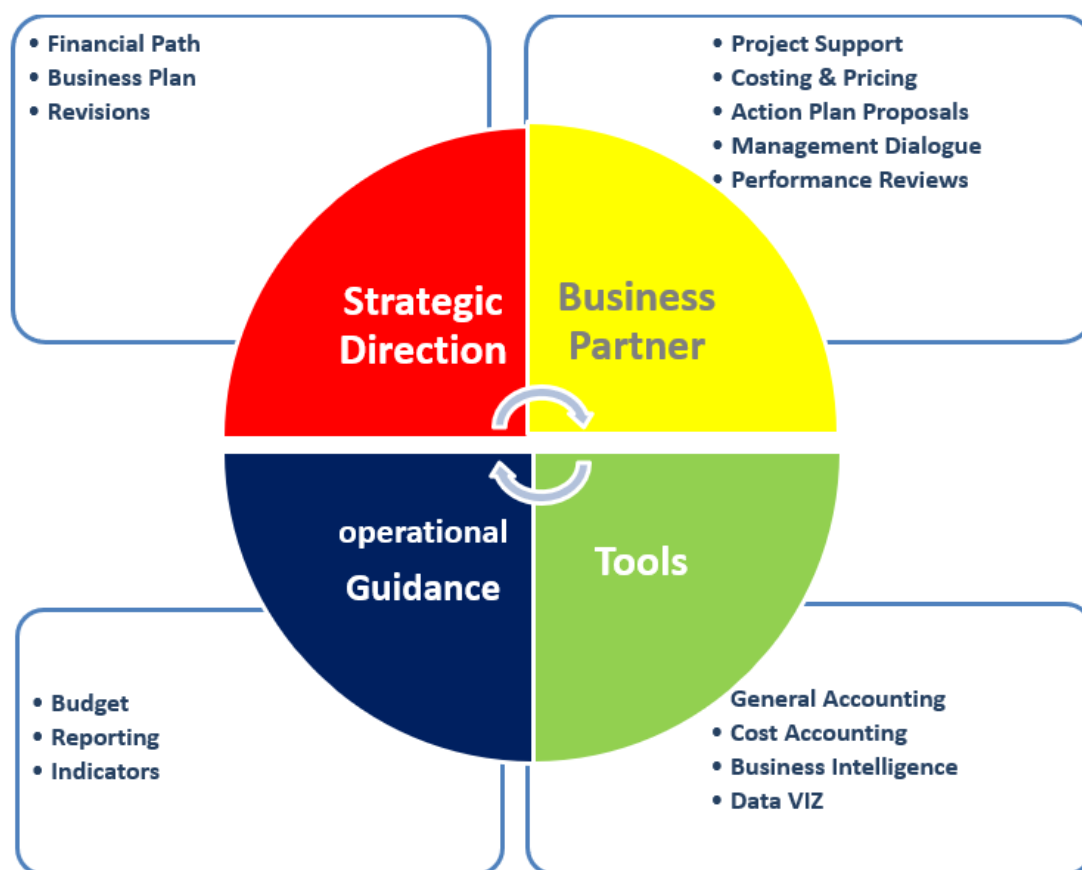
The objective of the management controller is to help the executive staff to **optimize** their performance and to do this; he must translate the strategic objectives into executive objectives and manage the achievement of these objectives through the management dialogue, which must concern all strata of the enterprise. As a business partner of the executive staff, the management controller helps them to make the right decisions by accompanying them in the

financial field. If he looks at the present and the past, it is to appreciate a performance that he seeks to project into the future thanks to the elements at his disposal, by verifying the efficiency of the means implemented. The BBZ (Zero Base Budget) type methodologies make it possible to verify the right level of allocated resources, thus avoiding an inflationary budget from one year to the next.

The management controller will translate the strategic ambitions into financial paths and decline the strategic KPIs<sup>1</sup> (key performance indicators) into operational KPIs. The ambitions of the first year of the path must be reflected in the budget of the year to allow the achievement of the path.

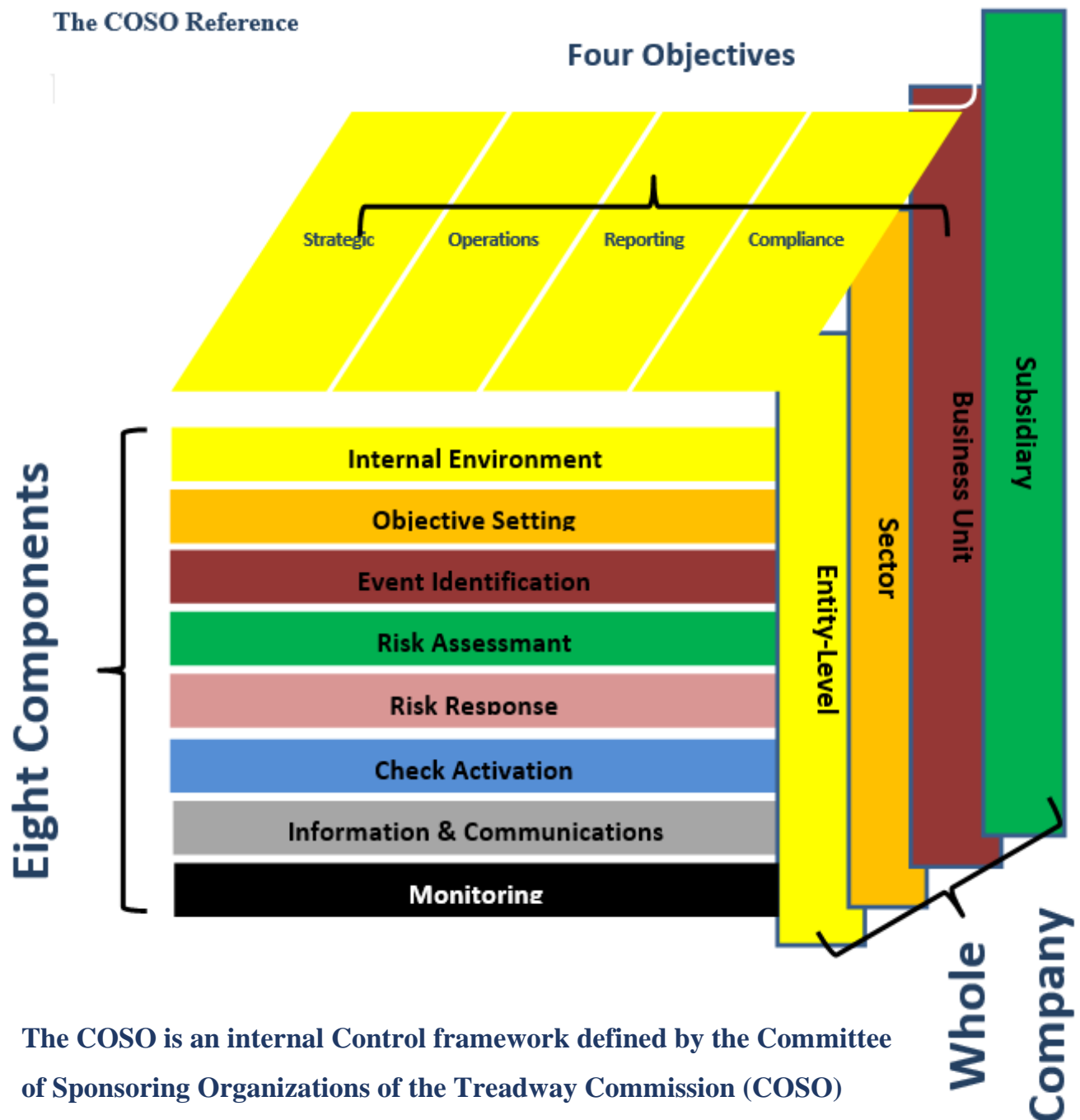
To manage the performance, the management controller defines a budget process and reports, with management rules shared with the managers. It implements a management dialogue to allow a shared analysis around the achievement of the objectives and action plans necessary to achieve the expected performance in the event of drifts.

### The Tasks of Management Control



**The main purpose of the Internal Control is to control the risks** that it must identify and place under control, financial risks but not only, in this it differs from management control. Through the missions it carries out, the auditor's objective will be to analyze the processes and their objectives, to evaluate their performance and the control systems that enable them to be properly executed.

The FMA (Financial Markets Authority) defines five components of Internal Control: organization, dissemination of information, risk management, control activity and supervision (publication by IFACI, the French Institute of Audit and Internal Control).



### Many Different Risks:

Risks are closely related to the company's field of activity and are of several types:

- **Financial:** risks that could cause the financial loss of the institution;
- **Financial Statements (or Reporting):** risks of anomalies in the accounts, and false accounting information;
- **Compliance:** risks that could put the company in a situation that is not compliant with standards or laws;
- **Operational:** risks which may prevent the company from performing the task it has identified;
- **Health or Safety of Persons:** risks that may affect the physical or psychological health of persons associated with the company;
- **Information Security:** risks affecting the confidentiality, integrity and accessibility of information;
- **Image:** risks that may affect the company's reputation;
- **Environment:** risks that may affect the environment (air, water, soil, space, raw materials, energy, etc.).

More specifically, the Accounting Internal Control pursues the objective through procedures and controls to ensure the quality of accounting and financial information, and to do so, to reduce accounting and financial risks.

Its main purpose is to reduce errors or fraud, particularly related to financial statements or cash flow. However, it has no use for these financial figures, which are the consequence of controlled processes; for internal control, it is the control of the process that matters.



## RELATED SPECIFIC TOOLS

**The Two Approaches are therefore very different and based on distinct methodologies:** management of activities, communication, control, risk assessment and control environment for internal control, while management control will be based on financial figures, general accounting and cost accounting in particular.

Internal control will rely on tools such as interviews, self-check questionnaires, tracking tests (audit trail), and rely on tests and surveys to carry out its controls. Increasingly, internal control relies on IT extractions to better identify cases of operational deviation.

Management Control, on its part, uses in particular the gap analysis, between past and actual periods, between the budget and the actual, to draw its analysis and guide the courses of the action plans. Projects are prioritized by ROI (Return on Investment) and NPV (Net Present Value).

The quality of the financial figures is the basis of the financial analysis of management control: it allows it to carry out reliable analysis, and to draw lines of action that will allow executive staff to achieve the expected performance.

## UNDERSTANDING THE PROCESSES

**Understanding the Processes is a common necessity for the internal control and management control.** Internal Control, like management control, must evolve according to the company's transformations by taking into account new perimeters or new activities. For the Internal Control to be always useful and effective, it is necessary:

- **Reassessing** the risks at least once a year;
- **Ensuring** compliance with new laws [General Data Protection Regulation (GDPR), Competition Law, Duty of Vigilance: there is no shortage of subjects];
- **Maintaining** of updated documents;
- **Monitoring** the proper implementation of controls and monitoring;
- **Following-up** on action plans to reduce risks;
- **Monitoring** deviations or fraud to identify new actions to be taken.

The Management Control, to manage performance, must also understand the processes, integrate changes in the company (processes, new products or references) and be able to qualify the validity of the financial figures communicated to it and the reason for their evolution (from period to another, or the differences between the realized and the budget).

**Both the Internal Control and Management Control aim to secure the company,** and in financial term for management control also includes respect for laws (compliance) and risk management of internal control.

### **A DISTINCT POSITION**

**Internal Control versus Business Partner:** internal control is highly codified. It meets standards defined by the Committee of Sponsoring Organizations (COSO), a reference Committee on the issue, which is regularly updated, and evaluations are often conducted annually.

Internal Control will be based on audit engagements, through which points of difference will be highlighted. It is perceived by the executive staff as a constraint, or at best a critical one. Communication and awareness employee are necessary to ensure compliance with these control procedures.

The internal auditor is the company's policeman; he protects his managers by ensuring the proper compliance with all procedures and processes. He generally reports directly to the general management, as it is independent in the performance of his tasks.

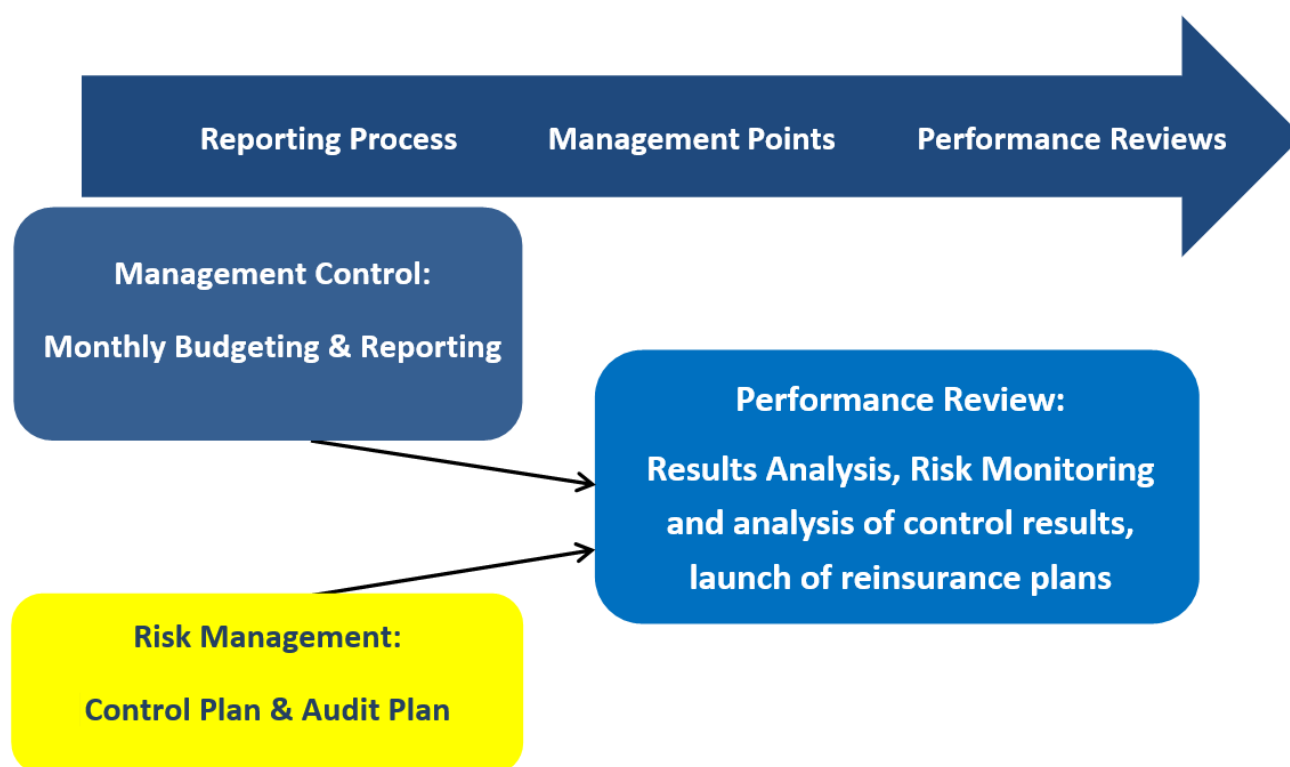
**If the management controller keeps in his missions those of controlling of the performance of operational staff, he**

**evolves more and more towards a position of business partner,** as a real adviser to executive staff to guide their decision properly. Moreover, many companies today talk about a performance manager rather than a director of management control. The director of management control is often hierarchically attached to the financial director or the director of corporate strategy.

### **A DIFFERENT TIME AXIS**

**The time axis is different and agility becomes a feature of management control.** Internal control has a general annual management cycle, which allows it to see the progress or decline that the company has made since its last review. In management control, this annual rate has been questioned. Some companies have even abandoned the budget for very regular "re-review" cycles, focusing analyzes on several quarters that no longer stop at December 31 of the current year. Instead of budget performance, managers may have objectives relating to specific performance indicators, which prevent budgets from being biased by particular interests in their development.

**Management Cycle & Risk Management Interconnected Processes during budget development and performance reviews**



More and more, management control is reinventing itself to evolve towards greater agility, in a world where changes are accelerating. It must adapt to current issues, reinsurance plan, and Covid-19 cash management to support the company in its strategic or operational evolutions, according to the expectations of managers. To do this, he will not hesitate to review his tools if necessary, and adapt his steering to the needs of the moment.

However, it may be optimal to integrate the two approaches, particularly during the preparation of budgets or the financial trajectory, so that operational staff properly integrate risk management into the forecasting approaches.

