GUIDE

General capacity building requirements for conducting IT Audits in a Supreme Audit Institution

Quality Assurance Certificate of the

Chair of INTOSAI Working Group on Information Technology Auditing (WGITA)

This is to certify that the GUIDE General capacity building requirements for conducting IT Audits in a Supreme Audit Institution, which is placed at level 2 (two) of Quality Assurance as defined in the paper on "Quality Assurance on Public Goods developed outside Due Process" approved by INTOSAI Governing Board in November 2017, has been developed by following the Quality Assurance processes as detailed below:

i. The project proposal was developed by the team in consultation with INTOSAI WGITA Members;

ii. The project was discussed during the 26th WGITA Meeting in Seoul in 2017, the 27th Meeting in Sydney in 2018 and the 28th Meeting in Fiji in 2019;

iii. The draft project output was circulated among team members and WGITA members; and was exposed for 45 days (from 12 July 2019 to 26 August 2019) for comments.

The product is consistent with relevant INTOSAI Principles and Standards. The structure of the product is in line with the drafting convention of non-IFPP documents.

The product is valid until November 2022 and if not reviewed and updated by November 2022, it will cease to be a public good of INTOSAI developed outside the Due Process.

Rajiv Mehrishi
Chair of INTOSAI Working Group on
Information Technology Auditing

Quality Assurance Certificate of the

Chair of INTOSAI Knowledge Sharing and Knowledge Services

Based on the assurance provided by the Chair of INTOSAI Working Group on Information Technology Auditing (WGITA) and the assessment by the Goal Chair, it is certified that the GUIDE General capacity building requirements for conducting IT Audits in a Supreme Audit Institution, which is placed at level 2 (two) of Quality Assurance as defined in the paper on "Quality Assurance on Public Goods developed outside Due Process" approved by INTOSAI Governing Board in November 2017, has been developed by following the Quality Assurance processes as detailed in the Quality Assurance Certificate given by the Working Group Chair.

The product is valid until November 2022 and if not reviewed and updated by November 2022, it will cease to be a public good of INTOSAI developed outside the Due Process.

Rajiv Mehrishi
Chair of INTOSAI Knowledge Sharing and
Knowledge Services Committee

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Chapter 1

Introduction – glossary of terms, concepts and definitions

1. Three (3) legal and organisational models of Supreme Audit Institution mean either one of the listed models below.
   - the Judicial, or Napoleonic model,
   - the Parliamentarian, or Westminster model, and
   - the Board, or Collegiate model.

2. INTOSAI community
   The community consist of organs that are mainly overseeing the work of INTOSAI. There are various committees and task forces implementing the programme of action as per the strategy. Other organs like the International Journal of Government Auditing (IJGA), IDI and related regional entities forms part of the community.

3. Collaboration and cooperative work
   Collaborative and cooperative work are agreed and established at organisational level. They focus on various areas such as capacity building, study tours, peer review, collaboration, focussed training or twinning arrangements.

4. Organisational development
   Is a planned and systematic approach to improving the effectiveness of a company, government department or any organisation, i.e. intervention that aligns strategy, individuals and processes.

5. Politics-administration dichotomy
   It is a term that explains the fusion of politics and public administration. The various factors in play must be considered when formulating or unpacking mandates of SAIs.

6. Principles of administration
   The principles of administration focus on defining structures of how organisation functions. They define processes to channel activities or work towards achieving organisation objectives.

7. Digital transformation
   Digital transformation is an innovation process that uses technology to traditional problems. An example is using of technology to enable business processes.

8. e-Government strategies

A strategy outlines a framework, guidance and processes of how government intends using technology to enable service delivery programmes.

9. Information Technology (IT)
   Information technology can be defined as the use of computers to store, retrieve, transmit, and manipulate data, or information, often in the context of a business or other enterprises.

10. Personal computer (PC)
    Personal computer is a multi-purpose computer whose size, capabilities, and price make it feasible for individual use. Personal computers are intended to be operated directly by an end user, rather than by a computer expert or technician.

11. Virtual private network (VPN)
    Virtual private network is a communication tunnel that is configured to creates a safe, encrypted connection over a less secure network, such as the public internet.

12. Information and communication technology (ICT)
    Information and communication technology (ICTs) is an extensional term for information technology (IT) that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals) and computers, as well as necessary enterprise software, middleware, storage, and audiovisual systems, that enable users to access, store, transmit, and manipulate information

Purpose of the guide

The three main models [i] of Supreme Audit Institutions (SAIs) are well understood in terms of how they inform the mandates and operations of the SAI. However, a common reality across these models is that all SAIs are affected by current technological developments. More than anything, this guide highlights the importance and considerations of information technology (IT) during audits.

The guide identifies common capacity-building practices within the INTOSAI community and outlines the prerequisites for applying these practices when establishing IT audit capacity in a SAI.

Various guidance documents such as *Building capacity in Supreme Audit Institutions*, *Managing information and communications technology*, and *Strengthening Supreme Audit Institutions* have been developed through INTOSAI structures (e.g. the Capacity Building Committee). Collaboration and cooperative work carried out in regions and at organisations like the INTOSAI Development Initiative (IDI). Nevertheless, there seems to be little guidance

on establishing IT audit capacity to enable financial, performance and compliance audit processes.

This view is supported by the results of the Working group in IT audit (WGITA) survey of 2017[1] to assess the maturity profile of all SAI's IT audit capacity. An overwhelming response from SAIs highlighted the need for specific guidance in this area as many grappled with issues such as *outsourcing of IT Audit function*, *training*, *recruitments*, *development of infrastructure* viz ~ *hardware and software for facilitating IT Audit functions, etc.* This guidance document details the prerequisites for SAIs to address these issues.

Applicability of the guide

Although the guide is relevant to all SAIs it is not prescriptive, it is with the understanding that capacity-building initiatives are specific to a SAI's unique environment where a one-size-fits-all approach will not work.

The guide is primarily a source of information for SAIs venturing to establish an IT audit function or looking to develop and improve their current IT audit capacity and capability.

The structure of the guide

Part 1 of the guide provides an overview of the SAI operating environment. For example, Chapter 2 looks at the drivers of the evolution of public administration and the impact that this has on a SAI's work. Chapter 3 outlines the three main aspects of capacity building (i.e. professional audit capacity, organisational capacity and capacity to deal with external factors) and links these to the work being done within the structures of INTOSAI to help SAIs deal with IT audit capacity challenges.

Part 2 of the guide outlines the prerequisites for addressing a SAI's capacity and capability challenges within the established INTOSAI framework and practices. Where applicable, other independent frameworks are used to better explain some of the requirements.

Chapter 4 presents the requirements and key areas of capacity building specific to IT auditing. These are presented in a structure that mirrors processes and practices from established INTOSAI frameworks such as the SAI Performance Measurement Framework (SAIPMF) and the Institutional Capacity Building Framework (ICBF) of Afrosai-E.

Given that technological developments affect all sectors alike, Chapter 5 looks at its effects on the audit process, i.e. how IT is used to enable the audit process.

This guide was developed based on the capacity building information available from international organisations, and on SAI's shared knowledge and real experiences of

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[1] Justification/rationale for including Project on "General conditions for IT Support for Audits (Area: Capacity Development)" in the WGITA Work Plan (2017-2019)

collaboration and cooperation agreements. To give context to the guide, a survey was administered to corroborate the prerequisites presented. Annexure 1 provides an analysis of the survey results of the more than 20 SAIs that responded.

PART 1

Overview of the Supreme Audit Institution operating environment

Chapter 2

Evolution of public administration and its impact on the work of Supreme Audit Institutions

The concept of *organisational development* began to rise rapidly as an alternative to political science. The Global Centre for Public Service Excellence[2], the UNDP's catalyst for new thinking, strategy and action in the area of public service, promoting innovation, evidence, and collaboration produced a report by Mark Robinson about the implications for public sector reform in developing countries. The report looked at models of public administration and the approaches to public sector reform.

In addition, the report explains an era of *politics-administration dichotomy* that was followed by an era of *principles of administration* and an era of *public administration* as a management practice. This spanned a period from 1887 to 1970. The table below summarises perspectives ranging from the old public administration to new public management and the new public service:

Perspectives	Old public administration	New public management	New public service
Theoretical foundation	Political theory, naïve social science	Economic theory, positivist social science	Democratic theory
Rationality and models of human behaviour	Administrative rationality, public interest	Technical and economic rationality, self-interest	Strategic rationality, citizen interest
Conception of the public interest	Political, enshrined in law	Aggregation of individual interests	Dialogue about shared values
To whom are civil servants responsive?	Clients and constituents	Customers	Citizens
Role of government	*Rowing* – implementation focused on politically defined objectives	*Steering* – serving as a catalyst to unleash market forces	*Serving* – negotiating and brokering interests among citizens

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2   The Global Centre for Public Service Excellence https://www.undp.org/content/dam/undp/library/capacity-development/English/Singapore%20Centre/PS-Reform_Paper.pdf

Perspectives	Old public administration	New public management	New public service
Mechanisms for achieving policy objectives	Administering programmes through government agencies	Creating mechanisms and incentives through private and non-profit agencies	Building coalitions of public and non-profit private agencies
Approach to accountability	Hierarchical – administrators responsible to elected leaders	Market-driven – outcomes result from accumulation of self-interests	Multifaceted – public servants guided by law, values, professional norms and citizen interests
Administrative discretion	Limited discretion granted to public officials	Wide latitude to meet entrepreneurial goals	Discretion needed, but constrained and accountable
Assumed organisational structure	Bureaucratic organisations with top-down authority and control of clients	Decentralised public organisations with primary control within agency	Collaborative structures with shared leadership
Assumed motivational basis of public servants	Pay and benefits, civil-service protections	Entrepreneurial spirit, desire to reduce size and functions of government	Public service, desire to contribute to society

Since the turn of the century, the use of technology gained traction along with the evolution of perspectives discussed above. The spread of information and communication technology (ICT) and global interconnectedness has great potential to accelerate human progress and to develop knowledge societies. This was highlighted in the 2030 Agenda for sustainable development[3] unanimously adopted by United Nations (UN) member states in September 2015. In the last 10 to 15 years, economic and social sectors have been caught up in the digital transformation frenzy and public services around the world were not spared. This phenomenon simply uses technology to effect a positive change that brings effectiveness and efficiencies to government service delivery programmes. Digital transformation requires digitising processes, record keeping and customer relationship management using appropriate digital tools and platforms. Almost all governments have developed policies that institutionalise the formulation and implementation of e-government strategies.