## TWO COMPLEMENTARY FUNCTIONS

The Internal Control and Management Control are two complementary functions that must cooperate to strengthen the company in the face of new risks encountered. Management Control is often called upon at the beginning of a mission to help auditors in guiding the processes to be audited, by sharing their vision of the risks and the way the processes operate. In fact, he can provide knowledge on the malfunctions he observes through the figures, the risks of fraud of which he is aware, and the flaws of systems or procedures.

In conclusion, internal control and management control are two very distinct missions in the approaches, but complementary, which aim to best secure the company and its performance. The creation of “fraud committees” to which internal control and management control contribute in particular, as well as other functions such as security or the RSSI (Head of Information Systems Security), also makes it possible to identify more effectively fraud and how to remedy it. The fact that master’s degrees are often on “Master in Audit and Management Control” shows that a number of fundamentals are shared, and the transitions from audit to management control are quite natural.

Differences yes, but a large number of complementarities and a common ambition: the performance and sustainability of the company.

**Translated Article**

**How the auditing profession is transforming  
to meet future challenges <sup>(1)</sup>**

**By: Ms. Dilek Çilingir Kostem EY Global Assurance Talent Leader Turkey**

**Translated by: Ms. Rasha Salem El Zein - General Manager  
The Accountability State Authority - The Arab Republic of Egypt**

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1) [The Article's Source](#): The Official Website of Ernst and Young



Working models brought about by COVID-19 have hastened the move to a more flexible, technologically aware and diverse auditing profession.

### **In brief**

- Audit firms are likely to move to a more flexible working model based on the needs of the individual, audit firm and audited company.
- As businesses become more complex, audit firms will need to access a wide range of knowledge resources as part of their multidisciplinary model.
- Audit teams will become more diverse, with greater technical and business knowledge.



The way that audit professionals work has recently undergone the biggest and fastest change that any of us have experienced in our working lives. COVID-19 has accelerated audit firms' transition toward new ways of operating that will outlast the immediate effects of the pandemic.

The sudden shift to remote and flexible working by both audit firms and the companies they audit adds a new dimension to the challenge already faced in adapting the audit to a fast-evolving corporate world. Companies' business models are growing more complex as they move through digital transformation, and this is placing new demands on audit professionals. However, new ways of working will bring important benefits as well as posing challenges that have to be addressed.

As digital technologies and data analysis become increasingly central to the audit process - as well as to companies' business models - audit firms will require a more diverse range of skills. They have traditionally recruited people with business backgrounds but, in the future, all auditors technological understanding.

In addition, audit firms will require more people with significant expertise in STEM subjects (science, technology, engineering and mathematics) to enable them to leverage technology effectively for audit purposes. Not all these specialists will become qualified auditors, but some undoubtedly will, and their arrival will increase the diversity of audit teams.

### **The multidisciplinary model**

The personal characteristics audit firms look for in new team members will evolve as well. Traditionally, firms have emphasized personal integrity and professional skepticism in audit professionals, and these attributes will undoubtedly remain vital. But in the new and fast-developing environment, auditors will also need to develop even deeper knowledge of business, a powerful curiosity about technologies and an agile mindset that embraces disruption.

One of the key strengths of audit firms as they address this changing landscape is their direct access to technical expertise across all areas of business, through the multidisciplinary model. This connection to the knowledge resources of a broader

firm, from highly technical hedge accounting to valuation, cyber security, fraud, sustainability, tax and corporate finance expertise, is an enormous asset in providing high-quality audit services.

As businesses grow more complex, the ability to leverage that wider specialist expertise will become even more important.

### **Flexible working**

The shift in people's working lives has been extraordinary. However, the reaction to the COVID-19 pandemic has demonstrated that, when the situation demands it, audit firms are capable of rapidly making significant changes to the way they operate.

This experience has brought important benefits, especially because it has made flexible working a reality for more auditors. Flexible, remote working has become the norm for audit professionals, who have adapted successfully to using digital technology to work from home and have supported each other virtually so that their teams operate effectively.

Increased flexibility will bring other important benefits, especially if it results in firms placing more emphasis on performance in terms of output and

productivity. More broadly, the changes brought about by COVID-19 will help to accelerate cultural change in organizations and make them more open to different ways of working.

However, the rapid switch to flexible working has also produced challenges that audit firms must address. There are practical issues, such as audit teams having to conduct discussions via online "chats" or virtual meetings, but there are also behavioral issues to consider. These include: the difficulty of conducting sensitive conversations remotely; helping new colleagues to understand the organization's culture; providing coaching for junior staff; and meeting the expectations of audited companies about on-site attendance.

Ultimately, firms will address these and other issues by moving to a hybrid working model based on the needs of the audited company, the audit firm and the individual. This will involve a significant proportion of flexible and remote working, alongside periods when teams come together; for example, to receive training, to increase team cohesion or to meet company management on-site to gather audit evidence and build trusting professional relationships.

**Audit firms emphasize personal integrity and professional skepticism, and these attributes remain vital. But in the new environment, auditors will also need to develop even deeper knowledge of business, a powerful curiosity about technologies and an agile mindset that embraces disruption.**

### **Fostering diversity**

An increase in remote working only increases the importance of building strong audit teams. Not only do audit teams need people with a wider range of technical and personal skills, but they also need to include a more diverse set of experiences and viewpoints.

This means recruiting people from a wider range of social and cultural backgrounds and, once they are hired, giving them opportunities to broaden their personal horizons. For example, working on large international accounts provides exposure to different cultures. International mobility is important here too, although this has been restricted more recently because of the pandemic.

At the EY organization, it is certainly something that we intend to return to as soon as possible.

But firms will succeed in fostering diversity only if they also create an environment where all their people feel they belong and are welcomed. Everyone must be able to thrive, contribute and add value.

Greater diversity in audit teams will naturally demand a matching response from their organizations, particularly in terms of career progression. They will need to create a more varied, flexible, agile set of career paths for audit professionals to accommodate the differing interests and aspirations of their people. The linear, hierarchical career progression that was traditionally favored does not suit everyone, and those who do not want to take this path must be offered other routes to success.

Staff promotions must focus on people's skills, not the number of years they have spent with the firm. For example, the EY organization is introducing more 'agile promotions', where career progression takes place when an individual is ready rather than at set times in the year.

Supporting a more diverse workforce that must operate in a fast-changing business environment will require continuous training. But, in common with new ways of working, that training will also have to adopt a hybrid model. During COVID-19, the EY organization has shifted to an entirely virtual training set-up, but as part of the move to a new, long-term operating model, training will combine virtual and classroom-based delivery.

**Access to the knowledge resources of a broader firm, from highly technical hedge accounting to valuation, cyber security, fraud, sustainability, tax and corporate finance expertise, is an enormous asset. As businesses grow more complex, the ability to leverage that wider specialist expertise will become even more important.**

### **A sense of purpose**

The way auditors work is in transition. Some of their work will be carried out remotely, and digital tools and data will play an increasing role in the audit of the future.

This process will inevitably be challenging for some people, while others will welcome it unreservedly. But if audit firms can navigate this transition effectively, there is every chance that audit professionals will flourish in the new environment and find that digital transformation makes their work more meaningful and brings them an increased sense of professional purpose.

There is a great opportunity in the current working environment to create a more effective, more purposeful profession that better serves the public interest.

### **Summary**

The shift to remote working during the COVID-19 pandemic has accelerated a trend that was already in place in the auditing profession. Audit firms are now expected to move to more flexible ways of working based on the requirements of the audited company, the firm and the individual. The new environment has also highlighted the need for auditors to leverage available technology, have an agile mindset that embraces change and disruption, and to operate effectively in teams.

## Section Two

## News and Activities of AFROSAI Member SAIs

### SAI Algeria

- SAI Algeria organized a virtual training meeting entitled “**Auditing the Bodies Receiving Financial Support from the State**” during the period from the 8<sup>th</sup> to the 11<sup>th</sup> of November 2021. The Meeting discussed the importance of the financial support provided by countries to some entities and bodies to help them in implementing the applied public policies. The training meeting aimed at developing the knowledge and skills related to the forms of support granted by the state as well as the bodies benefiting from them in addition to how to audit the entities that benefit from such support.







- It was agreed that SAI Djibouti will host the 58<sup>th</sup> AFROSAI Governing Board Meeting, during the 75<sup>th</sup> AFROSAI Governing Board Meeting, with its new Board formation of the on July 9<sup>th</sup>, 2021 after the end of the first part of the 15<sup>th</sup> AFROSAI General Assembly that was held virtually on July 8<sup>th</sup>-9<sup>th</sup>, 2021 and was preside over by SAI Senegal. It was also agreed that the Meeting's date will be determined in coordination with the General Secretariat, the AFROSAI Chair and SAI Djibouti.





- 1- On January 19<sup>th</sup>, 2021, SAI Egypt participated in a virtual seminar on “**Leaders of Supreme Audit Institutions and Key Stakeholders**” which was organized by the ARABOSAI General Secretariat in cooperation with the INTOSAI Development Initiative (IDI) within the framework of the initiative on “**Transparency, Accountability and Inclusiveness of Use of Emergency Funding for COVID-19 (TAI Audits)**”, with the participation of experts from the World Bank and the International Monetary Fund (IMF).
- 2- On February 22<sup>nd</sup> and 23<sup>rd</sup>, 2021, SAI Egypt participated in the virtual meeting of the INTOSAI Global Expert Team (IGET) responsible for implementing the Memorandum of Understanding signed by the INTOSAI and the United Nations Office on Drugs and Crime (UNODC) as part of the preparations for the UN General Assembly Special Session (UNGASS) against corruption in 2021.
- 3- On March 10<sup>th</sup>, 2021, SAI Egypt participated in the virtual meeting of the Task Force on INTOSAI Auditor Professionalization (TFIAP) which was responsible for carrying out the consultations on the final amendments that were made to ISSAI 150 “Auditor Competence”, the redrafting of INTOSAI GUID 7500 on “The Development of competency Frameworks for Auditors” as well as re-drafting GUID 7600 on “The Development of Pathways for Professional Development of Auditors”.
- 4- During the period from the 22<sup>nd</sup> to the 25<sup>th</sup> of March 2021, SAI Egypt organized a virtual training meeting entitled “**Indicators and Standards of the Sustainable Development Goals from an Environmental Perspective**”. The Meeting included introducing the trainees to sustainable development and its indicators from an environmental perspective as well as providing them with the necessary skills to implement control procedures related to the sustainable development goals.

- 5- On the 17<sup>th</sup> and 18<sup>th</sup> of May 2021, SAI Egypt participated in the fifth online meeting of the ARABOSAI Sustainable Development Goals Control Committee within the framework of the preparatory committees prior to the meeting of the ARABOSAI's Governing Board.
- 6- On the 19<sup>th</sup> and 20<sup>th</sup> of May, 2021, SAI Egypt participated in the annual meeting of the INTOSAI Working Group on Public Debt upon the invitation of SAI Philippines, Chair of the Working Group. The meeting including the presentation of the progress report of the Working Group, the issues of the public debt management, the public debt transparency, the stakeholders' perspective on public debt, the audit perspective as well as the impact of COVID-19 on public debt, its management and transparency, and the experiences of working at home in light of the pandemic.
- 7- On May 25<sup>th</sup>, 2021 and on December 7<sup>th</sup>, 2021, SAI Egypt participated in the virtual meeting titled **"Lessons Learned from the Covid-19 Pandemic"** which was organized by SAI United States of America and with the participation of representatives of the World Health Organization (WHO), the World Bank, the World Health Organization, the Organization for Economic Co-operation and Development (OECD) in addition to the INTOSAI member SAIs.
- 8- On June 18<sup>th</sup>, 2021, SAI Egypt participated in the virtual conference related to the oil and gas industry titled **"Performance Audit in the Oil and Gas Industry"** which was organized by the English-speaking African Organization of Supreme Audit Institutions (AFROSAI-E) and the Netherlands Court of Audit.
- 9- During the period from June 29<sup>th</sup>, 2021 until July 1<sup>st</sup>, 2021, SAI Egypt participated in the virtual workshop for extractive industries titled **"Transparency Data that Work for Societies"** upon the invitation of the ARABOSAI in the framework of the cooperation between the ARABOSAI and AFROSAI-E.

- 10- On September 16<sup>th</sup>, 2021, the INTOSAI WGFACML Secretariat - SAI Egypt - participated in the 13<sup>th</sup> Steering Committee Meeting of the INTOSAI Knowledge Sharing Committee (KSC) that was organized virtually by SAI India, the KSC Chair.
- 11- During the period from the 22<sup>nd</sup> to the 23<sup>rd</sup> of September 2021, SAI Egypt participated in an applied virtual workshop titled "**The Experiences of the Member SAIs on the Audit Work's Documentation**", which was organized by the ARABOSAI in cooperation with the AFROSAI-E.
- 12- During the period from the 9<sup>th</sup> to the 12<sup>th</sup> of November 2021, SAI Egypt participated virtually in the 38<sup>th</sup> Conference of the International Working Group of Government Experts on the International Standards of Accounting and Reporting that was organized by the United Nations Conference on Trade and Development (UNCTAD).
- 13- On November 23<sup>rd</sup>, 2021, SAI Egypt, Chair of the INTOSAI Working Group on Fight Against Corruption and Money Laundering (WGFACML), participated virtually in the 75<sup>th</sup> INTOSAI Governing Board Meeting. The Meeting was hosted by SAI Brazil and moderated by the Chair of the Accounts Chamber of the Russian Federation, the INTOSAI Chair. Many topics were discussed during the meeting's proceedings, including the adoption of the proposal submitted to present SAI Egypt to the INTOSAI's Governing Board at the XXIV INCOSAI as the AFROSAI candidate for hosting the XXV INCOSAI in 2025.
- 14- During the period from the 6<sup>th</sup> to the 8<sup>th</sup> of December 2021, SAI Egypt participated in a virtual seminar titled "**Improving the Audit Process for More Effective Auditing**" which was organized by the ASOSAI within the framework of the joint cooperation between the ASOSAI and the ARABOSAI.

- 15- During the period from the 6<sup>th</sup> to the 9<sup>th</sup> of December 2021, SAI Egypt hosted a virtual training meeting titled “**Quality Control of the Audit Works**” in coordination with the ARABOSAI Professional and Audit Standards Committee. The Meeting discussed the concepts of quality, quality control, and quality assurance, recognizing the quality assurance audit at the institutional level, reviewing the quality assurance activities of the pre-contracting phase, planning the financial control task and the implementation phase, in addition to the developing/issuing the financial control reports’ phase.
- 16- During the period from the 13<sup>th</sup> to the 17<sup>th</sup> of December, 2021, SAI Egypt participated in the 9<sup>th</sup> Session of the Conference of the States Parties (COSP) within the United Nations Convention against Corruption (UNCAC), which was held in Sharm El Sheikh, the Arab Republic of Egypt. The session was preceded by a symposium titled “**The Role of the Supreme Audit Institutions in Preventing and Combating Corruption: The Way Forward**” which was held on December 12<sup>th</sup>, 2021 and organized by the United Nations Office on Drugs and Crime (UNODC).



## SAI Gabon

- On January 11<sup>th</sup>, 2021, Mr. Gilbert Ngoulakia, the First President of SAI Gabon, inaugurated the Fifth Meeting of the Task Force responsible for the AFROSAI Strategic Plan, and encouraged the meeting's participants to improve the strategic plan that will be implemented over the next six years.

The Meeting, which was held in the Gabonese capital "Libreville", witnessed a number of direct participations from the representatives of SAI Gabon, Côte d'Ivoire, Senegal, and Cameroon, as well as virtual interventions by representatives of the SAI South Africa, Kenya, Burkina Faso, and Tunisia, with the aim of improving the strategic plan through a number of procedures such as developing the plan evaluation tools and determining the priority activities for implementing the strategic plan during the year 2022.





## SAI Gambia

- SAI Gambia was granted the Best Performance Audit Report 2020 Award for the English-speaking SAIs, the award which is chaired by SAI Sweden and aims to promote the high quality and relevant performance audit reports, exchanging experiences and recognizing the efforts of the performance auditors in the region .



During the press conference held after the award's announcement, Mr. Baba S. Drammeh - Director of the Performance Audit of SAI Gambia - announced that SAI Gambia will continue to assess this success through auditing and the stakeholders' engagement which aims to increase the audit's benefit in Gambia. He also congratulated SAI Gambia and all development partners who contributed to the work and pledged to ensure the accountability and effective management of resources through public audit.

To read the summary of the winning report, click [here](#).