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3 Sustainable Development Goal 9: Investing in ICT access and quality education to promote lasting peace (https://www.un.org/sustainabledevelopment/blog/2017/06/sustainable-development-goal-9-investing-in-ict-access-and-quality-education-to-promote-lasting-peace/)

E-Government strategies advocate the use of innovation and digital technology to improve the quality of government services.

The effects of information and communication technology

When applied in government, "information and communication technologies (ICTs) is used for the exchange of information with citizens and businesses on topics such as tax compliance, public utility services, as well as vehicle and voting registration" This explanation is contained in Information Technology Journal Volume 24, 2018, Issue 1 [4]about conceptualizing development in ICT for development (ICT4D). Iterations, case studies and best practices where ICT has had an impact are well documented across the sectors. For example, the 2009 publication by the International Telecommunication Union (ITU) *Introduction: E-Government readiness assessment framework* [5]may be used as a guideline for governments that are preparing or reviewing their strategies on the use of ICT in the public service.

The focus of change in an organisation tends to be more on technology and less on people and processes. Unfortunately, this approach, commonly referred to as a technology-first mind set, is a tactic that only provides a temporary fix in an increasingly complex operating environment.

Development and trends

The effects of digital transformation were not understood until recently. A common view was that digitisation and digital transformation resulted in increased volumes of data. Several rapidly advancing technologies have great potential, both for the ICT industry and for governments around the world. These include:

1. Data, intelligent apps and analytics
2. Artificial intelligence and robotic process automation
3. Intelligent "things", cyber-physical integration and edge computing
4. Virtual and augmented reality
5. High performance- and quantum computing
6. Blockchain and distributed ledger technologies

These technologies are explained in detail in the recent UN *E-Government Survey 2018* report.[6]

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[4] Information Technology Journal Volume 24, 2018, Issue 1, an article by Maung k. Sein explaining studies conducted in three groups examining ICT per se, development, or transformative processes.
[5] ITU Introduction: e-Government Readiness Assessment Framework
[6] E-Government Survey 2018_FINAL for web

Implications

The Independent Auditor for the Australian National Audit Office (ANAO), in a 12 June 2012 performance audit report on the ANAO's, *IT Audit Capability and Resourcing*[7], confirm that trends in recent years have seen public sector entities placing increased reliance on IT-enabled business processes and solutions to achieve business outcomes, with many moving away from discrete systems to more complex integrated solutions such as online service-delivery to customers. With this trend likely to continue, public sector entities will become even more reliant on systems to process transactions in an accurate, complete and timely manner. IT audit involvement therefore becomes critical as the anticipated volume of data and associated monetary value of transactions will increase.

The Independent Auditor for the ANAO further stated that under this environment, IT audit capabilities are in even higher demand across the auditing profession, as business technology continues to see rapid development and new challenges.

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[7] Australian National Audit Office: IT Audit Capability and Resourcing_ *Report by the Independent Auditor – June 2012*

Chapter 3

Capacity building in a Supreme Audit Institution

Capacity building is a well-entrenched principle practiced across the INTOSAI community. Current capacity-building interventions and practices are informed by the SAIPMF,[8] which is an authoritative guide available to SAIs. In addition, it outlines the structure and direction of capacity-building interventions through processes such as:

- needs assessments
- developing evidence-based strategic plans and capacity-building projects
- measuring the SAIs own progress over time.

The guidance outlined in the SAIPMF has been adopted and rolled out by INTOSAI partners that support SAI capacity-development initiatives.[9] A guide for building capacity at SAIs already defines the key aspects for capacity building, as outlined in figure 1 below:

Figure 1: Building capacity in Supreme Audit Institutions

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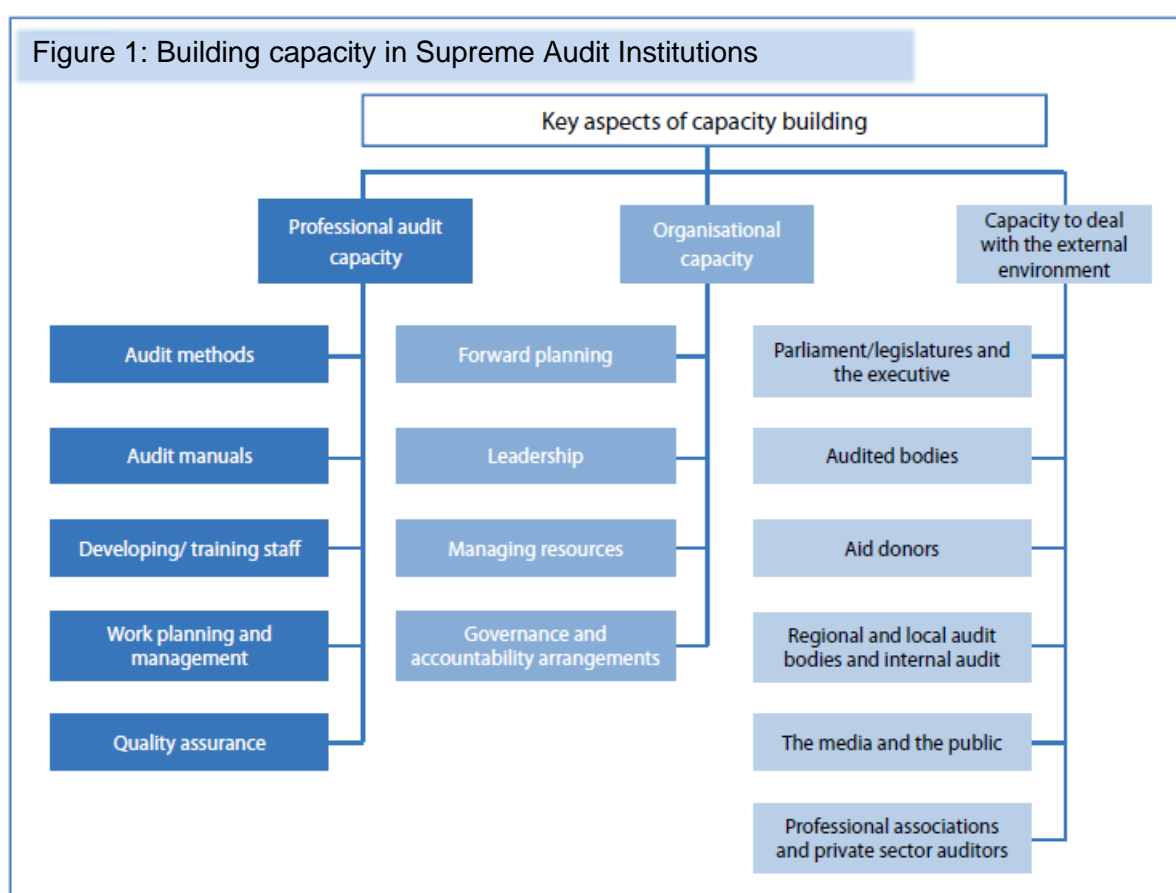
[8]   SAI Performance Measurement Framework 2016

[9]   Building capacity in Supreme Audit Institutions

Furthermore, the SAIPMF defines the following six domains used to uniformly assess SAI maturity against predefined assessment levels:

- Domain A: Independence and legal framework
- Domain B: Internal governance and ethics
- Domain C: Audit quality and reporting
- Domain D: Financial management, assets and support structures
- Domain E: Human resources and training
- Domain F: Communication and stakeholder management

The SAIPMF provides for SAIs to self-assess during predefined intervals, where after an independent moderation is undertaken at a regional level. The following scoring levels indicate an overall or average domain score of assessed activities within a domain:

- Score 0: The feature is not established or barely functions
- Score 1: The founding level
- Score 2: The development level
- Score 3: The established level
- Score 4: The managed level

Although these indicators of scores are self-explanatory, the SAIPMF provides a more detailed explanation and guideline about their application. The principles explained will be adapted and applied in this guide. The role of the SAIPMF assessment in SAI capacity development can be seen in figure 2 below:

Figure 2
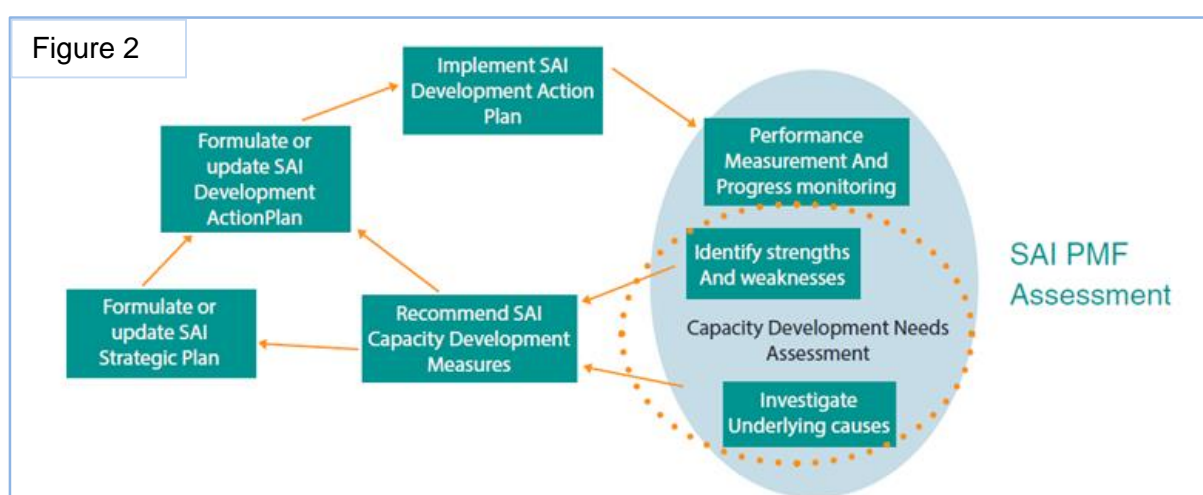
Our approach will build on these key aspects of capacity building and identify concepts for capacity building/ development. Also, the guide will explain how these concepts may be further

applied to develop a framework/ guideline for establishing an Information Technology (IT) /Information Systems (IS) audit function in a SAI.

INTOSAI capacity building support structures

The INTOSAI organisational structure is positioned to facilitate capacity building by providing support to its member countries. An independent organisation like IDI plays a critical role in supporting SAIs to better plan, monitor and manage their performance throughout an entire strategic management cycle. This is achieved by implementing a sound strategic and operational planning process, and establishing an effective monitoring and reporting framework.

Regional organisations promote INTOSAI among the seven INTOSAI regions, providing members with opportunities for professional and technical cooperation on a regional basis. For capacity-building initiatives to increase successful results and achieve a lasting positive impact, SAIs are encouraged to leverage on the work of regional organisations. An example is the excellent work from regions like Eurosai[10] and Afrosai-e[11].

INTOSAI committees deal with issues of significant, recurring interest to all members of INTOSAI (such as preparing standards and guidelines for government auditing practice applicable to the whole of INTOSAI). As such, committees have a balanced representation of the organisation's membership and clear direction from the governing board.

Global organisations such as the OECD, UN, UNESCO, the World Bank, WSIS and ITU play a critical role in ensuring that the value of INTOSAI as an international organisation is maximised. This important arrangement is comprehensively articulated in the initiatives under INTOSAI strategic goal 4[12].

IT audit in the public sector

In the midst of the evolution of public administration, the government external audit community is expected to keep up with developments and continue to provide adequate and relevant assurance services. Listed below are the challenges that SAIs encounter when conducting IT audits[13]:

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[10] IT Audit Self -assessment EUROSAI IT Working Group (flyer_itasa_v02_1_2013)
[11] AFROSAI-E institutional capacity building framework (ICBF) and how it can be used.
[12] Strategic Goal 4: Maximize the Value of INTOSAI as an International Organization
[13] ISACA Journal Vol 4 2018 Addressing-the-Challenges-of-IT-Audits-By-Supreme-Audit-Institutions_joa_Eng_0818

(a) Institutional challenges

These challenges relate to founding and core principles. They refer to the independence and the legal framework that informs the mandate of the SAI.

(b) Organisational challenges

The organisational challenges refer to issues of organisational development affecting systems and structures that enable a SAI to perform its functions, in particular its IT audit function.

(c) Professional staff challenges

The challenges affecting staff relate to the SAI's professionalism, meaning that staff must have adequate skills and experience to remain relevant and provide value-adding assurance work to the public sector.

(d) Establishing relevance for the public sector

For SAIs to remain relevant, they must keep up with the developments and evolution of the public sector.

The role of the INTOSAI Working Group on IT Audit and other professional organisations

The INTOSAI Working Group on IT Audit (WGITA) is a platform provided to members to address SAI interests in the area of IT audit. This guide was developed because of a survey conducted among INTOSAI members to assess their maturity and capacity to conduct IT audits.

The INTOSAI motto *mutual experience benefits all* means that from time to time work done by other professional organisations could be relevant and of interest to the WGITA. Therefore, organisations like the Information Systems Audit and Control Association (ISACA) and Afrosai-e are observer members of the WGITA. Where there is a need, collaboration and cooperation agreements will promote knowledge sharing in the area of IT audit. Listed below are some of these organisations and a brief description of what they do:

(a) Global Training Facility of WGITA

The "Global Training Facility_iCISA" is the Centre for Information Systems and Information Technology Audit that was set up in March 2002. The training facility is ISO 9001:2015 (QMS) and ISO 27001:2013 (ISMS) certified institution. The facility is a primary resource centre for IT Audit in SAI India. To date 139 International Training Programmes (ITPs) were conducted and more than 1,000 officials from SAIs and

government organizations' from 146 countries benefitted. This training facility was declared a "Global Training Facility of WGITA" as per resolution of 27th WGITA meeting.

(b) ISACA

Previously known as the **Information Systems Audit and Control Association**, ISACA is an independent, non-profit, global association that engages in the development, adoption and use of globally accepted information system knowledge and practices to reflect the broad range of professionals it is serving.

(c) Institute of Chartered Accountants in England and Wales (ICAEW)

A professional membership organisation of accountants and finance professionals who have met various industry competency standards in England and Wales.

(d) PCOB Group – Accounting and Talent Delivery Services

A professional services firm offering consulting services in accounting and finance spheres.

(e) Association of Chartered Certified Accountants (ACCA)

A leading international accountancy body. The ACCA qualification is recognised and treated in other countries as being equivalent to some of the local qualifications.

(f) Information Technology Infrastructure Library (ITIL)

A set of detailed practices for IT service management (ITSM) that focuses on aligning IT services with the needs of business.

The list above is not exhaustive, but demonstrates existing organisations that serve their respective professions in various ways. A lot of good work is being done at these organisations and various publications contain relevant work that aids in research, as we observed during the development of this guide.

Approach to building IT audit capacity in a SAI

It is important to unpack key terms that are critical to capacity-building initiatives. They are: *capacity*, *capability* and *performance.*[14]

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14 Three key concepts: capacity, capability and performance – Why the difference matters by Ivar Strand

http://www.abyrint.com/capacity-capability-performance/?utm_content=buffer467ef&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer

- **Capacity** – Is the ability of individuals and organisations' broader systems to perform their functions effectively, efficiently and in a sustainable way. For example, employee or organisational capacity mean that they are able to understand the facts involved about the mandate of a SAI as well as their legal, regulatory and operating environments.

- **Capability** – Is what a person can do in his or her daily environment. It can also refer to specific organisational attributes. For example, organisational capability is an ability to manage resources effectively such as implementing financial management information systems that enables proper accounting and record keeping in line with the relevant standards and best practices.

- **Performance** – Is what the person actually does in their daily environment using their skill and knowledge to perform their job. In an organisation, an example of performance refers to how the financial management system is actually used to accomplish organisational goals and objective against the agreed key performance indicators (KPIs).

These terms are defined because they are at the centre of capacity building and are often confused with each other. When it comes to capacity building or organisational development, these terms must be applied accurately as their meaning is specific. Furthermore, two main models or approaches to capacity assessment were identified: the SAI-specific model developed from own experiences and generic models developed by development agencies and other international bodies. Most generic models address issues of organisational capacity, e.g. the Public Financial Management (PFM). The following are key features of SAI-developed models:

- **SAI capability model** – the Afrosai-e ICBF is addressing issues of capacity in two ways: by assessing capacity and as a model for development. This framework is currently being updated. Two further scoring assessment levels are being added to the current three levels because recent assessments indicated that 70% of the SAIs in the region either were on level 3 or would reach it in the near future. In addition, Sweden's National Audit Office follows a model used for the work done in developing countries.

- **SAI maturity model** – was developed by the United Kingdom National Audit Office and adapted by the Netherlands Court of Audit. This model is used to support developing nations:
    - As a tool for comparing the position of a SAI with international best practices
    - Using a four-point scale against the model of a fully developed SAI
    - Using criteria based on INTOSAI standards, best current practices and the EFQM excellence model

- o Covering 15 excellence factors that were used to develop a checklist to simplify its application.

- **Strategy performance measurement and reporting programme (SPMR)** – is an IDI program aimed at supporting SAIs to better plan, monitor and manage their performance throughout a strategic management cycle, through the implementation of a sound strategic and operational planning process, as well as the establishment of an effective monitoring and reporting framework.

As already indicated, there is a myriad of other models from international organisations. However, their principles and practices are the same and they are flexible as they are applied in different sectors.

It is also worth noting that there is work currently in progress to outline "Competency framework for public sector audit professionals at Supreme Audit Institutions" by the Task Force on INTOSAI Auditor Professionalization. Once complete, this framework can be applied by SAIs to provide a basis for establishing processes dealing with ensuring that staff has adequate skills and competencies.

Other models from international organisations can also be applied. For example:

(a) PRAXIS

Praxis is a free framework for the management of projects, programmes and portfolios. It includes a body of knowledge, methodology, competency framework and capability maturity model. The framework is supported by a knowledgebase of resources and an encyclopaedia.

(b) CMMI Institute Model

CMMI Institute models help identify and improve the key capabilities that elevate your organization's performance, quality, and profitability.

PART 2

Capacity building requirements for conducting IT audits

Chapter 4

IT Audit capacity building and sustainability strategies

The concept *SAI's sphere of influence and control[15]* serves to guide and define a scope for organisational change. The three main aspects of capacity building outlined in Chapter 3 are standard and can apply to any organisational change initiative including adapting the to address IT auditing capacity in the public sector.

In the context of public sector, IT audit is commonly used to support the audit of financial statements, performance and compliance audit. Furthermore, there are other types of audit such as cybersecurity reviews that are performed to identify the state of controls that protects organisations against cyber threats. Project assurance or project governance reviews that provides management with an independent assessment of progress, quality and attainment of objectives and milestones with a project. Also, audit teams with diverse skills and expertise are put together to conduct integrated audits. IT auditors are normally a key component of these multi-disciplinary audit teams. Current practices require auditors to use information at their disposal to delve deeper into understanding their auditees' business operations. This will ensure that the audit reports produced provide insight and clarity on the issues being reported. Value for money or value-adding audits are also prominent in the public sector and capitalise on IT audit skills and expertise.

The Skills Framework for the Information Age (SFIA) foundation encourages and supports the use of the framework for individuals and organisations wishing to enhance their digital and information technology skills. Their report *The digital skills landscape 2018*[16] provides a comprehensive analysis of the capabilities, competencies and skills of digital, cyber and ICT professionals. The report covers a multitude of focus areas, including information and cybersecurity. Furthermore, COBIT 2019 is commonly used to inform organisations' governance and objectives for implementing *information* and *technology* processes.

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[15] NHS Leadership Toolkit – What's in my control
[16] SFIA Foundation The Digital Skills Landscape 2018 by Matthew Burrows, Paul Collins & Daniel Merriott

Considerations for sustainable capacity building

The ICBF of Afrosai-E describes *'capacity', "…as the skills; knowledge, structures and ways of working that make an organisation effective. Building capacity means developing further each of these building on existing strengths, and addressing gaps and weaknesses."*

Capacity building requires careful planning to target the right people and build the right skills at the right time and over time. Evidence suggests that capacity-building initiatives tend to be more effective when they are conceived as an ongoing strategic commitment of the organisation. To get the most out of such efforts, SAIs may find it helpful to ask following few simple, yet strategic, questions upfront:

- **Whose** capacity are we trying to build?
- Capacity to do **what** and **why**?
- **When** do we need to build these capacities?
- **Who** should deliver the capacity building?
- **How** will we know if we have succeeded?