## SAI Kenya

- SAI Kenya hosted the AFROSAI-E Human Resources Workshop in Mombasa. The Meeting was a platform for the technical members to exchange ideas and experiences as well as evaluate the changing mechanisms in the human resources industry. During the 5-day workshop, the HR function was recognized as a strategic tool that successfully achieves the organizational goals.

The workshop was attended by representatives from SAIs Uganda, Rwanda, Sierra Leone, Gambia, Somalia, Zambia, Kenya, Namibia, and Mozambique. The workshop highlighted the important role carried out by the SAIs' human resources departments in helping the employees to deal with difficult circumstances such as the Covid-19 pandemic which encouraged the technical members to find solutions and ensure the continuity of the SAIs' work.



- SAI Kenya hosted the Extractive Industries Risk Assessment Workshop for English-speaking SAIs in the Kenyan capital, Nairobi. The workshop focused on the issue of classifying risks in order to assist the auditors in conducting effective audits. During the inauguration of the workshop, H.E. Ms. Nancy Gathungu, Auditor General of Kenya, emphasized the necessity that the auditors understand their role in the extractive industries sector. She asserted the importance of this issue, given that the work of the auditors' work contributes to achieving the UN's Sustainable Development Goals (SDGs).

SAI Kenya has also participated in several extractive industries workshops organized by the AFORISA-E and the Netherlands Court of Audit as well as by the Kenya Petroleum Technical Assistance Program (KEPTAP) to ensure that the auditors are informed about the sector's developments in order to perform effective audits.



- The INTOSAI Capacity Building Committee (CBC) honored SAI Kenya for the successful and effective use of the SAI's Performance Measurement Framework assessment tool. In her acceptance speech, H.E. Ms. Nancy Gathungu, the Auditor General of Kenya, expressed her appreciation to the INTOSAI Development Initiative (IDI) for the broad support received for the implementation of the SAI Performance Measurement Tool.

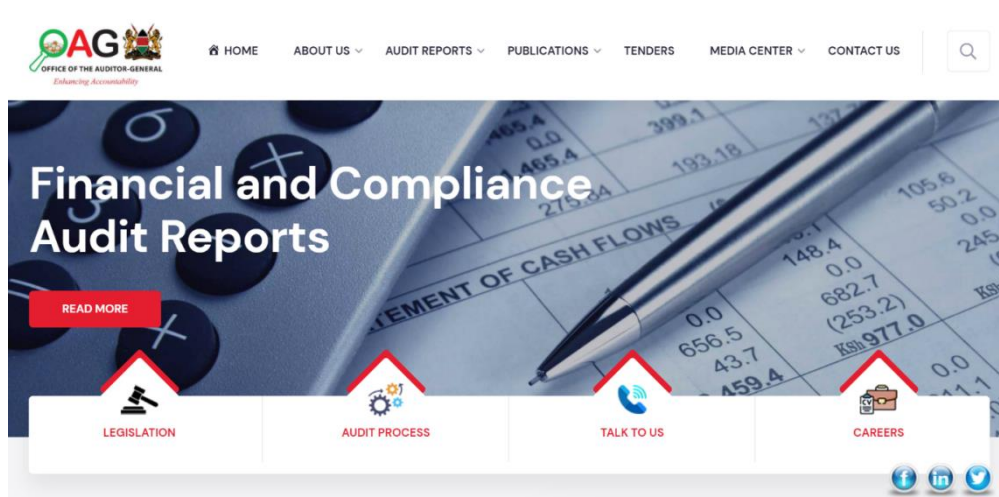
H.E. said, "I am pleased that the Supreme Audit Institution of Kenya has been honored for its successful and effective use of the SAI's Performance Measurement Framework tool".



Ms. Gathungu indicated that SAI Kenya, through the support provided by the IDI, was able to undergo training, implement a self-assessment process and finalize the report that was shared with stakeholders.



- On September 16<sup>th</sup>, 2021, SAI Kenya launched its new official website, with the aim of effectively meeting the needs of stakeholders. Ms. Nancy Gathungu led the launch of the new website which she described as “an important participation tool in a technologically changing environment, as is the case today”. She confirmed her intention that the new website would enhance the professionalism’s spirit of SAI Kenya with the stakeholders as well as strengthen communication as part of the credibility pillar between the two parties. She also stressed her keenness to make the new website compliant with the international standards and a reliable source of information regarding the mission and role of SAI Kenya as well as its achievements and aspirations.



The logo for SAI Libya is a dark blue hexagon with a white border, containing the text "SAI Libya" in white serif font. It is suspended by two thin vertical lines.

## SAI Libya

- On July 9<sup>th</sup>, 2021, the 15<sup>th</sup> AFROSAI General Assembly issued the resolution no. (005/2021/15AG/AFROSAI) regarding the approval that SAI Libya will host the 16<sup>th</sup> AFROSAI General Assembly, scheduled to be held in the year 2024. It is worth mentioning that first part of the 15<sup>th</sup> AFROSAI General Assembly was held during the period 8-9 July 2021 by SAI Senegal.



The logo of SAI Morocco is a dark blue hexagon with a white border. The text "SAI Morocco" is written in white, bold, sans-serif font in the center of the hexagon.

## SAI Morocco

- During the period from the 1<sup>st</sup> to the 12<sup>th</sup> of March 2021, SAI Morocco physically organized the 25<sup>th</sup> Meeting of the Financial and Administrative Control Authority of the Arab Organization for Industrial Development, Standardization and Mining in its capacity as President of the Authority. During the Meeting discussed the following topics:
- Following up the implementation of the previous recommendations of the Financial and Administrative Control Authority.
  - Reviewing the organization's final account for the fiscal year 2020.
  - Validation of the organization's financial position and the income statements on December 31<sup>st</sup>, 2021.
  - Inventory of assets and auditing the warehouse work.
  - Recommendations of the Control Authority for the fiscal year 2020.







- On June 21<sup>st</sup>, 2021, SAI Senegal – in its capacity as Chair of the AFROSAI Capacity Building Committee – presided over the Committee’s virtual Meeting. During the Meeting, SAI Senegal presented its report on the last three years in preparation for presenting it to the 56<sup>th</sup> Meeting of the AFROSAI Governing Board as well as during the 15<sup>th</sup> AFROSAI General Assembly which was held virtually in July 2021.
- SAI Senegal assumed the presidency of the African Organization of Supreme Audit Institutions (AFROSAI) during the year 2021 within the framework of its hosting the first part of the 15<sup>th</sup> AFROSAI General Assembly that was held virtually during the period from the 7<sup>th</sup> to the 9<sup>th</sup> of July 2021. During this, the 56<sup>th</sup> Meeting of the AFROSAI Governing Board was held under the presidency of SAI Namibia, followed by the 57<sup>th</sup> Meeting of the AFROSAI Governing Board that was held under the presidency of SAI Senegal.



## SAI Somalia

- SAI Somalia organized a hybrid meeting with the Offices of the Auditors General of the federal member states in order to deepen the mutual cooperation and support in the field of capacity building, audit work and knowledge sharing. The Meeting included high-level discussions on the developments brought about by SAI Somalia at both the federal and states' levels as well as the annual audit reports issued in the year 2021. The Meeting also displayed presentations on the roles of the effective Parliamentary Accountability Committees, the contract and procurement registration procedures, and an overview of the audit automation system implemented by SAI Somalia.



- SAI Somalia hosted the 3<sup>rd</sup> Annual Stakeholder Engagement Meeting with the attendance of the Auditors General of the federal member states. During the meeting, a number of topics were discussed which included the exchange of best practices, the assessment of the main challenges that were faced during the year in which SAI Somalia chaired the Meeting as well as exploring areas of future cooperation between the open government groups at both the federal and states' levels.



## SAI Sudan

- The ARABOSAI General Secretariat, in cooperation with SAI Sudan and SAI Egypt, organized a virtual workshop on extractive industries on June 7<sup>th</sup>. 2021 and during the period from the 13<sup>th</sup> to the 17<sup>th</sup> of June 2021. The workshop included an overview on the extractive industries and their importance, aggregating and collecting revenues, governance, planning budgets, and transparency in the extractive industries as well as the relation of the extractive industries with the sustainable development goals.



# The African Union Board of External Auditors (AU-BoEA) Meetings

## The Virtual Meeting of the African Union Board of External Auditors (AU-BoEA)

Dated May 27<sup>th</sup>, 2021

On May 27<sup>th</sup>, 2021, SAI Nigeria headed the Virtual Meeting of the African Union Board of External Auditors (AU-BoEA) which was held for the purpose of adopting the audit report of the African Union and its institutions for the financial year that ended on December 31<sup>st</sup>, 2020 with the attendance of the Auditors General of the Board's member SAIs. The meeting also witnessed the review and adoption of the AOC report as well as the minutes of the last AU-BoEA meeting which was held on the 23<sup>rd</sup>-24<sup>th</sup> of February 2021.



## **The Virtual Meeting of Planning and Strategy of the African Union Board of External Auditors (AU-BoEA)**

**Dated November 18<sup>th</sup>, 2021**

On November 18<sup>th</sup>, 2021, SAI Nigeria headed Virtual Meeting of Planning and setting the strategy of auditing the financial accounts of the African Union Board of External Auditors (AU-BoEA) with the attendance of the Auditors General of Board's member SAIs. The meeting, which was presided over by SAI Nigeria, witnessed the discussion and adoption of the following:

- The minutes of the last AU-BoEA Meeting which was held on May 27<sup>th</sup> 2021.
- The report of the AOC Meeting which was held on the 16<sup>th</sup>-17<sup>th</sup> of November 2021, including the plan and strategy of auditing the financial accounts of the African Union and its institutions for the financial year 2021.
- Creating a committee responsible for the preparation of a proposal for amending the Rules of Procedures of the AU-BoEA and the AOC with the membership of SAIs Egypt, SAI South African, and SAI Morocco.





# The COMESA Meetings

## **The 42<sup>nd</sup> Meeting of the COMESA Administrative and Budgetary Affairs Committee**

(June 23-24, 2021)

The COMESA General Secretariat organized the 42<sup>nd</sup> Meeting of the COMESA Administrative Affairs and Budgetary Affairs Committee. The Meeting's Bureau was elected as follows: Madagascar (Chair), Egypt (Vice-Chair), and Ethiopia (Rapporteur). During the Meeting, the COMESA Secretary-General presented its thanks to Egypt, Mauritius, and Seychelles for their full compliance with all their financial obligations until the end of the year 2021, which was also praised by the COMESA Review and Budgetary Affairs Subcommittee as well as for fully paying their contributions to the COMESA Court of Justice. The COMESA Secretary-General also announced that, following the Ministerial Council Meeting, the COMESA Bureau has appointed the Kingdom of Eswatini, Kenya, the Democratic Republic of the Congo, and Libya as members of the COMESA Board of External Auditors (CoBEA) and who have already started their work for the financial year of 2020.



## **The 43<sup>rd</sup> Meeting of the COMESA Administrative and Budgetary Affairs Committee**

**(October 27-29, 2021)**

The COMESA General Secretariat organized the 43<sup>rd</sup> Meeting of the COMESA Administrative and Budgetary Affairs Committee, which was attended by sixteen countries: Egypt, Burundi, Djibouti, the Democratic Republic of Congo, Eritrea, Eswatini, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Tunisia, Zambia, and Zimbabwe. The Meeting was also attended by representatives of the COMESA General Secretariat and all its affiliated institutions.

The Meeting was concluded with a set of recommendations, the foremost of which was that of the Administrative and Budgetary Affairs Committee that the Governmental Committee formed to study human resources should carry out more work regarding the geographical distribution and the quotas system in order to promote equality in the appointments in COMESA positions.



## **The 42<sup>nd</sup> Meeting of the COMESA Intergovernmental Committee on Administrative and Budgetary Affairs**

**(November 2-4, 2021)**

The COMESA General Secretariat organized the 42<sup>nd</sup> Meeting of the COMESA Intergovernmental Committee on Administrative and Budgetary Affairs during the period (November 2-4, 2021) with the aim of studying the regional integration programs, the administrative and budgetary issues and making recommendations related to them. The meeting was held under the theme "**Deepening Business Integration to Accelerate the Economic Recovery from the Negative Effects of COVID-19**".

The meeting was attended by representatives of the COMESA General Secretariat and its affiliated institutions: the African Trade Insurance Agency, the Brussels Liaison Office, the COMESA Business Council, the COMESA Monetary Institute, the COMESA Clearinghouse, the COMESA Competition Commission, the COMESA Court of Justice, the Confederation of Business Women's Associations in COMESA Countries, and the Africa Leather and Leather Products Institute (ALLPI), the Trade and Development Bank (TDB), the Reinsurance Company, the Regional Investment Agency (RIA), and the Regional Association of Eastern and Southern Africa Energy Regulators (RAERESA).

The Meeting was also attended by representatives of the development partners, including: the European Union and the United States Agency for International Development.



## **The 21<sup>st</sup> COMESA Summit Held in the New Administrative Capital in Light of the Arab Republic of Egypt's Assumption of the Presidency of COMESA**

**(November 23<sup>rd</sup>, 2021)**

The New Administrative Capital of the Arab Republic of Egypt hosted the 21<sup>st</sup> COMESA Summit on November 23<sup>rd</sup>, 2021, in light of the Arab Republic of Egypt's assumption of the presidency of COMESA. The summit was held under the theme **"Strengthening Resilience through Strategic Digital Integration."**

The summit was attended by the COMESA Secretary-General, the Chair of the African Union Commission, the President of the African Development Bank, and the representative of the World Bank.

The summit focused on reviewing the most important features of Egypt's vision for presiding over COMESA, which are summarized in: the regional trade integration, industrial integration, and integration in the field of infrastructure, especially transport, energy, communications and information technology, encouraging and attracting investments in the COMESA region, the integration in the health sector, and stimulating the business community in the region's countries.



# News and Activities of INTOSAI Development Initiative (IDI)

## The INTOSAI Development Initiative

During 2021, the INTOSAI Development Initiative (IDI) launched a number of initiatives that aim to enhance the role and effectiveness of SAIs around the world, the most important of which are:

- 1- The initiative on “**Transparency, Accountability and Inclusiveness of Use of Emergency Funding for COVID-19 (TAI Audits)**” in cooperation with the of ARABOSAI General Secretariat, with the participation of 32 participants from the ARABOSAI member SAIs under the supervision of four supervisors to audit the issues related to the COVID-19 pandemic, such as the economic and social packages, the emergency procurement, and the vaccine rollouts.
- 2- The initiative on “**Leveraging on Technological Advancement (LOTA)**” which aims to help SAIs keep pace with the recent developments by using - and auditing - modern technologies. The team responsible for this initiative consists of a number of experts from different INTOSAI regions. As for the first product of this initiative, it is the **LOTA SCAN** project which aims to produce a tool that will help SAIs to assess their internal and external technology environment. The results of this project can be used in developing other audit strategies.

- 3- The initiative on "**Crisis and Risk Management for SAI Performance (CRISP)**" which focuses on enhancing the resilience of SAIs through improving the risk and crisis management systems. The reason behind launching this initiative lies in particular in the unprecedented challenges posed by the Covid-19 pandemic. This led SAIs to adopt more resilient methods as well as focus on implementing more effective risk and crisis management systems.
- 4- The "**Professional Education for SAI Auditors-Pilot (PESA-P)**" platform is an electronic platform that provides opportunities for the various SAIs to train and evaluate their auditors. The platform is a new option for SAIs that will enhance the opportunities of cooperation with the INTOSAI Development Initiative. The platform will also assist SAIs in developing the capabilities of their auditors by following the Education, Evaluation and Reflection framework (EAR).