In addition to the upfront questions, it is prudent for the SAI capacity-building initiative to be clear about the **capacities, capabilities**, **competencies**, **awareness levels**, and **skills** that will be built. Figure 3 below presents the connection of these qualities:
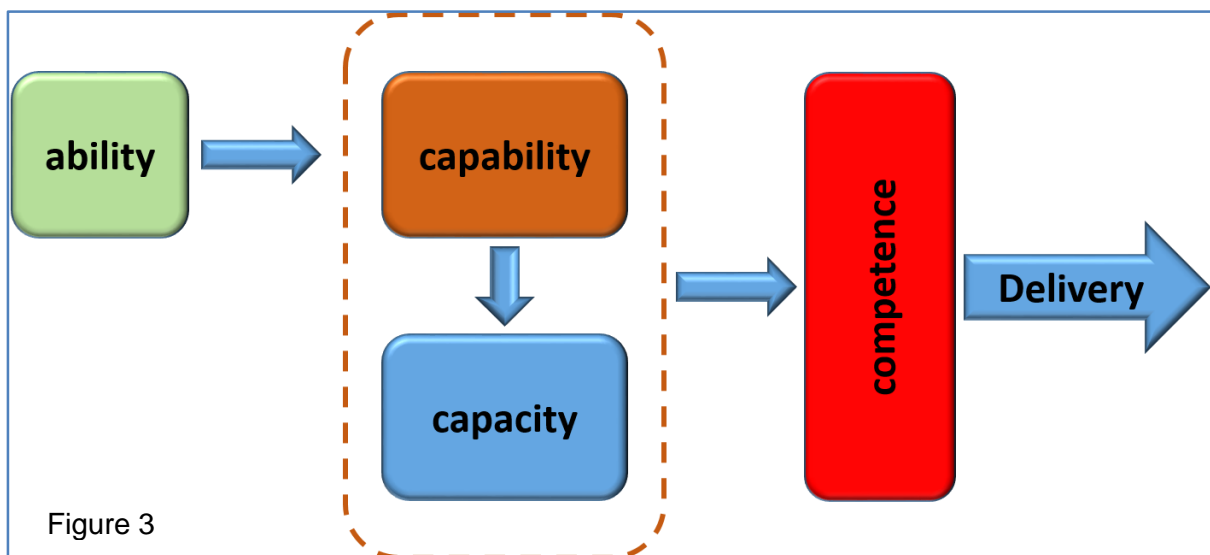

Figure 3

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The dictionary meaning of *ability* is a possession of means (i.e. mental or physical power) or skill to do something.

In addition to the outline explained in Chapter 3, *capability* describes a unique, collective ability that can be applied to achieve a specific outcome. In business terms, *capability model* describes the complete set of capabilities an organisation requires to execute its business model or fulfil its mission. Capabilities are therefore seen as organisation-level skills embedded in people, processes and/or technology. Lenny Vincent in his article *Differentiating competence, capability and capacity*[17] defines capability as a feature, faculty or process that can be developed or improved. Capability is a collaborative process that can be deployed and through which individual competence can be applied and exploited.

While *capacities* are denoted in size, amount or volume, in simple terms it is described as the power to hold, receive or accommodate. The United Nations Development Programme[18] classifies three levels of capacities:

- **Functional capacities** are crosscutting capacities that are relevant across various levels. They are the management capacities needed to formulate, implement and review strategies, programmes and projects. Since they focus on *getting things done*, they are key to any successful capacity development. These capacities are most likely to be targeted by organisations/SAIs.

- **Technical capacities** are those associated with particular areas of expertise and practice in specific thematic areas or sectors. Technical capacities tend to be acquired through more formalised instruction, study and practical training. Because this tends to be a more specialised set of skills, the target audience is generally much narrower.

- **Behavioural capacities** have to do with cultural shifts and changes in attitude. An important component of capacity building is raising awareness to effect changes in the attitudes, practices and behaviours of individuals, groups and organisations. These changes include partnering, building alliances and interacting in new or different ways. Behavioural capacity building can also prompt changes in strategy direction, policies and institutional culture.

On the other hand, *competence* is the quality or state of being functionally adequate or having sufficient knowledge, strength and skill. Competence is another word for an individual's know-how or skill. When asking whether we have the right competencies, aren't we really asking, *who knows how?* and *how well do they know?*

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[17] Differentiating Competence, Capability and Capacity - Innovating Perspective Journal, Volume 16, number 3 of 2008

[18] United Nations Development Programme: Capacity development: A UNDP Primer (https://www.undp.org/content/dam/aplaws/publication/en/publications/capacity-development/capacity-development-a-undp-primer/CDG_PrimerReport_final_web.pdf)

In the article *Do conventional capacity building, but do it well*, Ivar Strand and Magali van Coppenolle[19] highlight the fact that the approaches to strengthening capability in organisations revolve around two main themes. These are the levers that managers can use to create the desired impact and change, and build increased capabilities. These themes are:

the *hard factors* such as strategy, structures and systems including technology, process workflows and infrastructure
the *soft factors* evolving around issues such as skills, leadership and communication.

After considering these factors, we have narrowed our approach to focus on the impact of ICT on public service delivery. The evolution of ICT, along with citizens' changing demands, has forced e-government practitioners to develop new skills, competencies, capabilities and knowledge to respond to the trends in the public service delivery environment.

Sustainability is recognised as being more than an initiative, a programme, or an activity; it is a new worldview or mind set of how business operates. This requires commitment and buy-in by those in top positions responsible for the overall management of the company.

Chapters 2 and 3 encompass intricate parts of assessing present capacities and constraints. They also respond to the strategic questions asked above. Thus, various assessment approaches can be used and SAIs are not restricted to particular approaches, e.g. the traditional strength, weaknesses, opportunities and threats (Swot) analysis can be applied. However, for the purposes of this guide the AICPA Competency Framework[20] is the most relevant. This framework identifies specific skills within each core skill set. Skills are further defined as foundational, intermediate, advanced and expert. The following steps are taken to apply the framework:

1. Assess present capacities and constraints
2. Develop strategy to build capacity
3. Implement strategy
4. Learn from experience and evaluate results
5. Sustainability and improvement.

Model for building IT audit capacity in a SAI

The proposed model, or any model preferred by SAIs, should be able to respond to a summary list of key developments highlighted in the recent ISACA *Future of IT audit: research brief.*[21] The following points present an outlook for the future of the IT audit profession:

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[19] Do conventional capacity building, but do it well
[20] AICPA Competency Framework: Governmental Auditing
[21] ISACA Future of IT audit: research brief (http://www.isaca.org/info/future-of-it-audit-study/index.html)

In the next three to five years, IT auditors will increasingly be involved in major technology projects.

IT auditors with technical skills will be in high demand. The current view is that the skills gap has a moderate impact on them conducting audits with a high degree of confidence. It is also becoming increasingly difficult to recruit auditors with the required technical skills.

- There are five top technologies that auditors want to learn:
    - Predictive analytics
    - Artificial intelligence
    - Blockchain
    - Machine learning
    - Robotic process automation.

- The trends impacting auditors indicate a stronger demand for technical skills as well as an increased expectation of skills and knowledge across broader subject areas.

- The following changes will be more prevalent in the next two years:
    - Auditing will become increasingly automated
    - Increased need for data scientist in the audit teams
    - Reduced layers of supervision due to flattening of audit organisation
    - Merged services, i.e. cybersecurity monitoring with ongoing assurance and assessment.

- In the next three to five years' reliance on artificial intelligence, assisted monitoring and analytics will increase. This includes the full integration of IT audit into other business areas.

- Generally, IT auditors are optimistic about the future, i.e. the majority appreciate the impact that technology will have on the profession in the next five years. There is a strong belief that IT auditors have the technical skills and training to keep up with the technology changes affecting them. To maintain their proficiency and technical skills, IT auditors should possess some of the below listed professional certifications:

    - CISA: Certified Information Systems Auditor (ISACA)
    - CISM: Certified Information Security Manager (ISACA)
    - ISO / IEC 27001 Lead Auditor
    - CSX: Cybersecurity Fundamentals (ISACA)
    - Project + (CompTIA)
    - CISSP: Certified Information Systems Security Professional (ISC) 2
    - CRISC: Certified in Risk and Information Systems Control (ISACA)

The outlook of capacity building is dependent on various assessments driving implementation of plans that helps to identify where you are now, where you want or need to be, and what are the key characteristics expected at each level of proficiency. The Digital Skills Maturity Model[22] and European e-Competence framework[23] are examples that can be adapted to inform SAIs assessment of IT audit competencies.

INTOSAI's professional standards committee are in the process of defining a competency framework that can be fused with the above-mentioned frameworks from other professional organisations to inform the below listed capacity development requirements and processes in a SAI:

(a) Capacity developments needs assessment

There are various tools and methods available to assess an organisation's operations such as the popular Swot analysis. The outcome of the analysis outlines the organisation's areas of strength and weakness. In instances of strengths, areas are identified where further initiatives are formulated. Likewise, weaknesses are analysed in detail, together with an investigation of underlying causes. This informs the strategic initiatives that respond to prioritised weaknesses. An example of the outcome of the needs assessment outlines the strategic matters for follow up into these categories:

- Individual
  - Training needs – skills and knowledge gaps
  - Quality of research output used to develop the training curriculum
- Organisational
  - Systems and resources
  - Defined core capabilities
- Institutional
  - Stakeholder analysis
  - Structure and *rules of the game*

(b) Requirements for formulating or updating the SAI strategic plan

Together with defining organisational goals, vision and mission priorities are identified to help implement the organisational strategy. These priorities address the *structures, systems*, *technology, skills*, *leadership* and *communication.* For example, establishment or further capacitation of an IT Audit function can be listed

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[22] Digital Skills Maturity Model (https://skillstx.com/digital-skills-management-maturity/)
[23] e-Skills policy and strategy setting (http://www.ecompetences.eu/e-skills-policy-and-strategy-setting/)

as a priority under *structures.* In addition, *systems* priorities can describe the audit process strategic initiatives and key dependencies such as audit software and tools.

A need to formulate an organisation-wide capacity and capability building initiative should be established to develop *skills* and competencies required to sustain work of the SAI.

All the priorities are depended on the vigour which *leadership* will exert in order to achieve the set strategic objectives. Hence *governance* and *management* processes needs to be in place to ensure accountability. Furthermore, *communication* with key *stakeholders* needs to happen continuously to ensure a common understanding of the mission outlined in the strategic plan.

This is also the area where resource requirements are determined.

Lastly, each strategic initiative is linked to milestones and timelines to enable the organisation to see the impact of these initiatives.

(c) Requirements for formulating or updating the SAI IT audit development action plan / strategic implementation plan

These requirements are limited to formulating and updating a plan specific to the SAI IT audit capacity, even though other plans could be addressed at this stage. Typically, capacity building plans include:

- Training and development plan

At the centre of every organisation's strategy are employees. The organisation's strategy is realised when it is understood and owned by the employees ultimately responsible for the successful implementation of the strategy. Employees must be capacitated to perform in their appointed positions. An effective training programme is important to ensure that employees' work remains relevant. Employees therefore need to be guided by well-articulated organisational policies and procedures to ensure the consistent execution of requirements and initiatives.

- Change management plan

Business and workplace culture is what holds the organisation together. It is a known fact that changes in organisations come with a lot of uncertainties. Therefore, a change and communication plan is needed to uphold the required business and workplace culture.

- Stakeholder engagement plan

This plan establishes and facilitates the proliferation of knowledge and expertise between the SAI and the identified cooperative partners. A SAI is expected to: a) expand its knowledge about its regulatory framework; b) build relationships with relevant stakeholders; and c) identify cooperation possibilities for various initiatives in line with the organisation's strategy.

(d) Formulate key performance indicators (KPIs) and define requirements for performance measurement and progress monitoring

Monitoring and evaluating capacity building are not only relevant to measures of success, but provide important input for corrective action and optimising a strategy, its components and activities.

It is important to clearly define the goals. Based on the goals and milestones, measurable indicators are defined to follow up on achievements at certain intervals and to take timely corrective action.

Chapter 5

ICT and the audit process

With the development of digital communication technology such as the internet and information processing, using computers has been distributed and parallelised, and information technology is being used in all areas of society. To explain this point, the below listed technologies are examples of those technologies that have made an impact and are widely used across many sectors:

- Mobile Internet and its constant increase in capacity (4G, 5G, others);
- Mobile and web applications;
- Constant increase in capacity of mass storage units, for example, dropbox, google drive and others;
- Internet of Things (IoT);
- Digital signatures and others

As a result of these ICT developments, e-government systems using ICT as their backbone has evolved to the extent that they are now used to influence public sector service delivery programmes. This led to the need for audits using ICT and audits for ICT projects in the public sector.

ICT infrastructure and systems

(a) Use of ICT to enable the audit process

Information systems in the public sector are basically converted into computer-based tasks, much like the paper documents before digitisation. Most of the paperless forms are stored in the information system as data.

Just as paper documents are the main evidence for traditional auditing work, the data stored in the information system is acquired, verified, and analysed according to the work attributes during IT audit work.

By using digital communication technology, we can provide online data, analyse it in advance, or monitor it in real time, which enhances the efficiency and effectiveness of auditing and reduces the burden of submitting data to SAIs.

As analytical data and experience accumulate, we can find opportunities to anticipate and improve expected and recurring problems in advance.

(b) Acquisition of data and validation of reliability

The data obtained from auditing institutions is often very diverse in terms of form and capacity. In some cases, acquired data can be stored and analysed using available tools and a PC[24], but a server system with a large storage device may be used.

In addition, the auditor's access may be limited or integrity (considering availability as legal evidence, such as digital forensics) may be maintained in accordance with the characteristics of the acquired data (including legal parts such as personal information protection and confidential information).

Since maintaining the data requires such security and integrity management, from submitting it to offline or receiving it online, it is necessary to apply encryption technology to manage transmission and storage and network security equipment (firewall). The connection method for the information system and communication network of the auditing organisation can be configured by using either a dedicated line or the internet, considering the security and frequency of use. The internet can be used to replace dedicated lines by applying communication security technology such as virtual private networks (VPN) technology.

Table 2 below presents a comparison of usability and management perspectives according to the data acquisition method.

| Acquisition method	Usability	Security management	Integrity management
PC	One-time use and disposal	Difficulty in security control of data leakage	Maintenance of passive integrity
Dedicated servers by dedicated communication networks	Acquisition through technical consultations on data acquisition Fit for mass data that needs reuse	Easy to maintain security, such as data access control	Integrity maintenance automation
Dedicated servers using the internet	Acquired through technical consultation on acquiring dedicated server data using the internet Fit for mass data that needs reuse	Maintain security using VPN and network security equipment	Integrity maintenance automation

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[24] Data analysis tools (https://www.acl.com/products/acl-analytics/), (https://idea.caseware.com/products/idea/)

Acquisition method	Usability	Security management	Integrity management
Cloud services	Acquisition of IT resources provided over the internet depending on the organisations needs	The terms and conditions of the contract should clearly outline roles and responsibilities as well as issues around data isolation, logical storage segregation, authentication strategies and monitoring.	Integrity maintenance automation

We need to perform a basic verification of the quality of the data provided (e.g. not null, redundant data, validation of the value of the item, and validation of the item value) and logical verification according to the business rules to be analysed.[25]

At this time, if data is acquired regularly and repeatedly, the verification rules can be predefined and acquired as an automated verification system, and the data format of the provided institution can be converted into a predetermined form and received by EAI (enterprise application integration) and ESB (enterprise service bus). The following illustration describes the configuration of the data acquisition system using the EAI system.

(Picture: Constitutive cases of hub & spoke EAI)
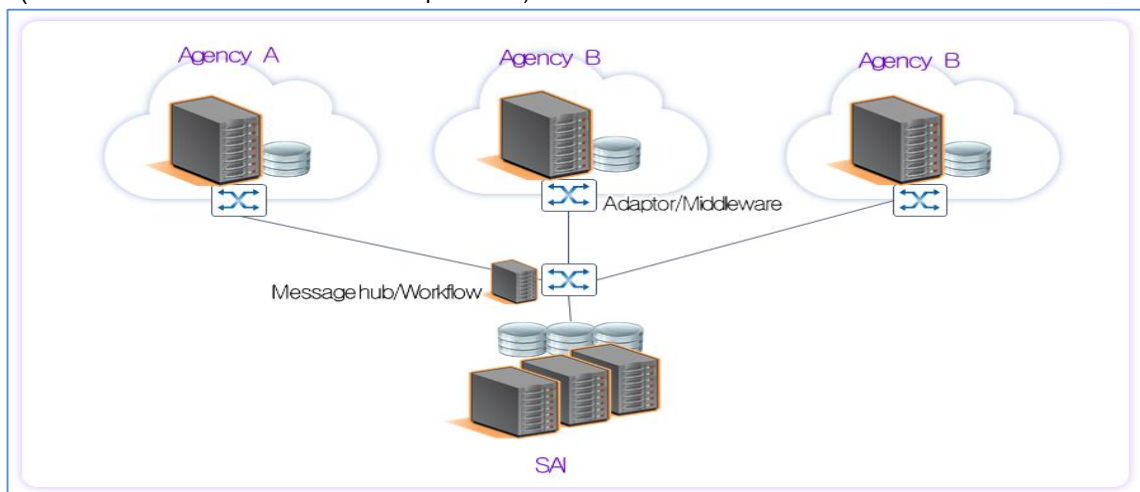
Component	Function
Adaptor	Data extraction (existing by type of data such as files, DBs)
Message hub	Transfer data to target system, transform data format
Workflow	Automated processing, including data transmission system control, and schedule management
Middleware	Communication protocol for data transmission

(Picture: Constitutive cases of hub & spoke EAI)

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[25] Data that require integrity maintenance is made by making copies and refining them

(c) Analysis and application

The acquired data can be accumulated and various analyses such as data comparison and trend analysis can be used to extract suspicious problems. In particular, data that needs to be analysed repetitively, periodically and time series can be used to integrate, refine and accumulate relevant data, which enables immediate use at the time of analysis.
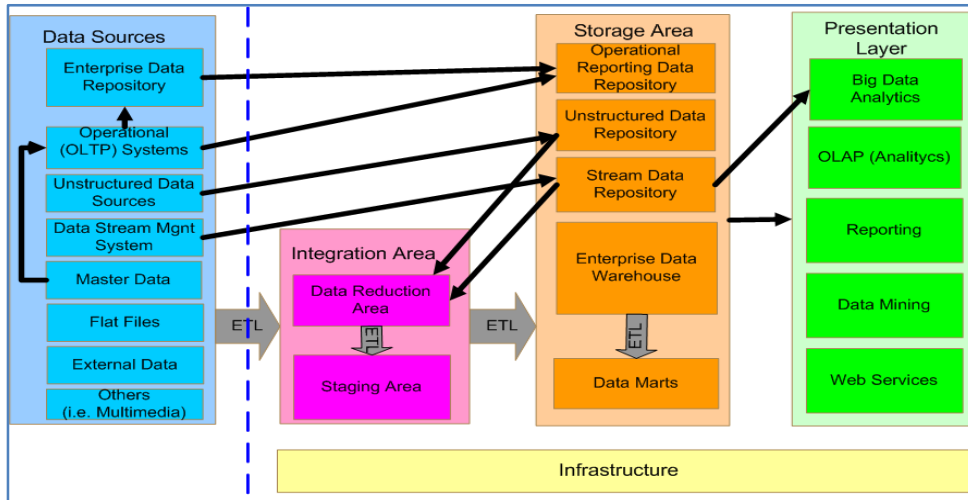
(Picture: Constitutive example of data warehouse)

In addition to the typical form of data collected by the SAIs, data generated from the private sector such as social media, mobile carriers' human travel routes and flow rate information, can be collected and used to analyse, for example, traffic impact assessments and epidemic predictions. In addition, if the data being analysed has a geographical property, the analysis result can be expressed in map form using the geographical information system.

(d) Audit work automation

Work can be automated by using information systems such as progress management, report review, evidence management, and audit knowledge management for audit work performed through ordinary procedures such as audit planning, audit data collection and preliminary analysis, on-site audit, and audit results report preparation and implementation. The progress management system (workflow system) that manages the schedule according to the audit process can automate most audit processes by integrating them with the electronic document management system (EDMS) to prepare and review evidence documents and audit reports. It can use the auditing capacity in conjunction with the knowledge management system (KM), which summarises audit experiences and analysis cases in a complementary manner.