# **News and Activities of the AFROSAI Working Group on (Environmental Auditing AFROSAI-WGEA)**

## **ACTIVITIES OF THE AFROSAI-WGEA IN 2021**

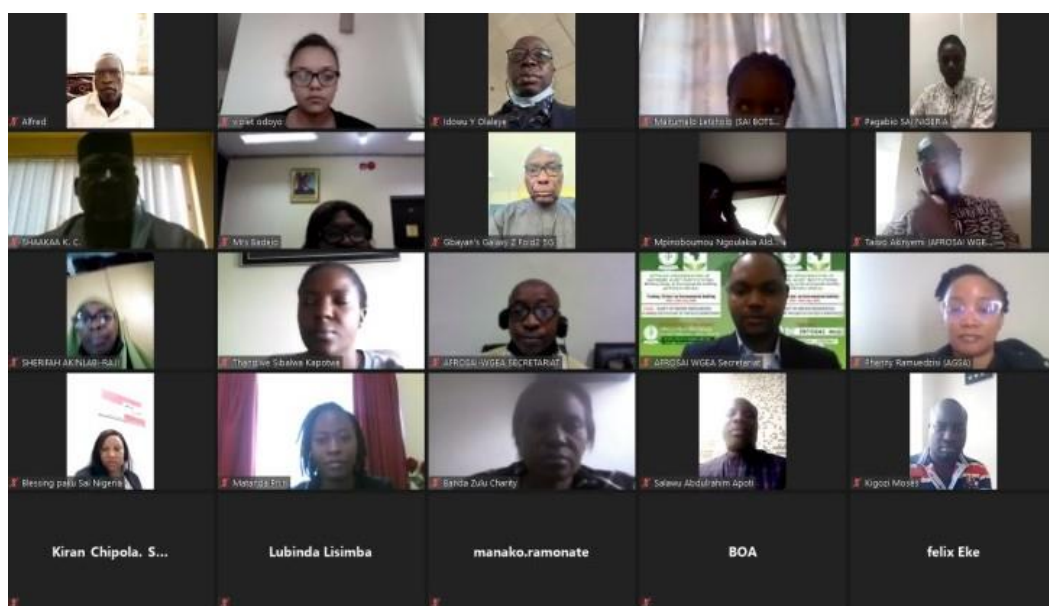
### **AFROSAI-WGEA 2021 – 2023 WORK PLAN**

The AFROSAI-WGEA Secretariat commenced the activities of year 2021 by developing a new strategic work plan covering years 2021 – 2023 as the 2017 – 2020 work plan had expired. After inputs from various SAIs, a virtual Steering Committee Meeting was held on Tuesday 9 March, 2021 where the work plan was adopted by member countries.

### **1 ST VIRTUAL TRAINING**

The African Organization of Supreme Audit Institutions Working Group on Environmental Audit (AFROSAI-WGEA) held a virtual consultative and informative training themed “The Audit of water Resources: Planning for the Audit of the Nile and Niger Rivers” hosted by its secretariat on the 12<sup>th</sup> -14<sup>th</sup> July, 2021.

The virtual meeting had in attendance members and representatives of the Supreme Audit institutions (SAIs) (1), resource persons on Environment sciences across the continent and its most valued development partner, the Deutsche Gesellschaft Fur Internationale Zusammenarbeit (GIZ).



In an opening speech, the Auditor- General for the Federation and President, AFROSAI-WGEA, Aghughu Adolphus A. JP. FCNA, FCTI highlighted the uniqueness of Environmental Audit which he said requires a minimum knowledge about environmental issues and their impacts on health and the environment. These, he said are measures instituted to promote economy, efficiency and effectiveness in the audited entity.

He also said that he would want to revive AFROSAI-WGEA to be alive and active as it was when SAI Nigeria joined in 2012.



Speaking at the virtual training, Mr. Peter Jonath of GIZ gave words of assurance and full support for the AFROSAI-WGEA secretariat in its work and delivery of its mandate. He emphasized the importance of water resources and the dangers of the spread of COVID-19 on the environment. “There are no political or geographical boundaries when it comes to the environment and what we do to our environment today impacts on us and generations to come”; he said. He added that, the importance of the environment can never be underplayed as it is where the future lies. Mr. Jonath also encouraged SAIs to acquire more skills and knowledge. He further stated that SAIs are the middle men between the people and the environment. “Everyone plays a vital role in the preservation and the protection of the environment”, he added.

Other guest speakers were the Secretary-General of INTOSAI-WGEA, Dr. Vivi Niemenmaa who also gave a presentation on “the Basics of Environmental Auditing”. She pointed out that this would be achieved through Performance Audits which goes beyond the financial audits by interrogating the 3Es namely, Economy, Efficiency and Effectiveness .

At the end of the training, letters were sent to riparian states of the Nile and

Niger Rivers to indicate interest for the cooperative audit of both Rivers.

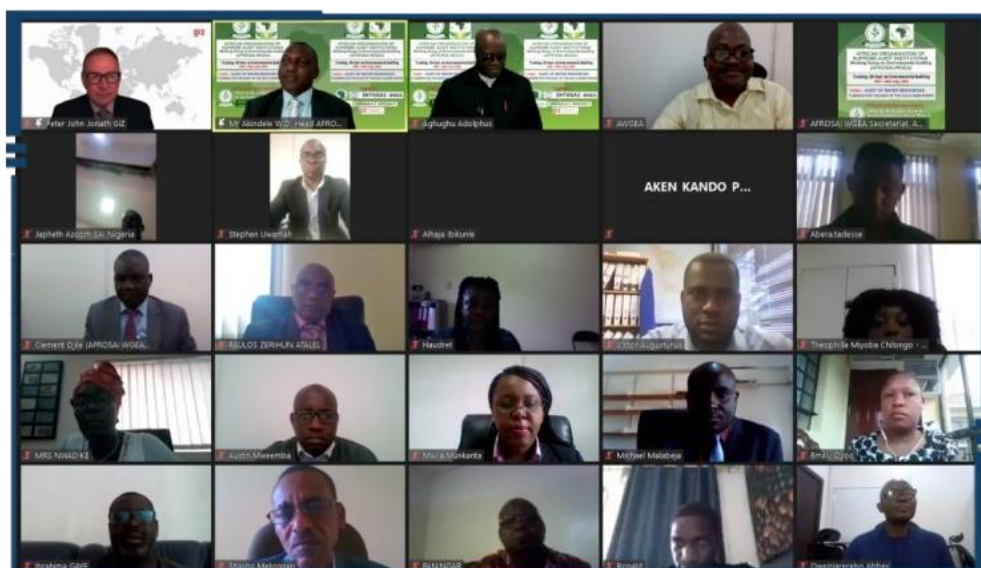
### **VIRTUAL MEETING ON THE PLANNED COOPERATIVE AUDIT OF THE NILE AND NIGER RIVERS**

In furtherance of the planned cooperative audit, a virtual meeting was held on Monday, 30<sup>th</sup> August 2021. In attendance were members of Supreme Audit Institutions (SAIs) across the riparian countries of the Nile and Niger Rivers. The meeting was to discuss the form the Co-operative Audit will take, the role of the AFROSAI-WGEA Secretariat and the form the Audit Report will take as well as its timetable.

Declaring the meeting open, the AuGF appealed to riparian member SAIs to participate in the Audit. He said that the Audit approach is not to make political decisions but to make recommendations for those on the political realm to make informed decisions on the proper management of the Nile and Niger Rivers for sustainability. “The countries involved are sovereign”, he said. He also said that the essence of the audit of the Nile and Niger Rivers is to benefit the respective countries. He stated that the AFROSAI Secretariat work in partnership with the respective SAIs to ensure the Audit is conducted.

In a speech, the Head, AFROSAI WGEA Secretariat and Director, Environmental Audit, Mr. Akindele Dosamu, said the purpose of the meeting is to ensure proper planning for the Audit and to ensure that grey areas are addressed. He beckoned on every country concerned to participate in the audit.

Mr. Malabeja in his contribution, said the essence of the Audit is to embrace the value the Nile and Niger Rivers have. He spoke extensively on the River Nile which consists of ten (10) countries namely: Egypt, Burundi, Tanzania, Rwanda, the Democratic Republic of the Congo, Kenya, Uganda, Sudan, Ethiopia, and South Sudan. “Each country has a role to play”, he said. He highlighted the issues that affect the quality of the water especially water pollution. He urged the Secretariat to maintain the communication among the SAIs.



Also speaking at the meeting was Mr. Abbey Oweziazerebo, the Head, AFROSAI WGEA Secretariat. He said the Secretariat does not want any SAI to miss out on the opportunity to conduct these audits.

Also in attendance was Liz from SAI Uganda who wanted clarification on past decisions made by Heads of SAIs on the proposed

audits. Mr. Peter Jonath of Gesellschaft für Internationale Zusammenarbeit (German Society for International Cooperation (GIZ) on his part, spoke on the need for resources to be sustained to leave a legacy for the future and generations to come. He said that GIZ looks forward to supporting SAIs across Africa.



It was concluded that the AFROSAIWGEA Secretariat should go ahead with the cooperative audit of the Niger River while that of the Nile River was to be put forward unto a later date.

Nigeria, Togo, Niger, Tchad, Mali, Tanzania, Gabon, Ethiopia and South Africa.

### **PLANNING MEETING ON RIVER NIGER AUDIT**

The African Organization of Supreme Audit Institutions Working Group on Environmental Audit (AFROSAI-WGEA) Secretariat in conjunction with SAI Niger and with support from GIZ, hosted a five-day planning meeting on the Cooperative Audit of the River Niger, from the 29th November to the 3rd December 2021 in Niamey, Niger. The planning meeting consisted of Supreme Audit Institutions (SAIs) of 9 (nine)

riparian countries in participation. The 9 countries are: Niger, Nigeria, Cameroun, Benin, Cote D'Ivoire, Guinea, Burkina Faso, Tchad and Mali.

The main objective of the planning meeting was to discuss, develop common approach, tools, draw up Audit plan and Calendar of Activities. The Audit will verify whether the member countries and the relevant actors comply with the standard and best practices for the management of the River Niger.

Welcoming the participants to Niamey was the First President of the Court of Accounts, Niger, Oumarou Narey and in his capacity as the Host SAI, declared the meeting open. He assured the participants of a peaceful stay in Niamey and assured them of his full support in the planning and actual execution of the Audit.



The President, AFROSAI-WGEA and the Auditor-General for the Federation (SAI NIGERIA) Mr. Aghughu Adolphus A. JP, FCNA, FCTI represented by the Head, AFROSAI-WGEA, Mr. Akindele W.D. gave a brief historical background of the cooperative audit of the River Niger. He stated that environmental issues know no boundary. “A negative environmental activity in Africa could go as far as affecting Europe and other continents”, he said. The recommendations that are made at the end of the Audit will lead to the sustenance of the socio-economic and environmental resources of the Niger River. He urged participants to take the planning meeting seriously and resolve that they “play the men” for our sub-region on the Audit of the River Niger. the state of

Several presentations were made by participants of the nine SAIs with

reflections on the River Niger in their countries. Various perspectives were also given on key stakeholders and those who are affected by the usage of the River Niger Basin.

Mr. Michael Malabeja of SAI Tanzania highlighted that the Basic Audit Process, stems from the three Audit types; Performance Audit, Environmental Audit and Compliance Audit which can all be used for environmental topics. He said these could be translated into an audit cycle of Planning, conducting, reporting and follow-up. He also gave a selection of Audit Topics and Problems for the River Niger Audit. He said that flooding is a common area of concern for countries that share a water body like the River Niger, as actions taken in upstream countries can contribute to damaging flood in downstream nations.



The planning meeting ended with an excursion to the Niger Basin Authority, Niamey. The Director of the Observatory of the Niger Basin, Zinsou Didier gave a presentation, emphasizing that the monitoring of water resources should be continuous to have better planning, management and exchange of information to facilitate proper management of shared waters.



**Edited Article**

**GIZ's Contribution to the Journal Entitled  
"The 2030 Agenda Revisited: Where do  
Supreme Audit Institutions Stand Today?"**

**Prepared by Dr. James G. Bennett, GIZ Consultant and Senior Lecturer  
at the Frankfurt School of Finance and Management (FSFM), Germany**

## Introduction

The 2030 Agenda for Sustainable Development was adopted by the United Nations' General Assembly in September 2015 and quickly embraced by the International Organisation of Supreme Audit Institutions (INTOSAI), the umbrella organisation of Supreme Audit Institutions (SAIs) worldwide. In December 2016, H.E. Counsellor Hesham Badawy, President of the Accountability State Authority (ASA) of Egypt, in his role as editor-in-chief of the present journal, urged SAIs to play “an effective role through performing audits and financial controls pursuant to their jurisdictions leading to contributing much to national endeavours” in the context of implementing the agenda's 17 Sustainable Development Goals (SDGs). More recently, the General Assembly of the African Organisation of Supreme Audit Institutions (AFROSAI) adopted a new Strategic Plan that foresees, among other things, activities to monitor progress in the implementation of the SDGs and the development and implementation of a regional framework for SAIs' participation in global processes of steering and reviewing achievement of the SDGs.

Against this backdrop, it is appropriate to ask where SAIs stand today in terms of assisting, facilitating, and promoting the process of 2030 Agenda implementation. A preliminary response to this question may be found in an upcoming research paper to be published by Partners for Review (P4R), a global multi-stakeholder network for government representatives and other stakeholders, including civil society, the private sector and academia involved in the national follow-up and review of the 2030 Agenda. This research was carried with technical support from the Deutsche Gesellschaft fuer International Zusammenarbeit (GIZ), the German international cooperation agency.

## Baseline Situation

In recent years, some important progress has been made in aligning SAI strategies, programmes and plans to the requirements of SDG implementation. Progress may be seen in four main areas:

- (1) Identification of the potential SAI contributions to SDG implementation in the context of Voluntary National Review (VNR) processes,
- (2) Consideration of potential SAI contributions to SDG implementation through SDG Preparedness Audits,
- (3) Integration of SDG-relevant approaches and interventions into recent SAI Strategic Plans, and
- (4) Preparation and execution of SDG implementation audits that focus on the performance of government institutions (auditees) in terms of their contributions to the achievement of the SDGs and the associated targets.

The P4R / GIZ review looked at a small sample of SAIs in different regions of the world to draw preliminary

conclusions regarding where SAIs stand today in these four areas of progress. In an initial stage, 13 countries were reviewed as case studies. In only 2 of these countries, the VNRs explicitly referred to the potential contributions of SAIs to SDG implementation. Within the same sample, 2 countries had not yet published SDG preparedness audits; in the other 11 countries, SAI mandates and roles in SDG achievement were explicitly mentioned in 7 cases. No SAI Strategic Plan was available for one of the case studies; in the other 12 countries, SAI contributions to the 2030 Agenda and the SDGs were explicitly mentioned in only 3 recent Strategic Plans. As for the preparation and execution of SDG implementation audits, very little evidence was available in this early stage of the SDG audit uptake review to verify the existence of such audits or at least their inclusion in audit planning.

The 13 SAIs considered in this preliminary review are not necessarily representative of the 195 SAIs that are INTOSAI members. Nevertheless, it does suggest that serious gaps exist in terms of mainstreaming the SDGs into SAI Strategic Planning and audit planning processes.

Given these preliminary observations, the review team selected 7 countries as case studies for further, more in-depth review.

### **Issues and Opportunities**

The specific aim of the SDG Audit Uptake Review (to be published soon) is to deepen our understanding of how the conclusions and recommendations derived from SDG audits are being put into practice. The term “SDG audit” comprises both SDG preparedness and SDG implementation audits. Information was gathered through online interviews with more than 40 representatives of SAIs, Parliaments, civil society organisations and other bodies dealing with public sector oversight in 7 countries: Argentina, Bhutan, Brazil, Georgia, Kenya, Malaysia and Uganda. The thematic core of the report is SDG

audit uptake from the SAI perspective. The term “uptake” implies in this context the adoption of SDG audit conclusions and recommendations by Parliaments, governments, and other SDG stakeholders and the translation of recommendations into efficient and effective actions.

The results of the review underline among other things the importance of internal SAI structures for the management of public relations, strategic partnerships, and stakeholder communications on a trajectory to full SDG achievement. The main results in terms of current issues and opportunities are structured around 5 domains of SAI institutional capacity development, namely independence and legal framework; organisation and management; human resources; audit standards and methodology; and communication and stakeholder management.

The report concludes that, while SDG preparedness audits may still play a guiding role if they are regularly updated, monitored, and followed up, more efforts are required to mainstream SDG implementation audits into existing SAI audit processes including SAI

collaboration with external partners. Furthermore, given the increasing proximity of the 2030 Agenda's target year, SDG audits may be expected to focus more on the attainability of the SDGs, and to identify the means and time required to close the existing gaps.

### **The Way Forward**

The upcoming P4R / GIZ report on the results of the SDG Audit Uptake Review focuses on the SAI perspective, pinpoints many opportunities that SAIs can seize in their jurisdictions, and provides ample examples of how other actors such as Parliaments and civil social organisations can collaborate with SAIs to contribute to implementation of the 2030 Agenda.