In addition, the auditing automation system can be used as a tool for internal control and for the audit performance management of auditing work. Standardisation of

processes and document forms must be preceded to automate such audit processes.
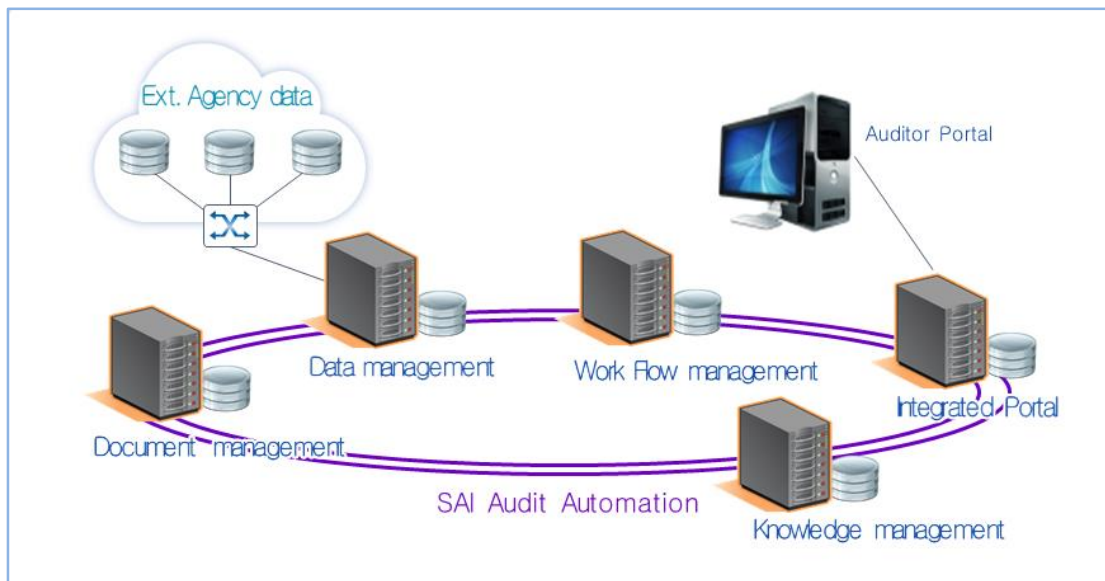
(Picture: Automation of auditing services)

(e) Auditing of ICT projects

The ICT system introduced in the public sector is a tool for accurate and prompt business processing and to improve public services to the public and corporations. Therefore, auditing whether the ICT system in the public sector is developed and operated cost-effectively with safe and purposeful effects is a major audit. The ICT project, which is promoted by public institutions, will expand the scope of information services for each individual public institution, expand the scope of information services and integrate each system in the institution to improve interoperability.
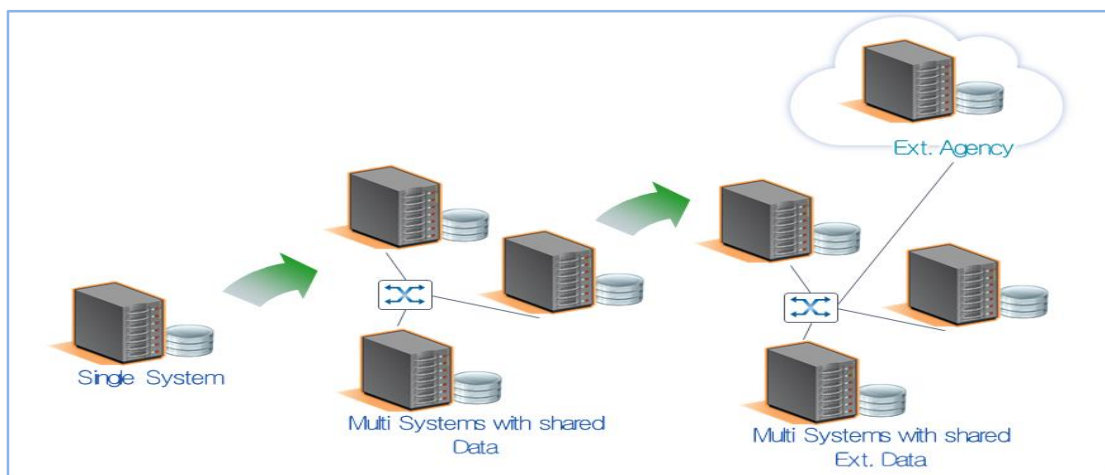
(Picture: Information system growth process)

Audits of ICT projects should determine the scope and focus of the audits based on the size and purpose of the target. In other words, the audit approach can be changed according to the planning and construction, operation and performance of

the public sector ICT system, and the audit focus on security management. For ICT projects in the construction phase, the scope of the audit can be determined based on the feasibility of the project, the appropriateness of the application technology, the appropriateness of the business budget and contract amount, and the appropriateness of the business management process.

The audit experience of ICT projects can establish a virtuous cycle structure that enhances the capacity of the audit using ICT by recording the main data structure of the target organisation information system and the method of problem extraction in the knowledge management system within the auditing agency, or using it to select the preliminary data analysis target.

IT service management and support

To collect and analyse audit-related data in an audit using ICT, it is necessary to first identify the existence of data necessary for auditing. If you manage and disclose metadata, which is information about data generated and managed by ICT systems owned by each institution in the public sector, you can easily find the data required for auditing. If you do not have these metadata, you should submit documents such as the information system design and user manuals owned by the auditing organisation to identify systems and database configurations, and key functions.

In addition, regular investigation processes may be needed because the information system and data configuration of the auditing organisation are often changed during the operation process. Therefore, it is necessary to establish a system to collect and manage the information system and data status information of the auditing organisation in advance to provide an efficient support service. In analysing the collected data, it is necessary to operate a dedicated organisation consisting of employees with professional skills and experience depending on the analysis demand, cycle, size and type of data within the auditing agency. These organisations need to support the audit department with specific audits, as well as to develop the audit capacity using ICT by identifying best practices and providing them to the audit department.

Meanwhile, an organisation dedicated to monitoring ICT trends and social changes, and to researching and developing necessary audit capabilities, is needed. This is because auditing capabilities are required to respond to the environmental changes in society and the public sector caused by emerging ICTs such as artificial intelligence, autonomous driving, robots, IoT and quantum computers. In addition, it is necessary for these organisations to analyse the audit performance, and to carry out activities that present necessary audits in comparison to the required ICT audit demand, so that IT audit capacity development is promoted.

ANNEXURE 1

Survey results

### A: Capacity and capability building framework

Capacity and capability building frameworks are adopted to support SAIs develop their professional and institutional capacity to discharge the requirements of their mandates in the most efficient and effective way. The analyses of the responses are graphically presented to illustrate the extent to which this is applicable within the INTOSAI community:

Is the SAI aware of the Performance Measurement Framework (SAI_PMF) or Institutional Capacity Building Framework (ICBF) of Afrosai-E, i.e. its application and processes?
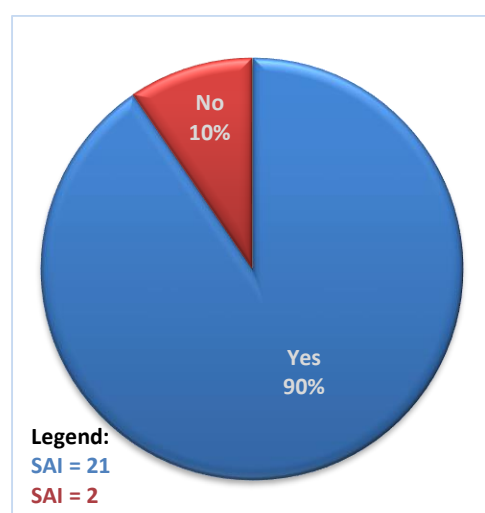
Ninety percent (90%) of the respondents are aware of the various frameworks that exist within the INTOSAI community. Whereas 10% say, they are not aware of available frameworks. However, the assumption is that SAIs might have adopted regional frameworks that were not listed as example in the question asked.

Indicate the extent to which SAI_PMF or ICBF was adapted and used to inform your SAIs organisation processes.
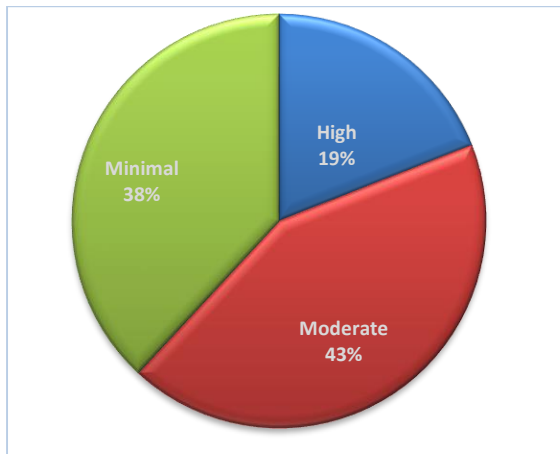
Forty-three (43%) of the respondents have moderately adapted the listed frameworks, while 19 % say they have highly adapted these frameworks. A sizeable number of 38% say they have adopted the frameworks at a minimal scale. It is encouraging see that frameworks inform organisational processes of most respondents.

Has your SAI being subjected to the SAI_PFM or ICBF assessment process in the last 3 years?

Legend:
SAI = 13
SAI = 10
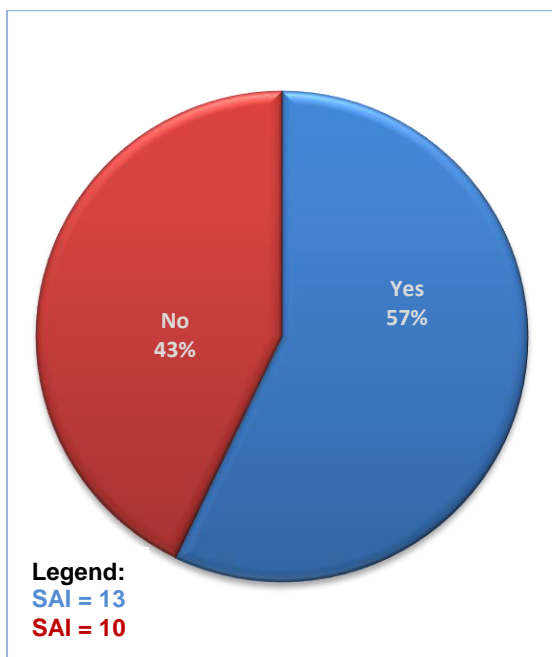
Forty-three (43%) of the respondents did not do an assessment in the last 3 years. The assumption is that this number might include SAIs that were assessed more than 3 years ago. Meanwhile, 53% say they have been assessed in the last 3 years.