With due respect to the study's potential contribution to better understanding where SAIs stand today in terms of contributing to the process of 2030 Agenda implementation, it must be admitted that the study has some important limitations. Firstly, the sample size is small; hence, the conclusions may be

generalised with due precaution. Secondly, with a strong focus on information gathered through stakeholder interviews, the study provides only limited analytical insight into many contextual factors of social, economic, and political nature that may help or hinder effective SAI contributions to the 2030 Agenda. Thirdly, the study does not consider the potential direct and indirect contributions of regional SAI networks to SDG achievement. Given these recognized limitations, the study may incite SAIs and their partners including researchers to explore related topics, such as integration of the SDGs into SAI peer reviews and ex ante audits of the SDG alignment of budget plans, expansion of SAIs' jurisdictional mandates and activities to strengthen SDG audit uptake, and approaches and tools to take the 2030 Agenda's underlying principle of "Leave No One Behind" into account in the work of SAIs and their national and international partners.

**Edited Article**

**ARABOSAI's Contribution to the Journal  
Entitled "The Audit Work's Automation and its  
Role in the Performance Development"**

**Edited by: Somia Almir and Mariam Taleb**



## 1. Introduction

The issue of the procedures' and processes' automation enjoys a growing interest within the governmental and private institutions, especially in light of the rapid developments on the techniques and information technology levels. These institutions have pursued to benefit from this technological development and carry out the automation of their procedures in order to execute their work rapidly and accurately.

"Automation" is defined as the technology-based implementation of procedures or processes aiming at reducing the human intervention to the lowest levels. Activating Automation within the government and private institutions would increase their competitiveness, reduce their production costs, increase the quality and pace of work, in addition to supporting decision-making, and improving the services provided.

Accordingly, the importance of automating the audit functions has been highlighted due to its significant positive impacts on upgrading the auditors' performance, improving the efficiency of the audit process, cutting out time and

effort, providing timely results as well as assisting in decision-making and increasing its effectiveness, in addition to facilitating the documentation and archiving of the audit work.

Since the Supreme Audit Institutions (SAIs) are the entities responsible for auditing the governmental entities, in accordance with the State's decrees and laws, whether Financial, Compliance, or Performance through audits, these SAIs' operations become more complex and diverse which require the continuous development of their implementation methods as well as benefiting from using the information technology and the available modern techniques. Given that the National Audit Office of the Kingdom of Bahrain is considered one of the bodies that adopted the automation of their operations, it was essential to carry out this research in order to convey its experience in the audit work's automation, in addition to the methods and means that helped it in developing the performance, enhancing the output's quality and raising the awareness of the way forward regarding the operations' automation and its impact on the efficiency and effectiveness of the audit work.

### 1-1 Research Objectives:

This research discusses the concept, objectives and importance of automation of the audit work, focusing on the impact of automation on the performance level and the audit work's efficiency and effectiveness. The research aims at:

- Clarifying the importance of automation for auditing in general, as well as for the SAIs' operations.
- Presenting the current status of the audit work automation in the National Audit Office and its experience in this field.
- Determining the automation's impact on the performance level, as well as the audit work's efficiency and effectiveness from different perspectives.
- Raising the awareness of SAIs' auditors regarding the new trends in the field of the audit work automation.
- Drawing the conclusions and recommendations to develop and strengthen the SAIs' automation.

### 1-2 Research Methodology

The research will rely mainly on research papers and publications issued from professional and academic institutions, as well as books related to the research subject and those concerned with information systems, control and auditing

techniques, and Artificial Intelligence, etc. in addition to the guidance issued by the International Organization of Supreme Audit Institutions (INTOSAI), the International Auditing and Assurance Standards Board (IAASB), the American Institute of Certified Public Accountants (AICPA), and the Canadian Institute of Chartered Accountants (CICA). The research will begin with a thorough explanation of the automation's concept, its objectives and its application requirements and conditions, and will proceed to explaining the importance of automation in general, focusing on the importance of SAIs' automation. The research will also elaborate on the current status of the automation operations in the Kingdom of Bahrain's National Audit Office, and will present in detail the Office's experience in automating its operations through the use of Pentana Audit MK software, and its impact on the performance level, as well as on the efficiency and effectiveness of the audit work. The research will also address the future aspirations of the National Audit Office regarding their application and enhancing their use. The

research will the concluded findings and presenting the proposed recommendations on the audit work's automation in addition to its role in the performance development with a focus on the government sector.

### **1-3 Research Axes**

**The First Axis:** The Concept of Automation.

**The Second Axis:** The Importance of the Audit Work's Automation.

**The Third Axis:** The Current Status of The NAO's Automation Operations.

**The Fourth Axis:** The NAO's Experience in the Audit Work's Automation.

**The Fifth Axis:** The Impact of Automation on The Performance Level, and the Efficiency and Effectiveness of the Audit work.

**The Sixth Axis:** The future trends in the field of the Audit Work's Automation.

**The Seventh Axis:** Conclusions and Recommendations.

## **2. The First Axis: The Concept of Automation**

For centuries, the management has relied on the manual format in performing its functions including their planning, organizing, guiding and reviewing, relying on the experience and self-competence

of its users <sup>(1)</sup>. However, changes in the style and nature of work were initiated with the invention of the typing machine in the mid-nineteenth century and upon the emergence of the computer associated with the extraordinary evolution in the field of information and communication technology (ICT)<sup>(2)</sup>. The management began to experience more developed concepts and methods, such as information and communication systems and quantitative methods of decisions' rationalization, the use of electronic and audio mail, electronic organization for meetings and audio-visual conferences, and other various important applications. Resulting from this, the era came to be called the Age of Informatics <sup>(3)</sup>, and when man made good use of computers and information technology and allowed computers to perform what he previously was executing, he then came to what is called Automation.

### **2-1 The Definition of Automation**

Automation or Automated Operation, as defined by Wikipedia the Free Encyclopedia, is a new term for every self-operating work without the human intervention, for example, the automated

industry can be called industrial automation. Even in the administrative work and the tele-broadcasting automation, it means a process aimed at making the laboratories more machine-based rather than man based. Automated operation is considered a type of robots that still need humans to finish their work, and sometimes the term mechanization is used to refer to automation as well. The term mechanization is linguistically derived from the word "machine" in Latin, and in Arabic it means (Al Ala) while semantically it means integrating the machine into work and converting it from manual to automated. The term is corresponded in Arabic with the term ("Taleel"), but the automation or self-operation differs from the mechanization as the former is related to the use of electronics to perform tasks, while the term "mechanization" is associated with the use of machines to save human effort and time.

The automation can also be defined as the process of using computer systems and their networks to perform daily and periodic office work in the institutions of productive, administrative, financial or service nature <sup>(4)</sup>. The concept of

administrative automation is considered one of the most important recent concepts on which countries and institutions rely on in managing and facilitating their work, develop and organize methods of processing the required information, and benefiting of this information which has diversified and grown in size as a result of social and economic progress and the increasing complexity of society structure and the size of administrative and economic units <sup>(5)</sup>.

Moreover, automation is also an expression referring to a set of methods that allows omitting the human intervention in a series of operations, which might originally be merely physical or mental processes or a combination of both <sup>(6)</sup>. Automation is the strategic choice that organizations must deal with and regard as an opportunity that must be exploited if they want to continue in the market with the presence of a competition that is expected to increase significantly, especially when the volume of information is most important in determining the economic value of the worker's productivity <sup>(7)</sup>. Automation is considered to be the beginning of the administrative development and a solution for many problems as it

provides the ability to identify the organization's administrative weaknesses, and hence their reform<sup>(8)</sup>. This is despite the fact that the success of this process requires the staff's awareness, at their different work levels, of the change it will cause in the work's pace, the responsibilities and means of communication, the work mechanisms and its regulations, the competencies required to achieve it, as well as the amendments in the procedures and basic structure for the organization's current status, needs, circumstances and future plans.

## 2-2 Automation's Objectives

The objectives of automation can be summarized as follows: increasing the entities' competitiveness, reducing their production costs, reducing the wastage, enhancing the work quality and accelerating its pace, in addition to supporting decision-making, and improving the services provided, and thus it has become evident to many establishments in different sectors, which have not adopted a well-defined strategy to rely on automation, that they will find themselves lagging behind the information

technology revolution, and that there are many advantages that automation can offer, the most important of which are<sup>(9)</sup>:

- 1) Automation provides a good file management system which reduces human efforts to the maximum.
- 2) Automation secures the optimal utilization of information and allows it to be illustrated in reality through periodic and exceptional reports, integrated tables, diagrams and illustrated and demonstrated graphs.
- 3) Reducing the administrative corruption phenomenon as well as negligence and indifference among some workers.
- 4) Quick and clear communication, and minimizing the need for correspondents to the maximum.
- 5) Increasing the work accomplishment speed and raising its accuracy as well as reducing the human effort required to implement it in light of the significant increase in the information volume that the institution deals with as well as the complexity of its interventions and processing procedures.
- 6) Setting the performance indicators as a real standard for reward, punishment and profession's upgrading.



- 7) Increasing the Director's capacity to comprehend his managerial duties.
- 8) Increasing the management's capacity to make wise and rational decisions based on scientific and realistic basis.

### **2-3 Automation's Requirements and Conditions**

Organization is a prerequisite for business' success. Recently, the development of modern technologies in this area has become a scientific obsession. Automation has come to represent the manifestations of this development in many fields, and provided new prospects, supported humans in every step and facilitated many issues. Thus, automation's success requires the collaboration of efforts of the State and institution. The most prominent requirements for its implementation are as follows:

- Identifying the actions that should be automated as well as the priority of the automation operations.
- Setting a detailed description of current work and procedures.
- Studying the current status of the information archive of the institution.
- Re-engineering the business processes in line with automation.
- Rehabilitating the personnel to eradicate their information illiteracy.

- Allocating the necessary financial resources for automation projects.
- Encouraging the software industry.
- Carrying out sectorial automation projects first.
- Setting a guide and a general methodology for automation.
- Rehabilitating IT technicians who are capable of implementing and executing the automation projects.

### **3. The Second Axis: The Importance of the Audit Work's Automation**

#### **3-1 The importance of the Audit Work's Automation**

The audit work's automation or the use of IT in the field of auditing means to utilize electronic methods in practicing the audit work, as the use of these methods helps in building an electronic database for those receiving the audit services and in selecting the corporate's audit sample more accurately, which consequently reflects on the credibility of the audit findings<sup>(10)</sup>.

The spread of information technology to serve different sectors, including the auditing sector, necessarily requires the provision of essential elements that will help in a wider overspread as the physical



investment is considered an essential element of the requirements of the information technology utilization. Moreover, the human rehabilitation and providing a certain level of knowledge leads to the acceptance of those in charge of the information systems to use this technology<sup>(11)</sup>.

Some researchers have pointed out some of the advantages achieved due to using the systems and information technology in the auditing process which are as follows:

- The automated systems lead to enhancing the auditors' performance, but at the same time they are not considered the auditors' substitute in the decision-making process.
- The automated systems are considered a means of training and rehabilitating auditors through benefiting from the experiences and guidance of the senior auditors in supporting the junior auditor's performance, and thus creating generations capable of carrying out tasks and work efficiently and effectively.
- Using the automated systems leads to improving the efficiency of the audit process through many things including:
  - Assisting in setting the audit mission's plan and programs, reducing the audit process' costs as well as minimizing the effort and time, and timely providing the audit process' findings.
- Automated systems provide rare knowledge and experiences that will not be obtained in offices and companies, thus helping non-expert auditors to achieve results similar to those achieved by experts in the same field.
- Automated systems aim at improving the efficiency of the decisions made by external auditors as well as increasing their effectiveness.
- Reducing time and effort for junior auditors who need to improve their decision-making abilities.
- The ability to use the automated systems as an advisory and a training tool at the same time, as they could serve as an advisor to expert external auditors and as a trainer to junior auditors.
- It represents a documentary reference for auditors and thus provides its utilizing institutions with the best possible experience.

### 3-2 The Importance of SAIs' Processes' Automation

- Using the information technology (IT) enfolds several advantages that can be benefited from in most aspects of life and in various activities and work fields such as accounting and auditing. The use of information technology in an institution leads to consistency in the application of complex accounting operations and Big Data processing. It also helps to reduce time, draw accurate conclusions about the implemented analysis and facilitate the substantive test required from auditors for their accounting and financial information, and contribute to increasing the capacity of supervising the performance of activities, policies and procedures within the institution.
- In this regard, it is worth mentioning that the audit work's automation has had a significant impact on improving the outputs' quality of the tasks implemented by the Supreme Audit Institutions (SAIs) on their auditees, as well as the efficient and effective implementation of the procedures associated with all audit stages. For example: the use of IT has helped in improving the quality of the audit planning stage through calculating the sample size more accurately, or through helping to better balance the time required for the audit processes and stages, as well as by preparing the timetable necessary to finalize the audit process in a more organized manner.
- In addition, using information technology helps the auditor while implementing the analytical procedures through accurately comparing the institution's actual financial ratios over successive periods or with similar estimated ratios, and thus enabling the auditor to identify the exceptions and determine their reasons. Moreover, the use of information technology assists the auditors in rapidly and easily auditing the auditee's financial accounts and financial statements of the current and previous years, as long as the computerized analytical software is available to the auditor, enabling him to express his opinion in a more credible and objective manner.
- Using the information technology also improves the quality of the audit work and its documentation through adding the different account balances in a more accurate and faster manner, and helps in summarizing the audit findings, or in preparing the working papers and confirmations, or when the auditor

prepares procedures' flowcharts and documents' cycles in a better form, which enable the auditor to accomplish the audit program in a shorter time.

- In addition, using the information technology provides databases which enable the auditor to detect the audit evidence required for the audit quality, and to provide an audit path that allows the auditor to follow up the financial operations and thus prove their validity and quality. It also increases the ability to protect information by determining the persons authorized for following up the documents, and increases the degree of reliability, impartiality and objectivity in having access to information and, hence realizing the soundness of the audit processes. Moreover, the operations' automation enhances the ability to examine a maximum number of the financial operations' samples and thus increase the sufficiency of the evidence that supports the auditor's final opinion on the fairness of the financial statements, also, the auditor obtains evidence more related to the item to be audited

than if this technology was not used. the ability to segregate the functions that would increase the objectivity and quality of the audit process.

- The aforementioned reinforces what the International Organization of Supreme Audit Institutions (INTOSAI) has commended in several articles published in the International Journal of Government Auditing which tackled the importance of the auditing processes' automation implemented by the Supreme Audit Institutions (SAIs) due to its significant positive impact on improving the audit outcomes on the public sector, along with the necessity to keep pace with the technological progress by using methods and techniques that have proven successful in this field such as Artificial Intelligence (AI) and Big Data Analysis Techniques<sup>(12), (13)and (14)</sup>. The INTOSAI's efforts in this regard have also been highlighted through giving the SAIs the opportunity to benefit from the other SAIs' experiences in many fields within its channel (Innovation Labs), which the topic of the audit work's automation and using the information technology occupied a large part of it.

### 3-3 The Importance of Automating the Auditees' Operations

- Using information technology with its various tools contributed to improving the quality of the accounting and financial information disclosed by the auditee, where it had a positive impact and a remarkable added value. Regarding the level of the accounting procedures, they have become quicker, more accurate and easier, thanks to their transformation from the traditional nature to the electronic one. The documents as well as the bookkeeping have become easier to access, and to handle with the least effort as well as keeping and archiving them at a low cost and in a limited space. Regarding the accounting information system's outputs like the financial statements and reports, their quality has improved and has become characterized by accuracy and a quick access to the included information.
- Due to the fact that auditing represents the other side of accounting as it is entrusted with expressing a neutral professional opinion about the legitimacy and credibility of the information prepared by the accounting information system and its disclosure, it had a share of the positive impact as a result of its

collaboration with the information technology tools. The auditor now performs the analytical procedures in an easier way within the electronic environment compared to its manual counterpart. He also requires less effort and time to execute his tasks with high quality, thanks to the IT tools allocated to be used to carry out the audit processes such as the general audit software. As the capital of the audit profession is the public's trust therein, the information technology has played a significant role in improving the public's view of the audit profession thanks to the nowadays prevailing perspective that every development in any field cannot be far from the information technology. All this has allowed to improve the quality and qualitative characteristics of the financial information<sup>(15)</sup>.

In this context, it is clearly evident that there is a necessity to automate the auditees' processes in general and their financial operations and accounting procedures in particular in a way that enables SAIs to implement their audit processes efficiently and effectively, achieve integration among them and enhance the audit outputs.

#### **4- The Third Axis: The Current Status of the Automation Operations in the National Audit Office**

Since its establishment, the National Audit Office of the Kingdom of Bahrain has realized the importance of automating its operations starting from the operations related to auditing its auditees to the operations related to the administrative procedures required to execute its daily tasks. During the first decade of its establishment, the NAO targeted to study the SAIs' experiences in a number of neighboring and developed countries. Moreover, it searched for programs and automated systems that may contribute to the flow of the audit work, enhance its efficiency and effectiveness, reduce the administrative burdens and foster the efficiency of the human resources' utilization.

We will present hereafter the automated programs and systems as well as the applications used within the NAO to manage the audit work's procedures.

##### **4-1 The Pentana Audit MK Software - (formerly MK Insight)**

It is a program concerned with managing the audit operations within the NAO of the Kingdom of Bahrain, with their various types, whether they are for the tasks of

the financial, compliance or performance audit. The program helps to ensure that the audit tasks are more efficient, effective and risk-based as it automates the procedures followed for planning and implementing the audit tasks in a way that focuses on the more important activities rather than the administrative procedures. The main aspects of benefiting from the program are as follows:

- Improving the quality of the audit processes and reducing the administrative burdens.
- The centralization of operations and the business flow.
- Following up the workflow of the audit tasks and identifying the fields that need improvement.
- Determining the audit process' priorities based on risks.
- The soundness of decision making based on and supported by data.
- Detecting the opportunities for the audit processes' development projects

The Pentana Audit MK program is designed to suit the work methodology of the NAO in the Kingdom of Bahrain as well as automating the managing stages of the audit work in all the Offices' technical departments. The program enables the NAO to perform the following:



- Manage the audit processes and develop the annual audit plans and follow them up.
- Design the files forms, the audit programs, reports, and others.
- Develop the electronic audit files.
- Implement the audit programs, manage the working papers and review them electronically.
- Extract different reports including the drafts of the findings' reports.
- Develop and approve the working hours' reports within the working hours record unit.
- Maintain the permanent files and provide an electronic library.
- Develop and send questionnaires and surveys.
- Manage the supporting documents and easily search for the attached documents, findings and recommendations.

The program allows determining and granting the authorizations to auditors according to their position levels, with the possibility of limiting the authority to view some audit files that deal with confidential data on specific users.

#### **4-2 The Virtual Private Network (VPN) Application**

The VPN allows the creation of a secure connection with another network through the Internet. It is considered one of the best solutions for saving data and secure their privacy and confidentiality. Through the NAO VPN application, there are communications with the offices' automated systems as well as the files saved in Servers, for example, the VPN enables the technical personnel to access the Pentana Audit MK Program in order to perform their audit tasks remotely. In addition, the VPN facilitates the access to the files and data saved in the Office's servers, without the need to connect with the internal network at the Office's headquarters.

The application of the VPN at the Office coincided with the activation of the Pentana Audit MK program in the year 2014. A number of updates were made in this regard, the most notable was in the year 2020 through which the VPN was developed and the VPN Split Tunneling feature was activated which allows using the Internet and connecting to the Office's virtual network at the same time.



### 4-3 Magnet AXIOM Program for E-Discovery:

In 2021, the NAO started using a number of applications and programs related to the E-Discovery processes upon performing Forensic Audit Tasks. The Techopedia; the free technological encyclopedia, defines "E-Discovery" as the process of searching for, securing, locating, and retrieving electronically-saved information to intentionally be used as a proof in a civil or criminal case.

Magnet AXIOM Program for E-Discovery is considered a comprehensive digital investigation platform that allows retrieving the digital information necessary for performing and analyzing the Forensic Audit tasks, as well as sharing the concluded results. The program is characterized with the following advantages:

- Retrieving the information saved on computers and electronic clouds.
- Examining the evidence collected from all sources and gathering them in one file.
- Presenting and sharing results through analysis and reporting tools.

### 4-4 IDEA Data Analysis Program

It is a data analysis program used by the NAO starting in 2021 in order to perform Forensic Audit tasks. It provides comprehensive, effective, and easily used analysis tools. The programs are featured with advanced analytical characteristics that help in speeding up data analysis and providing an easily used experience, along with enabling the submission of results timely and effectively. The program enables drafting reports as follows:

- Photo illustrated reports on determining the patterns, orientations, and extreme values through the program information chart.
- The simplicity of extracting the analysis results and transferring their reports to other applications, inter alia, Excel and PowerBi.
- Extracting reports from the program in a readable format and directly sharing the program's results.

The program is used as an advanced analysis tool in order to determine the extreme values and implement a number of processes, the most prominent of which are:

- The extraction processes and the exclusion tests which determine the records that share specific characteristics.
- The search processes through looking for a specific text within the records of databases or the multiple databases.
- Extracting and generating statistics for all the records of the database, whether for figures, dates, or time schedules, and comparing them with each other.
- Sorting the databases' records and saving them in a specific order, in addition to organizing the matching records in expandable or foldable groups.
- Summarizing the records' values through gathering the numeric values and presenting them in a chart, along with analyzing the big data records in a multidimensional and multivariable pattern.

#### **4-5 Microsoft Teams Program**

The program is considered a communication and cooperation application that combines continuous chats at the workplace as well as videoconference, file storage (including file sharing), and application integration. It also allows creating private channels within the program and specifying their members in a way that ensures sharing the files with them, chatting, holding talks and instant meetings. The program consists

of teams and channels, which are chatting panels among the team members. It is characterized with the following:

- All team members can display various chats and add to them in public channels, and they can also invite other members to various chats.
- The possibility to chat among teams, groups, and individuals.
- Saving files in the SharePoint which automatically saves all common files through all conversations in the folder.
- Performing quick and smooth video calls with employees within the workplace or customers outside the work scope, in addition to the ability to share screen with others in order to obtain technical support and real-time collaboration among multiple users.

The NAO uses the program in managing the audit teams and enhancing communication among them during the audit work, in addition to sharing documents and files among the work team members, besides holding meetings either within the NAO or with auditees.

#### **4-6 ActiveData for Excel Application**

It is an application that is added to the Excel application listed in the Microsoft Office 365, which provides advanced

capabilities to analyze and manage databases and records. The application enables merging, matching, summarizing, and categorizing data, as well as determining the duplicated or lost data within databases. It also allows gathering or separating and classifying data, which contributes to organizing databases and records in order to enhance efficiency and productivity.

The NAO's audit teams depend on the application to analyze the financial data and databases received from the auditees, in addition to separating and indexing databases according to a yearly basis.

The importance of the operations' automation in the NAO has been highlighted during the spread of COVID-19 pandemic, where the aforementioned programs and applications were used on a large scale in the NAO in order to communicate with its virtual network, perform and manage the audit task using the Pentana Audit MK Program, which contributed to the audit tasks' follow-up at all their stages, as well as remotely reviewing working papers and displaying evidence documents. In addition, the Microsoft Teams Program enables the management of audit teams, enhancing communication with them during that period, and sharing documents and files among work teams.

## **5- The Fourth Axis: The NAO's Experience**

The International Standard of Supreme Audit Institutions (ISSAI) no. 12 on the Value and Benefit of Supreme Audit Institutions, issued by the INTOSAI, refers to the importance of the SAIs' being an example to follow and a role model. In this light, the NAO realized the importance of the digital transformation of its audit tasks as well as its huge impact on the simplification and flexibility of procedures and the easy access to data, in addition to encouraging the auditees to start the automation of their operations and procedures.

During the years 2010-2011, the NAO started its journey towards the automation of procedures taken to plan and implement the audit tasks, until the Pentana Audit MK Program (MK Insight then) was inaugurated and fully activated as of September 2014.

### **5-1 The First Stage: Viewing Others' Experiences**

The NAO started its journey towards searching for an electronic program for the audit work automation during 2010-2011. In order to determine the procedures taken for the audit work automation during that period, the NAO took the following actions:

- 1- Paying visits to some of the neighboring countries' SAIs.
- 1- Viewing the experiences of some developed countries' SAIs.
- 3- Studying the Big Four Audit Firms' experience as well as some major commercial and banking institutions located in the Kingdom of Bahrain.

### **5-2 The Second Stage: Determining the Needs and Selecting the Appropriate Program**

The second half of 2011 witnessed the study of the NAO's needs, as well as determining in detail the technical needs and the necessary components required in the program in order to fulfill the needs of all types of audit tasks performed by the NAO.

Therefore, during 2012, the NAO communicated with some information system service providers and obtained their offers in this regard, in addition to their presentations about the audit work automation programs.

Based on the evaluation of the received offers and matching them with the needs of the NAO's audit work, the MK Insight Program (Pentana Audit MK Program now) was chosen due to its appropriateness to the needs and technical requirements of the NAO started the stage of modifying

the characteristics of the program in correspondence with the requirements of the NAO's audit work.

### **5-3 The Third Stage: The Experimental Examinations of the Program**

The experimental examinations stage of the MK Insight Program started during the last quarter of 2012 in which a work team was created for the program's examination and the determination of its developmental aspects and the challenges that may face the auditors upon using it. We shall present hereafter some of the developmental aspects as well as the challenges that faced the work team concerned with the program's examination:

- The presence of some issues related to structuring the program and coordinating it to match with the Arabic language.
- The need for reprogramming the procedures embedded in the program in order to match the procedures actually implemented in the NAO.
- The presence of differences in the work procedures followed by the NAO's technical departments, as the work procedures in one of the departments require higher auditing and adoption levels than those adopted in other departments.

- The need for re-setting the terms of references' levels in a way that sustains the privacy and confidentiality of the program's data and stored information, in which the terms of references' levels are determined according to the user's job level position.
- The need for re-setting the levels of privacy and confidentiality of some of the auditees' files, and determining the users allowed to access them.
- Raising the limit of the desired expectations from the program, as the work team expected a high level of automated procedures and a lesser human interaction, which led to a gap in the expectations and to the team's dissatisfaction with the program's performance.
- The incompatibility of the audit reports issued by the program to those developed by the NAO's technical departments in terms of form, coordination, components, and sections.

The provider company was contacted to re-set the program in a way that contributes to solving the problems and challenges mentioned above and help fulfill the audit work easily and swiftly.

#### **5-4 The Fourth Stage: Preparing to Launch the Program**

The preparation to launching the program started in the first quarter of 2013 during which some challenges emerged and necessitated executing procedures and setting their necessary solutions in a way that enable the optimal use of the program's features and contributes to enhancing the efficiency and effectiveness of the audit tasks' procedures as well as achieving the goals for which the program was chosen.

We shall present hereafter the most prominent challenges that faced the NAO during the preparation stage for launching the program as well as the procedures taken in this regard:

##### **First: The challenges related to transferring data from paper documents to the program**

One of the most prominent challenges that faced the NAO during the preparation stage for launching the program is the process of transferring the necessary and required data for performing the audit tasks from paper documents to the program, such as the auditees' permanent data files, which exceed 60 files and include the legal legislations regulating those entities, the policies and procedures'



manuals, the detailed organizational structures of each as well as the departments' tasks and responsibilities' lists and their structures-based jobs; in addition to the relevant recommendations issued in the NAO's reports which were not fully implemented.

In order to overcome these challenges, the NAO created a team responsible for scanning all the documents stored in the permanent files and inputting the recommendations that were not fully implemented by the entities in order to be followed-up through the program during the following fiscal year.

### **Second: The challenges related to striking a balance between the audit tasks and the launch of the program**

The launching process requires various procedures such as transferring the necessary and important audit work's data in a way that guarantees the readiness of the program, in addition to spreading awareness about the program and its advantages aspects, which contribute to enhancing the change management conducted by the NAO's auditors and providing them with the necessary training for using the program. On the other hand, the NAO abided,

in accordance to its foundation law, by determined dates to implement the audit tasks and issue the reports. Therefore, the NAO's top management has decided to schedule the launch of the program during the period preceding the beginning of the following fiscal year (2013/2014).

### **Third: The challenges related to the change resistance and its management**

The concept of change resistance depends on the refusal of individuals to adjust to the changes and holding on to the customs and old methods. This largely stems from the fear of facing the unknown and the expected negative impacts.

The NAO has developed a plan to implement the change agenda and to promote the program in order to manage the change and help its employees to adapt with it and properly manage the expected resistance thereto. In this regard, awareness sessions were held on the program's goals and its importance for the audit work as well as its impact on the performance development on the executive departments level and the auditors working in the NAO's technical departments.



Training courses were conducted for auditors from all levels and specialties in order to identify the mechanism of using the program and how to perform the audit work through it, as well as its features and advantages and their role in facilitating the procedures and saving the auditor's time and effort.

Moreover, procedures' and detailed policies' manuals were developed to organize the use of the program according to its embedded units, supported with screenshots and explanatory videos in order to facilitate the work of auditors and encourage them to use the system as well as circulating this on all the NAO's technical departments, and determining a work team from each to provide guidance and support for users.

In order to guarantee the commitment to performing the audit work the program, using the program was considered one of the elements of the performance evaluation of all professional levels starting from the date specified to fully launch and activate the program.

### **5-5 The Fifth Stage: The Launch and Activation of the Program**

The program was launched at the beginning of the professional year (2013/2014) in parallel with the previous manual work systems outside the program.

During that period, the program and the paper documents were both synchronously relied on to perform the audit work until having the program fully activated during the following professional year (2014/2015).

The program was fully activated while the manual use was terminated and the paper documents were dispensed during the professional year (2014/2015), and since then, the NAO's audit work teams have been totally depending on the program to manage the audit tasks in addition to documenting the results of the audit work including the work papers, evidence documents, and audit reports.

During the past period, some technical challenges have emerged as a result of using the program which should be addressed and solved properly in order to guarantee the continuity of the audit processes' swiftness and maintaining their efficiency and effectiveness, the most prominent of which are as follows:

- The large volume of files and databases electronically stored in the program and its impact on the rapid operating of the program and uploading and restoring the files which require servers with a larger storage space.

- The importance of adopting disaster-recovery plans has emerged along with the interest in keeping reserve copies periodically and continually which guarantees saving the files and documents important to the audit work in the NAO from being lost and maintaining its continuity.
- The importance of keeping up with the updates applied to the program by the provider company in order to benefit from the features added to the program, and to facilitate the updating process on users and auditors to be automatically implemented without the need of referring to the NAO's IT Department.
- The need to continue developing the program and resetting it in accordance with the updates of the NAO's audit work and the results of auditing the performance quality.
- The importance of enhancing the NAO's information security systems and cybersecurity, which contribute to preserving the confidentiality and privacy of the auditees' data as well as protecting the NAO's internal network from the hacking risks.

#### **6- The Fifth Axis: The Automation Impact on the Performance Level and the Efficiency and Effectiveness of the audit Works**

In order to measure the impact of automation on the performance level as well as the efficiency and effectiveness of the audit works, it is necessary to clarify the work systems used during the preceding period hereto. Due to the importance of documenting the fulfilled audit procedures and the audit evidence and to compile them in one audit file, in correspondence with the ISSAI 1230 on the audit documentation issued by the INTOSAI, the NAO sought to document and maintain its audit work in a paper file for each audit task.

The audit files include all the documents and papers received from the auditees which are referred to for understanding their administrative structure and the nature of their operations, as it contains organizational structures of the departments' tasks and responsibilities and the listed thereon posts, the legal legislations, the policies' manuals, and the procedures regulating their work, as well as their financial statements, internal audit reports, and other reports and documents.

Moreover, these files include the audit plan and the audit program according to which the audit work will be

implemented, the work files which document the implementation of the procedures and objectives of the audit program with all its copies and the evidence supporting documents, in addition to all audit draft reports, amendments, and the final version of the issued audit reports, and the related outgoing and incoming correspondences and the feedback of the auditees. All these documents are linked to each other and to the findings and recommendations issued in the audit report.

The process of auditing the work files and linking them to the evidence supporting documents through manual printing, reviewing, and correcting the papers and the documents in order to reflect these amendments and additions in the work paper once again by the concerned auditor, a matter that require the presence of the auditors and the references in the same place to complete this matter.

Therefore, this clarifies the impact of automation on simplifying the procedures and facilitating the audit documentation process, and how this affects the performance level, the efficiency

as well as the effectiveness of the audit works as shown below.

### **6-1 The Automation Impact on the Performance Level and the Efficiency and Effectiveness of the Audit Work from the Executive Management's Perspective**

The Pentana Audit MK program is used by the NAO's technical departments' managers to implement their entitled work regarding the audit tasks under their supervision and responsibility in order to adopt the audit tasks files and the included audit plans therein. However, from their perspective, the program contributes to enhancing the efficiency and effectiveness of the audit works in a way that has a positive reflection on the performance level as the program had a prominent impact on reducing the paper use and the thereof effect on the financial and environmental levels. It contributed to reducing the costs and expenses resulting from the paper use in printing, reviewing, and reprinting the work files as well as providing the necessary physical space for storing them in addition to creating an eco-friendly professional environment through the implementation of initiatives related to the green environment policy.