**B: SAIs framework for learning and capacity development**

The learning and capacity development framework support organisational development activities as well as guidance and strategy documents, i.e. stakeholder engagement guidance, training and operational plans that defines an approach for defining and monitoring capacity building initiatives. The evaluation of the responses is graphically presented to illustrate the extent to which learning and capacity development frameworks are applied within the INTOSAI community:

Has the executive management of your SAI adopted a framework for learning and capacity development?

Yes
100%

**Legend:**
Yes = 23
No = 0
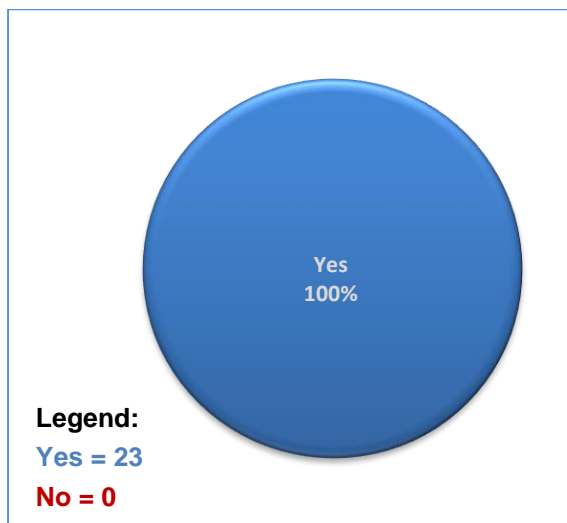
A resounding 100% implementation of learning and capacity development interventions by SAIs administered by means of available frameworks used within the INTOSAI community.

Has your SAI developed an organisational-wide competency framework for all levels and positions? For example, IT Audit positions.

Legend:

Yes = 17

No = 6
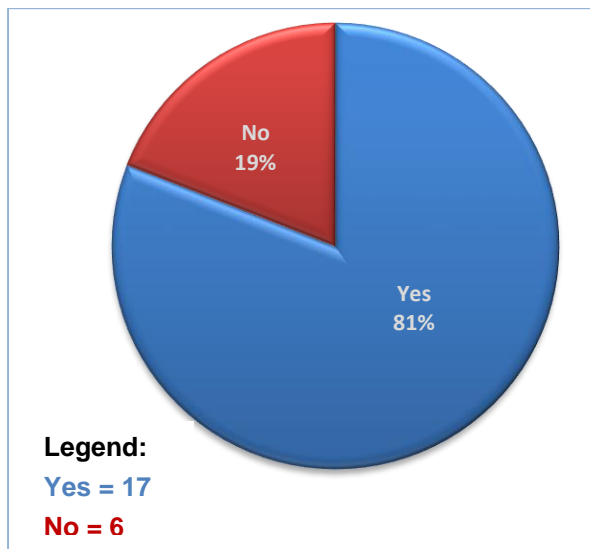
At the centre of learning and capacity building interventions is a competency framework defined for all levels /positions in the organisation. Eighty-one percent (81%) represent the majority of respondents that say competencies have been defined for all positions; however, 19% said competencies were not defined for all positions in their SAIs.

Is there a framework in place to assess the levels of competencies of staff in your SAI?

**Legend:**

Yes = 17

No = 6
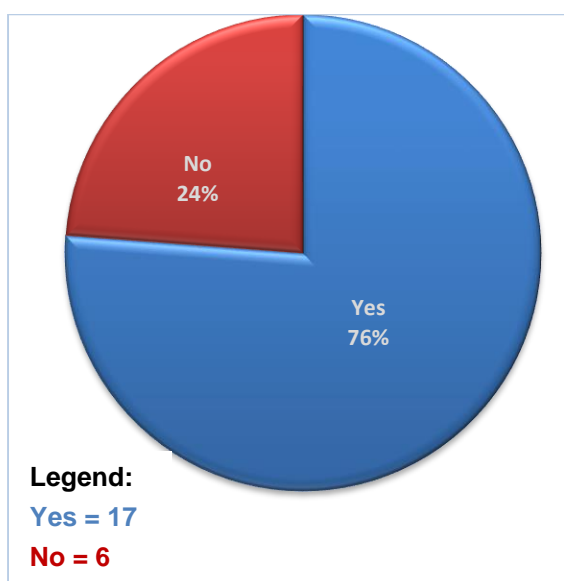
Seventy-six percent (76%) of respondents say that regular assessment of staff competency levels are conducted, while 24% have say that no assessment of staff competency level is conducted at their SAIs.

C: Mandate to perform IT Audits and common frameworks/best practices available and used in a SAI

Adoption of audit frameworks helps organisations accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of organisations' internal control environment. The analyses of the responses are depicted on the graphs outlined below illustrating the extent to which this is applicable within the INTOSAI community:

Is your SAI mandated to conduct IT Audits?

No
10%

Yes
90%

Legend:
Yes = 20
No = 1
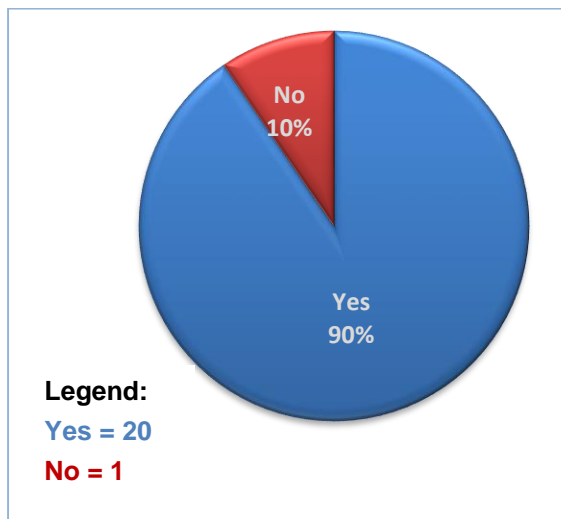
Regardless of the 3 main models most SAIs are conducting IT audits. This is illustrated by 90% of respondents saying that IT audits are conducted at their respective SAIs, while on the other hand 10% of respondents say that their SAIs are not mandated to conduct IT audits.

A list of frameworks and the extent they are used within the INTOSAI community.

Framework/standard	Highly used	Partially used	Not used
COBIT	9	12	1
ISO/IEC 38500	5	12	19
ISO/IEC 38501			
ITIL	1	11	8
COSO	3	8	9
Enterprise Risk Management	2	9	7
TOGAF	0	5	13
NIST Cybersecurity Framework	2	5	11

Two SAIs did not respond to the question, both saying they do not perform IT audits. There were 11 instances where no response was provided to indicate whether the listed frameworks were used or not. An average of 13% of the respondents has indicated a high use of the listed frameworks. However, COBIT account for 39% of highly used framework followed by ITIL with 48% partial use.

Does your SAI conduct integrated audits, of which IT audit forms part of that integration?


Legend:
Yes = 17
No = 4
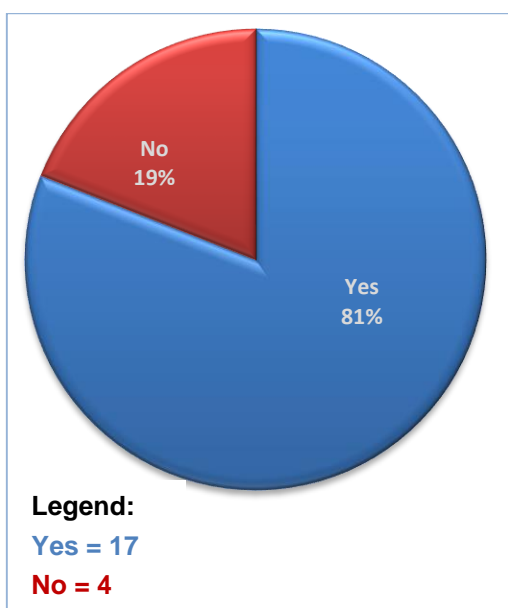
Integrated audit methodologies are prevalent and continue to grow in prominence. Auditors from diverse backgrounds execute these audits. Eighty-one percent (81%) of the respondents conduct integrated audits of which IT audit is a key component and 19% say they do not conduct integrated audits

D: The extent of digital transformation of sectors of governance, IT audit tools used and plans to respond to technological changes in public services

Auditing and accounting like many other sectors are in the midst of a transformational era. A forth-industrial revolution is characterised by a range of new technologies such as AI, robotics, internet of things, etc. Likewise, in public service governments require new approaches to ICT to increase efficiencies and provide better service delivery outcomes for citizens, businesses and public servants. The analysis, below illustrate the extent to which this is applicable within the INTOSAI community:

Indication of the extent of digital transformation in the public service in the last 5 – 8 years.


Legend:
High = 14
Moderate = 9
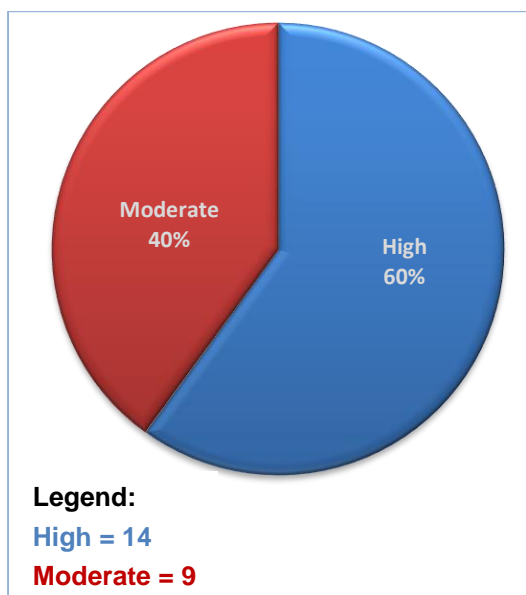
The rate with which government deploys digital solutions at various sectors of governance differs. As a result, 60% of respondents say that there was a high level of digital transformation in their public services, while 40% say there were moderate levels of transformation.

Sectors of governance, level of computerization and IT audits/tools deployed.