Moreover, the easy access to information and data, as all the audit tasks' files are available to the departments' managers within their mandated powers in order to preview and follow up the workflow on a timely basis, and provide the audit team work with the necessary directions on the interest fields that should be focused on, as well as the possibility of obtaining a preliminary draft concerning all the comments and recommendations related to the audit tasks and their audit.

In addition, the system includes features that assist in the annual planning and scheduling of the audit tasks throughout the professional year in a way that enables performance measurement through comparing the planned tasks with those that have already been implemented, and determining the available personnel in a way that helps the executive management to plan and schedule the auditing tasks according to the available resources.

## **6-2 The Automation Impact on the Performance Level and the Efficiency and Effectiveness of the Audit Work from the Auditor's Perspective**

In light of the work systems followed during the period preceding the automation of the audit work and the mechanism through which the audit work is implemented and documented, the Pentana Audit MK program contributes to saving the auditors' and audit team's time and effort. The program allows the auditors within the same audit team to electronically share the data saved in the audit tasks files, as well as the absence of the need to prepare paper files for the audit tasks, which requires performing a number of administrative tasks that consume the auditor's time and effort such as arranging files and documents, preparing separators for sections and the index, and preparing the necessary stickers, as well as linking, reviewing, and adopting these files and documents, and finding the appropriate place for their saving, given that the number and storage of files in some audit tasks may reach 7 files.

On the other hand, the program contributes to developing the process of reviewing the work papers in order to be performed on a timely basis and without delay as well as directing the auditors to the focus areas of interest that require the

implementation of additional procedures or inquiring from the auditee about them, and their impact on the performance level and accuracy of the data contained in the work files.

The program also provides a movable database for all types of the audit tasks' files, in addition to adopted forms of the audit programs as well as exemplary notes and recommendations for the reference and guidance of the audit teams without the need to be present at the NAO's headquarters or be connected to the internal network.

### **6-3 The Automation Impact on the Performance Level and the Efficiency and Effectiveness of Audit Works from the Active Data Quality Audit's Perspective**

The NAO seeks to be committed to providing high-quality audit services through activating an appropriate quality audit system that covering all works in accordance with the ISSAI 40 on the SAI's Quality Audit issued by the INTOSAI. Therefore, the automation impact from the perspective of the NAO's Quality Audit concerned auditors was measured, along with the contribution of Pentana Audit MK program to enhancing

the efficiency and effectiveness of their works. The program had an impact on the rapid achievement and accuracy of the quality audit works, through easy access to data and documents stored in the program to be examined within the framework of the quality audit works, as well as the possibility of reviewing a larger volume of the program included regulations in the shortest possible time, and the easiness of determining their developmental aspects and referring them to the executive management for taking the necessary measures.

Moreover, the checklists 'adopted forms during the audit work stages help predict the procedures and mechanism to be followed in every stage, which facilitates evaluating to what extent the audit teams are abiding by the procedures adopted within the technical departments' procedural manuals. The audit records also contribute to tracking the sequence of the audit procedures and the extent of commitment to the time specified in the procedural manuals.

### **6-4 The Automation Impact on the Continuity of Working during the Period of COVID-19 Pandemic Spread**



The automation impact on the continuity of the NAO's work has been clearly highlighted during the period of the COVID-19 Pandemic spread, as well as the impact of using the information technology and the information systems infrastructure's readiness on the NAO's performance level during that period.

Since the beginning of the COVID-19 outbreak in March 2020, the NAO has committed to the directions issued by the kingdom of Bahrain Government concerning the application of the remote work policy. However, the audit work system has not been affected thereby due to the availability of the information resources, the computer devices as well as the mandate granted all the NAO employees its technical access to the virtual network.

As the NAO has taken proactive steps towards automating its audit work as well providing the necessary relevant resources, tools, and devices, this has undoubtedly helped the NAO in successfully passing that period with its hurdles, maintaining the continuity of the audit work, and committing to the due dates of issuing its reports according to its law.

## **7-The Sixth Axis: The new trends in the field of the Audit Work's Automation**

The Information technology (IT) revolution had made significant and rapid changes in the different aspects of the contemporary life. It had a huge impact on the institutions and their activities which uses the information technology in processing the financial data and operations in all types of institutions that was reflected on the audit process of these institutions where the SAI auditors as well as the internal and external auditors had to keep pace with these developments and adapt to them in order to accomplish their tasks and achieve the objectives of the audit process. The growing use of the IT in the financial data processing and accounting procedures helped in discovering audit errors and crimes associated with this technology. The use of computers has led to the renouncing of the paper documentation and the disappearance of a part of the proving documentations along with operating and processing the financial operations in a way which is more stable and consistent and a huge part of the input and data have become subject to be processed in a hidden format internally



within the computer and at great speed. This issue required promoting the methods adopted for the implementation of both the audit tasks and audit work.

In this regard, and given that the dependence on the computerized information systems and Information technology in the recent years have become a basic and main part of the institutions, it became difficult for them, especially SAIs and audit institutions, to perform their work without relying on technology and the use of computer to process the financial data and the accounting procedures, where many methods, tools and applications appeared to face the technical development, facilitate their implemented operations and enhance their efficiency and effectiveness. The most notable are applications which use artificial intelligence techniques and, those concerned with the Big Data Analytics Tool as well as methods of activating the Real-Time Audit.

### **7-1- Artificial Intelligence**

The first term of Artificial Intelligence was developed in 1956 by the American Computer and Knowledge Scientist; John McCarthy, during the First International

Conference for Artificial Intelligence. The artificial intelligence was defined as the science and engineering of the intelligent machines industry which present each of thinking, knowing, planning, learning, communicating and recognizing how to move bodies and deal with them. The artificial intelligence is known to be the machines' intelligence and the branch of Computer Science that aims to create it. The modern widely used definition describes the field as studying and designing the smart factors where the intelligent client creates a system which envisages his environment and takes the procedures that increase his chances of success.

The Artificial Intelligence can also be defined as the science of allowing computers to do things that require intelligence when human performs them. The computer devices are considered the suitable type of machines that should be intelligent as the computer devices can be programed to simulate the intelligence. The computer programs are characterized with high speed and a large memory nevertheless their capabilities are limited to those intellectual mechanisms that software designers understand well enough

to turn them into software. The term Artificial Intelligence is used in a very broad sense and includes but not limited to machine learning, pattern recognition, perceptual structures, logical models, robotic brain structure, vision, sensor information and knowledge engineering. John McCarthy defined it as the science that deals with the engineering of making smart machines and smart computer programs through studying the human brain's intellectual methodology to be used in solving problems.

Several studies about the artificial intelligence in the fields of auditing highlighted the importance of the Big Four Audit Firms transformation to the Intelligent Audit Automation's technique which requires automating all the audit operations' stages and making them continuous and synchronized. They also pointed out the challenges that face the leading audit institutions that initiated the activation of automating only some, not all of the audit procedures, in addition to classifying the field of Forensic Accounting as one of the most benefited fields in case the artificial intelligence techniques are used during its implementation.

It was also mentioned in the report of the American Institute of Certified Public Accountants (Introduction to Artificial Intelligence) that the use of the artificial intelligence in the audit field aims to achieve the following:

- Maintaining the human knowledge from being lost or wasted as well as preserving the professional experience in the different specialized fields of audit offices through documenting them within the applications, adding to and refining them according to the accumulation of practices as most of the knowledge is confined to a minority of professionals where losing them will lead to a significant loss and thus the experienced systems are considered a secure repository for this expertise.
- Improving the workers' productivity in audit offices where the office experts acquired technical expertise is placed at disposal of the beginners.
- Disseminating and distributing the experience inside the audit offices through the applications which is easier and cheaper than moving the human element.

- Increasing the capability of processing the composite and complex analysis which could be partially in the reach of a normal person however the big quantum of details, data and facts that should be taken into account may require an experienced expert.
- The applications provide a profound creation and understanding of knowledge that may lead the office experts to reconsider their practices by placing them in front of them in an aware and profound acquisition manner as well as helping the beginners in acquiring of knowledge and in using these systems as training aids.
- Auditing the performance quality during the audit process' implementation and the consistency of practices among the different audit team's individuals and members as well as providing some guarantees for applying the methods agreed upon and documented by the applications.
- The ability of the expert systems to perform complex tasks as they contain the knowledge of multiple experts in the field of auditing which make them qualified to perform the tasks on a level that matches if not surpasses the human experiences in the same field.

Due to recognizing the importance of applying the artificial intelligence techniques in the audit work executed by SAIs, the National Audit Office of the Kingdom of Bahrain aims to apply these techniques in some audit procedures specifically the follow-up procedures of its issued recommendations and benefiting from these techniques in classifying the auditees according to their response and rates of implementing the recommendations in a way that helps to make the necessary decisions upon developing the annual plans of the audit and follow-up tasks.

It's noteworthy that such techniques face challenges related to the availability of automatic systems where their software are compatible with the financial audit tasks, the compliance and performance audits, as well as the forensic audit and other specializations assigned to the NAO.

## **7-2- The Big Data Analysis**

The audit profession practitioners are increasingly interested in "the big data". The big data analysis' concept is summarized in the extraction and processing of data from a variety of sources

aiming to identify the risks, collect evidences and make decisions as auditors lately use the emerging technology in Audit Analytics which is known as the Science of discovering and analyzing patterns, determining extreme values and extracting useful information from the basic or secondary data relevant to the audit topic through analyzing, modeling and envisioning for planning or performing audit task as defined by the AICPA 2015.

The mechanisms that preceded the application of this technology and were used by external auditors are represented in conducting analytical procedures during the stages of planning, detailed tests and completing of the audit tasks (AICPA 2015). Following these mechanisms allows the usage of the collected data on a general level and results are provided on a wide scale as a primary indicator for the probability of the presence of significant errors (AICPA 2012) while the Audit Analytics techniques could be applied on a transaction level when used on a wide scale and upon analyzing the complex big data and thus, this technique reinforces the risk assessment process' accurateness as well as improves the quality of planning.

The leading audit institutions have achieved a remarkable progress in keeping pace with the digital transformation through maintaining an informative system that enables them to manage the audit and through processing advanced methods and techniques which enable them to analyze their big data where, the audit firms; PWC stated during the year 2018 according to the book (The Future of Auditing) its use of techniques that analyze audit data in order to deal with the big data and to reach the results efficiently and effectively.

Further, one of the studies prepared for the purpose of detecting the financial fraud processes as well as analyzing the big data indicated that the current audit practices that aim to identify the fraud risks need to be developed due to the ineffective use of the unorganized data. The study concluded that by using the big data analysis techniques in brainstorming sessions related to fraud cases, positive results were reached represented in expanding the volume of information, enhancing the analytical results and the easy communication among auditors. The study also praised the ability of the

audit team to use the analytical tools of the big data in all the brainstorming process stages including the stage of collecting the primary data and attaching them with the conclusions as well as their documentation.

The NAO started using the data analysis techniques in performing the Forensic Audit tasks stemming from the Office's belief in their importance in organizing and analyzing the big databases aiming at identifying more accurate risks that are related to the audit topic where the NAO uses the IDEA Data Analysis program which is a specialized data analysis program that provides comprehensive, effective and easily used analytical tools. It is characterized by advanced analytical developed features that help in boosting data analysis and providing an easier usage experience as well as in presenting results effectively and in the suitable time.

### **7-3- The Real Time Audit Method**

The challenge nowadays lies in providing information with specific qualitative characteristics according to the variables of the contemporary business

environment. Focusing on the relevance of information in the financial reports is considered a key axis in these qualitative characteristics especially presenting the financial report in a suitable time, the ability of the accounting information to provide predictions that help decision makers to reach the best use of the accounting information. In the context of reflecting these developments on the accounting work and financial report, an electronic financial report was established in the framework of efforts on the international level.

In the same framework, a noticeable interest in real time audit has emerged as a result of the challenges that faced the audit profession in light of the important changes in information technology. The real time audit helps to strengthening and reinforcing the qualitative characteristics of the accounting information and financial reports through technological tools and methods in order to enhance their relevance and benefits in the users' decisions and provisions. Based on the above mentioned, the real time audit is considered a natural development for integrating information technology with the audit process.



The concepts related to the nature of the real time audit are multiple which is due to the information technology boom and its successive developments which in turn affected the audit profession in general in term of its nature and timing. The real time audit was defined as “a methodology that enables independent auditors to provide a written assurance about a specific issue by using a series of the auditors' reports issued concurrently with events related to that issue or after a short period from its occurrence according to the "AICPA and CICA 1999". It was also defined as one of the audit types that are done on a direct computer system aiming to monitor, examine and download the data flow through the system on a continuous basis by using a group of information rules related to the auditor that are being merged in the system to be audited”. On the other hand, it was defined as "the process of collecting evidences by the auditor to continuously evaluate the efficiency of the systems and processes during a certain period of time”.

The Chinese experience is characterized by adopting the real time audit which was praised by many accounting and auditing practitioners as well as being adapted by many institutions according

to what was mentioned in the book entitled (The Future of Auditing). The Chinese experience was also documented in a book entitled (Study on the Auditing System of Socialism with Chinese Characteristics) (Jiaiyi,2017) that included highlighting the importance of applying the real time and post audit methods as well as the comprehensive and partial audit for their positive impact on the speed of achieving the financial audit tasks.

Activating the real time audit method, despite its significant importance is still in its first stages due to the challenges that face its followers which lies from the SAIs' perspective, in the difficulty of accessing the financial data of auditees as well as the need to make use of information security systems that maintain the security and confidentiality of the data used.

According to what was mentioned above, the real time audit method is considered an ambition that we at the NAO aim to achieve as it is one of the newest methods that is being applied by SAI China as well as the maximum benefit achieved through it in implementing the financial audit work efficiently and effectively despite the volume and complexity of the auditee.



The biggest challenge that faces SAIs in their course of coping with the technological development and using the new techniques and methods is associated with the importance of updating their security systems, the development and improvement of their security technical environment as well as following up the most important external technical risks that may expose the SAIs' electronic systems to electronic penetration and information leakage.

## **8- The Seventh Axis: Research findings and recommendations**

Before starting to mention the research findings and the relevant recommendations, we should return to focus on some issues related to them.

### **The First Issue:**

The concept of automation is a general concept applicable to various fields. Its definition and concept differ by the difference of fields related to it, but all of them aim to apply IT techniques and reduce the human intervention to the lowest levels. The objectives of automation are summarized in increasing competitiveness of the institutions, reducing its production costs,

improving and boosting the work quality and accelerating its pace in addition to supporting decision making and improving the provided services.

### **The Second Issue:**

Automation of audit works means using IT and applying electronic methods to perform audit operations during all its stages in a way that helps in improving audit process' efficiency, shortening time and effort, providing results in due course, to assisting in decision making and increasing its effectiveness in addition to facilitating the documenting and the archiving of audit works.

### **The Third Issue:**

The importance of automation of audit work in SAIs emerged in conjunction with the increase of complexity and ramification of the operations of these institutions that require development of methods applied on a continuous basis and benefit from IT and the available new techniques to contribute in the flow of audit works, strengthen their efficiency and effectiveness in addition to reducing the administrative burdens and strengthen the efficiency of human resources' utilization.

**The Fourth Issue:**

NAO Bahrain worked on the automation of its operations starting from the operations related to managing audit tasks of auditees through the launch of program (Pentana Audit MK) to the programs used in forensic audit task whether for E-Discovery as Magnet Axiom program or for analyzing big data like (Idea Data Analysis).

**The Fifth Issue:**

Automation of audit work in SAIs has a significant Impact on simplifying procedures, shortening the time and facilitating access to data and information for various professional levels that contributed in strengthening the efficiency and effectiveness of audit works in a way that had a positive reflection on performance level. The impact of automation and the utilization of IT had clearly been manifested in business continuity and sustainability during the period of spread of corona virus (Covid 19).

**8-1 – The Research Results:****First: The Importance of the Audit Work's Automation:**

The information technology is considered a strategic choice which

SAIs should deal with and consider an opportunity which has to be utilized. From this perspective, it is evident to what extent it is necessary to automate the audit work, to use the information technology and to utilize new techniques during practicing the audit work in a way that contributes to the flow of the audit work and enhances its efficiency and effectiveness as well as reduces the administrative burdens, and the good utilization of the human resources.