Analysis of responses for this question was difficult due to inconsistent understanding of what was meant by "sectors of governance", i.e. some responses were at a ministerial level, while others were on economic sector level like Finance, Science and telecommunications as well as responses focusing of social sectors' like education, health, Justice, social security, etc.

However, from the observation made, it was clear that there are some levels of computerization across various governance sectors and some SAIs have interventions ranging from training, defining and implementing strategies like data analytics and automation of certain audit activities.

Has your SAI developed plans because of the technological changes in your public service?


Legend:
Yes = 16
No = 7
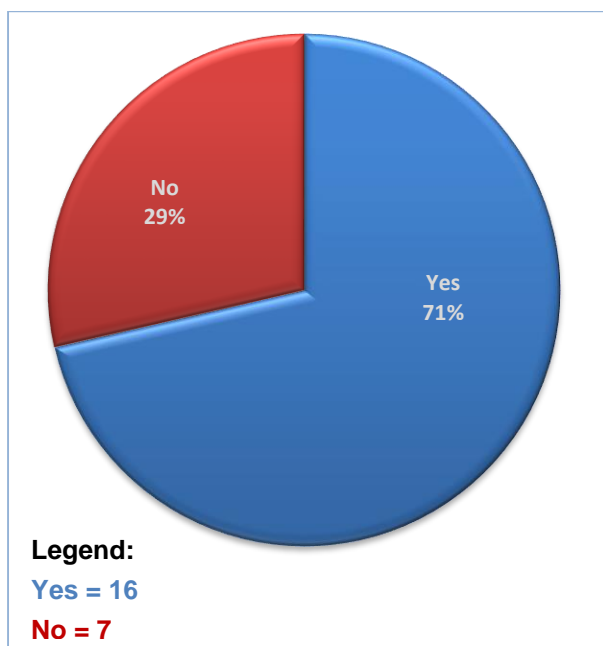
Seventy-one percent (71%) of respondents have put plans in place to adequately respond to the changes in their public services. Although 29% say that they did not develop plans to respond to technological changes in their public services, this could be that these SAIs have just established an IT audit function.

E: SAIs capacity to conduct IT audits, mode of deploying resources and IT audit expertise as well as additional IT audit capacity requirements areas identified

It is in the nature of organisations like INTOSAI to continuously support SAIs interventions of capacity building. Likewise, well-resourced SAIs are able to mobilise resources to build their staff professional competencies to ensure that they have the right talent to respond to changes in their environments. The use of external resources like audit firms and consultants is prevalent. This intervention complements SAIs resources and assists in making sure that they are in a position to deliver on their mandates. The analysis of the extent to which this is applicable within the INTOSAI community is presented by the graphics below:

Is your SAI having adequate capacity to conduct IT audits in your public service?

Legend:
Yes = 12
No = 11
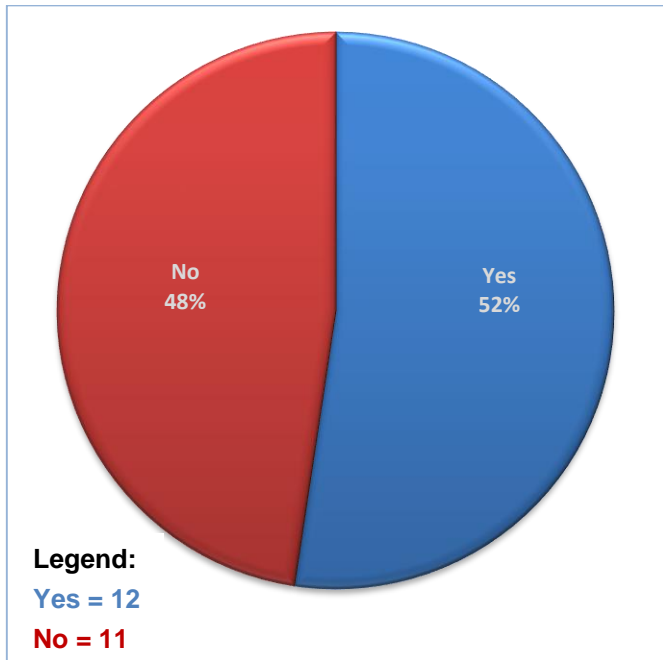
There is a near 50/50 split in terms of the response received about SAIs having adequate capacities to conduct audits in their public services. As illustrated in the graphic, 52% of SAIs says they have capacity to conduct IT Audits, while 48% say they do not have capacity.

**What mode of deployment of IT audit expertise does your SAI use?**
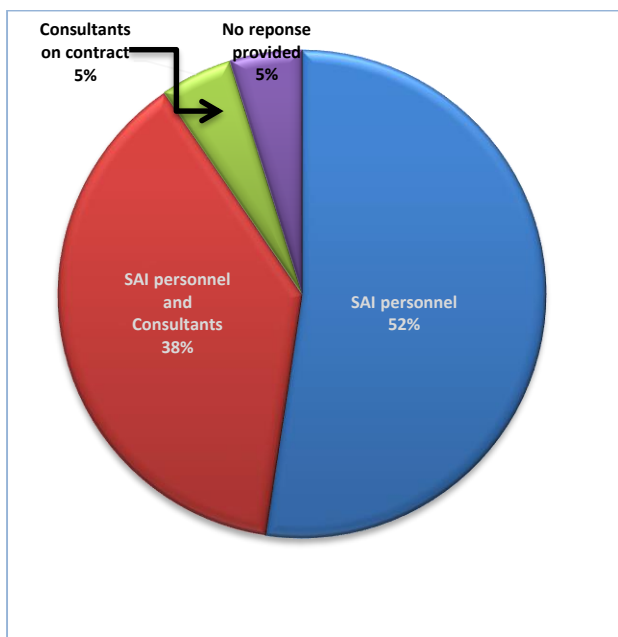
Five percent (5%) of the respondent use consultants on contract to augment to their capacity. Thirty-eight percent (38%) of respondents are using contracted in or out resources to execute IT audit work in their SAIs and 52% say they are doing all the work themselves.

F: SAI IT audit staff with membership to professional organisations with recognised professional certificates

Professional organisations seek to further interests of a particular profession, the interests of individuals engaged in that profession and the public interest. For IT audit profession, being an ISACA member gives you access to the best offers and products including certification exams, conferences and exam preparation materials. An analysis of SAI audit staff belonging to various professional organisations was done. Belonging to these organisations provides a complementary support to SAIs capacity building interventions for IT audit. The consolidated responses illustrate the extent this practice is applicable within the INTOSAI community:

Does your SAI encourage staff to be members of professional bodies like ISACA?

Legend:
Yes = 19
No = 4
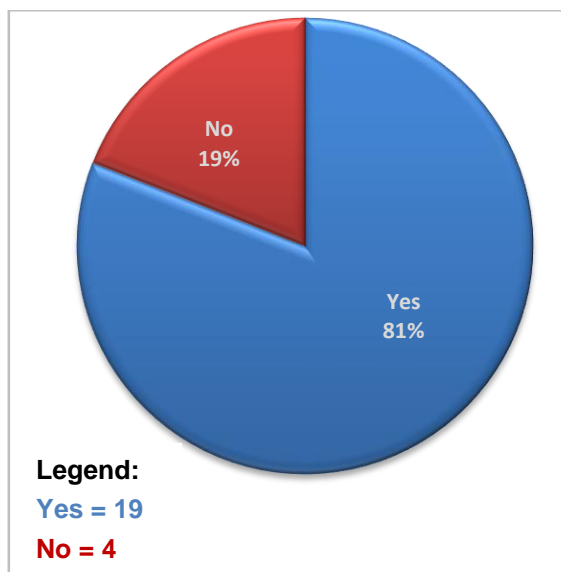
A majority of SAI personnel 81% say that they are encouraged to belong to professional bodies. While 19% of respondents say, they do not belong to professional organisations due to their offices not sponsoring costs of membership. However, some have personally registered as members without any support from their offices.

Does your SAI require and support auditors to acquire relevant professional certification like Certified Information Systems Auditor (CISA)?

Legend:
Yes = 19
No = 4
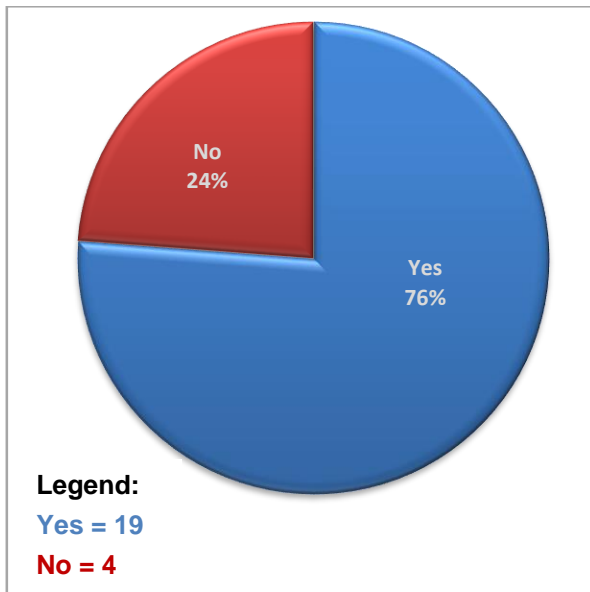
In addition to customised training interventions, 24 % of respondents that say they are not encouraged to be professionally certified, 76 % say that they are being supported and encouraged to obtain various professional certification. This is important for establishing the required IT audit capacity in SAI.

ACKNOWLEDGEMENTS

ANNEXURE 2 – Index of tables and figures

Table 1 – explain an era of politics-administration dichotomy by outlining various perspectives

Figure 1 – key aspects of capacity building in Supreme Audit Institutions

Figure 2 – capacity building processes and steps as outlined in the SAI performance management framework

Figure 3 – explain the key concepts and qualities of capacity and capability development in an organisation

Table 2 - presents data acquisition methods and explain their usability, the extent of how secure the method is to ensure the required integrity for management use.

Figures on page 29 and 30 is an example of infrastructure / architecture to facilitate accumulation of data to be used to gain further insights on key business areas.

Figures on page 31 is an example of the type of infrastructure / architecture to automate the audit work or flow of electronic documents.

ANNEXURE 3

List of references

1. Justification/rationale for including Project on "General conditions for IT Support for Audits (Area: Capacity Development)" in the WGITA Work Plan (2017-2019)

2. GCPSE & UNDP _Public Service-Reform Paper: - From Old Public Admin to the New Public Service

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