**Second: The Automation's Success is conditioned by the Fulfillment of the technical Requirements and Conditions:**

The audit work's automation's success requires the fulfillment of a number of technical requirements and conditions, the most important of which is determining the priorities, and the operations that should be automated and performing an accurate description of the current work and procedures and their re-engineering in accordance with the automation, selecting the electronic systems in proportion to the requirements of the audit work and the SAI, as well as conducting the experimental tests on them to ensure this.

**Third: The change resistance as one of the most prominent challenges facing automation:**

Generally, the automation is considered a qualitative shift in the work procedures through its transformation from the traditional nature to the electronic one. Due to the widely spread concept for the automation and its objectives to eliminate the human intervention in the operations, series, it faces the challenge imposed by the change resistors, because of their objection to adapt to the changes and their holding on to the customs and old methods due to their fear of facing the unknown and the possible negative impacts.

**Fourth: The automation's impact on the work's continuity:**

The automation is known for its impact on simplifying the procedures, facilitating the operations and saving time and effort. However, its most prominent impact is its contribution in the continuity of the work during the disaster periods through facilitating the data access, especially if the necessary training and rehabilitation as well as the networks' communication techniques are available.

**Fifth: The constant pursuit of keeping up with the development:**

The information technology is developing rapidly, and from this perspective it is evident that it is important to continually keep up with the technological development, search for the modern techniques and methods and utilize them in the audit work to face the technical development and facilitate the operations implemented by the SAIs along with enhancing their efficiency and effectiveness.

**Sixth: Facilitating the data access and the information security:**

The automation has a prominent impact on facilitating the data and information access and making them available to everyone, which make it more vulnerable to the electronic penetration and information leak. From this perspective, it is clear that it is important to update the security systems as well as develop and improve the SAIs' security technical environment, follow up the important external technical risks which might expose their systems to electronic hacking and information leak.

## **8-2- Recommendations:**

### **First: The importance of activating automation in the audit work:**

SAIs should activate the concept of automation through embarking to spreading the automation culture to reach all the SAI's employees, seeking to clarify the automation's importance and advantages as well as its positive impacts on improving the performance's efficiency and effectiveness, in addition to determining a future vision and a clear strategy that would pave the way to automating the SAIs' assigned competences or enhancing usage on a wider scale in its operations especially the ones related to auditing.

### **Second: The importance of fulfilling the technical requirements necessary for the audit work's automation:**

In order to activate the automation, SAIs should study all its operations and determine the operations that are liable to be automated or to enhance using the automation therein, with focusing on the main operations which their automation is considered necessary for the technicians.

SAIs should search for the electronic systems and the tools appropriate for the operations which were endorsed to be automated, ensuring that they are based on sound foundations that achieve their desired objectives, in addition to the technical devices and tools as well as the information systems' infrastructures necessary to be activated in addition to taking care of their maintenance and updates, and work on rehabilitating and training the technicians on their usage.

### **Third: The necessity of the good change's management for a successful audit work's automation:**

As the change resistance is considered one of the prominent challenges that SAIs might face during their operations' automation, thus it has become necessary to focus on raising the awareness of the importance of automation and its role in the performance development with a view to accepting it and contribute in its implementation, to enhance the change management, to develop the plans necessary to activate the automation, and issue a guidance to be used in executing the automated processes.

**Fourth: The importance of the audit work's automation due to its prominent role in the work's continuity:**

The automation's impact on the work's continuity became clearly apparent during the spread of the Covid-19 pandemic, therefore, the SAIs should aim to use the information technology, ascertain the readiness of its information technology's infrastructures, ensure the availability of the information resources, the portable computers, the validity to access remotely the special virtual networks of their technical employees, in addition to developing the disaster recovery plans, protecting the assets, the data, and the information technology, along with the work's continuity plans, with paying interest to the roles' distribution and to the thereon training.

**Fifth: The necessity of keeping pace with the technological developments in the audit work's automation:**

SAIs should keep pace with the technological developments and continue monitoring effectiveness of the modern methods and techniques used in improving their audit operations' quality, in addition to enhancing their benefit from the salient experiences and practices in this

field, as well as having the keenness on expanding the automations' operations using the methods and techniques that proved their success such as the artificial intelligence and the big data analysis techniques.

**Sixth: The necessity of enhancing the SAIs' cyber security:**

Considering the huge amount of information and the confidential data stored in the servers resulting from the audit work's automation, it has become necessary for SAIs to strengthen their cyber security systems through improving their technical security environment, as well as following-up the most important technical external risks which contribute to maintaining the confidentiality and privacy of the operations and data against the electronic penetration risks and information leak.

**9- Conclusion:**

As a result of the rapid development of the information technology, and the utilization of various modern techniques and methods in the audit work, these developments have necessarily drawn the SAIs' attention to include them in their



strategy in order to benefit from them in effectively and efficiently accomplishing their mandates assigned under organizing legislations.

The research discussed the audit work's automation and its role in the performance development aiming to determine and clarify the importance of the SAIs' operations' automation. Through presenting the experience of SAI Bahrain in this field, we have reached a main conclusion acknowledging the positive impact and the noticeable added value provided by the information technology with its different tools to the audit work where the automation contributed in facilitating the procedures, the operations' flow, reducing the time and effort necessary to execute the procedures and their documentation, and supporting the decision making, besides assisting to facilitate the data access and their archiving.

No doubt that the importance of the audit work's automation has emerged during the Covid-19 pandemic as SAI Bahrain's work system wasn't affected as a result of its use of the information technology and the information technology

infrastructure's readiness, especially in using the Pentana Audi MK Program with the possibility of accessing the special virtual network as mentioned before in the research. This proved the importance of automation and enhanced the information technology utilization in the audit work in order to ensure its continuity and sound response to disasters as well as the reduction of their negative impacts.

In order to foster the role of the audit work's automation, we realized the necessity of activating and enhancing the audit work's automation, keeping pace with the technological developments as well as the recent techniques, the continuous investment in the modern information technology tools such as the electronic systems, the cloud computing and the big data analysis tools, enhancing the information protection and cyber security systems as well as continuously working on rehabilitating and training the SAIs' technicians in order to cope with the developments in these fields.



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## **Congratulations of New SAIs' Auditors General**

## SAI Burkina Faso

- The Editorial Board of the African Journal of Comprehensive Auditing extends its sincere congratulations to Mr. Justin Jean Baptiste Bouda for assuming the temporary presidency of SAI Burkina Faso succeeding Mr. Jean Emile SOMDA, since May 31<sup>st</sup>, 2021. Mr. Bouda led a rich professional life, in which he assumed the position of the General Director of Treasury and Public Accountancy with assuming specific tasks to reform treasury services and financial legislation, and public accounting. Subsequently, he assumed the position of Vice-president of the Scientific Committee responsible for evaluating the scientific materials for training managing executives, and then became Treasurer of the diplomatic and consular missions of Burkina Faso abroad.
- Mr. Bouda occupied a number of positions including the Director of Treasury Computing at the Ministry of Finance, the Technical Adviser of the Delegated Minister for Budget, and the Technical Adviser of the Minister of Economy and Finance. He also held the position of Special Adviser of the Burkinabe Prime Minister who provides the advisory assistance in coordinating and monitoring the governmental work.



## SAI Gabon

- The Editorial Board of the African Journal of Comprehensive Auditing extends its sincere congratulations to Mr. René Aboghe Ella for assuming the position of the First President of SAI Gabon, succeeding Mr. Gilbert Ngoulakia who had spent twenty-seven years in office since 1994. Mr. Ella had previously served as the First President of the State Council since July 2018, after spending 12 years as the President of the Independent National Electoral Commission in Gabon.



## SAI Liberia

- The Editorial Board of the African Journal of Comprehensive Auditing extends its sincere congratulations to Mr. P. Garswa Jackson Sr., ACCA, CFIP, CFC for assuming the position of the Auditor General of Liberia on July 15th, 2021. Prior to his appointment as Auditor General, Mr. Jackson occupied the position of the University of Liberia Vice-President for Financing and Taxes, where he was responsible for overseeing the financial management activities at the university. His previous experiences also include working as a Financial Auditor (Head of Financial affairs) and the Chief Internal Auditor of the University of Liberia, the Financial Statements' Auditor at KPMG in addition to his earned experience in taxes' managing in the Customs and Taxes Office as well as the major Taxpayers' Unit in the Ministry of Finance of Liberia.

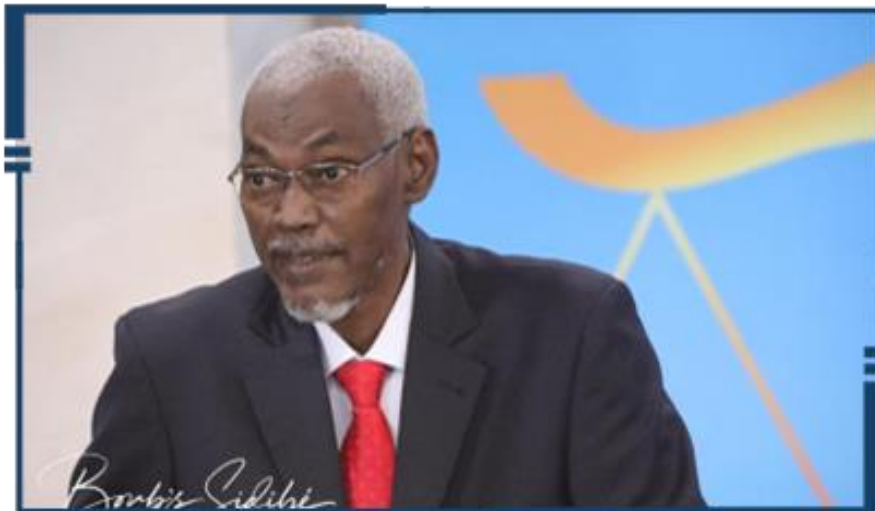
Mr. Jackson is a member of the ACCA in the UK as well as the Liberian Institute of Certified Public Accountants (LICPA). He obtained a Bachelor of Science in Economics from the African Methodist Episcopal University in Liberia.





## SAI Mali

- The Editorial Board of the African Journal of Comprehensive Auditing extends its sincere congratulations to Mr. Mohamed Sida DICKO for assuming the position of the Comptroller General of Mali after being sworn in on September 2nd, 2021 before the Supreme Court of Mali. The new Comptroller General of Mali has extensive experience in the audit work, having already served in the General Control of Public Services in addition to occupying other senior administrative and political positions, including the position of the Minister of Justice.



## SAI Morocco

- The Editorial Board of the African Journal of Comprehensive Auditing extends its sincere congratulations on the assumption of Mrs. Zainab El-Adawy for assuming the position of the First President of SAI Morocco, becoming the first woman to occupy this high position in Morocco. Al-Adawi had previously assumed a number of positions since graduating and obtaining a Diploma in the Deep Studies in Economic Sciences, leading to her appointment in 1984 as a Judge of Accounts, becoming the first woman to hold this position. El-Adawy was appointed in 2004 as the President of the Regional Council of Accounts in Rabat, and in 2010 she joined the Advisory Committee for Regionalization with the aim of developing a national model for an advanced regionalization to keep pace with the institutional reforms' workshops. In 2011, El-Adawy became a member of the National Council for Human Rights which is an independent human rights institution in Morocco.

In 2014, El-Adawy assumed the position of the Governor of the West Region in the Province of Quneitra, becoming the first woman in the history of the Kingdom of Morocco to assume this great position.



## SAI Rwanda

- The Editorial Board of the African Journal of Comprehensive Auditing extends its sincere congratulations to Mr. Alexis Kamuhire on assuming the position of the Auditor General of Rwanda on October 13th, 2021, becoming the 4th Auditor General since the establishment of SAI Rwanda. Mr. Kamuhire assumed a number of important positions such the Chief Internal Auditors, which he occupied for seven years in the Ministry of Finance and Economic Planning. He also coordinated and supervised the internal audit function in all central and local government agencies, public institutions, government programs and projects.
- Mr. Kamuhire had previously worked as a Financial Management Specialist for the Integrated Financial Management Information System Project at the Ministry of Finance and Economic Planning of Rwanda where he was responsible for the strategies of the change management and capacity building.
- In 2003, he started his work at SAI Rwanda and he progressed through various positions until he was promoted to the position of Senior Auditor, a position he held until 2007.
- In addition, Mr. Kamuhire served as a member of the Advisory Committee of the Audit and Risk Committee of the East African Community from 2015 to August 2021. He is a Fellow of the Association of Chartered Certified Accountants (ACCA) and a member of the Institute of Certified Public Accountants Rwanda (ICPAR).



## SAI Sudan

- The Editorial Board of the African Journal of Comprehensive Auditing extends its sincere congratulations to Mr. Fakhr El-Din Abdel-Rahman El-Sayed Ali Bashir who was assigned as the acting Auditor-General of the Republic of Sudan succeeding Mr. Al-Taher Abdul-Qayoom Ibrahim; the former Auditor-General. The curriculum vitae of Mr. Fakhr El-Din indicates that he obtained a Bachelor's degree in Accounting from Cairo University (Khartoum Branch) in 1981, then joined SAI Sudan after a year from his graduation. He occupied various positions within SAI Sudan and thus working in all its units and various sectors in Khartoum and the different states of Sudan.

Mr. Fakhr El-Din had previously occupied the position of the General Director of Audit at the Federal Ministry of Finance in the Republic of Sudan, as well as the General Director of Contracts and Loans. Then, he was assigned to a number of the state's institutions over the past years before returning to SAI Sudan and resuming his work until he occupied the position of the Assistant Auditor General after completing all the training courses as well as the compulsory audit courses.



**Lamentation of Former SAIs Auditors  
General/Assistant Auditors General**

## SAI Liberia

- The Editorial Board of the African Journal of Comprehensive Auditing extends its condolences on the decease of Ms. Yusador Gaye, the Auditor General of the Republic of Liberia, who passed away on July 1st, 2021. The deceased chaired SAI Liberia in 2014.

Prior to her appointment as the first Auditor General of the Republic of Liberia, Ms. Gaye worked as the General Inspector of the Diplomatic Corps in the Ministry of Foreign Affairs, where she was responsible for the inspection of Liberian diplomatic and consular institutions abroad. In addition, prior to that, she worked as a Senior Accountant, a Management Consultant, the North Carolina State treasurer, and a Bank Auditor in the North Carolina Bank Commission.

Ms. Gaye obtained/ a Master's degree in Public Administration from the Central North Carolina University and a Bachelor of Science in Accounting from the Saint Augustine College in North Carolina. She was a Global Certified Management Accountant (CGMA), and a member in each of the American Institute of Certified Public Accountants, the North Carolina State Board of Public Accountants, the Liberian Institute of Certified Public Accountants, and the American Society of Public Administration.

During her tenure as the Auditor General of Liberia, Ms. Gaye worked in the aim of strengthening SAI Liberia. Her achievements included enrolling employees in professional certification training programs and aligning SAI's human resources and information and communication technology (ICT) policies with the best international practices.

Ms. Gaye was the Chair of the Capacity Building Sub-Committee of the AFROSAI-E.





## SAI Uganda

- The Editorial Board of the African Journal of Comprehensive Auditing extends its condolences on the decease of Mr. Francis Masuba; the Assistant Auditor General of the Auditor General of the Republic of Uganda for Corporate Services and Accounting, who passed away on June 27th, 2021. Mr. Masuba had joined in the Auditor General's Office in 1984, as an auditor, and he held various positions including that of Audit Manager. In 2016, he was appointed as the Assistant Auditor General of the Auditor General of the Republic of Uganda for Corporate Services and Accounting, where he was responsible for the financial and administrative affairs, the human resources and development department, technical support and information technology services, the legal services, communication services, procurement, logistics, and internal audit.
- Mr. Masuba had received extensive training in several fields of auditing, in addition to his professional qualifications which include his being a fellow of the Association of Chartered Certified Accountants (ACCA) and the Chartered Institute of Public Finance and Accountancy (CIPFA). He obtained a Bachelor's degree in Commerce from Makerere University, a Master's degree in the Executive Business Administration (MBA), and an Advanced Diploma in Government Accounting and Management from CIPFA/Eastern and Southern Africa Management Institute (ESAMI).
- Mr. Masuba had contributed in the development of SAI Uganda, as he designed the legal framework for the independence of the Office of the Auditor General which led to the enactment of the National Audit Act for the year 2008, and since 1998, he worked on developing the value-for-money auditing. Mr. Masuba had also developed the administrative information system for SAI Uganda.
- Mr. Masuba also led a project to improve conditions in the SAI's branch offices, and played a key role in raising the level of leadership in the branch offices from the level of senior auditor to the level of chief auditor.



