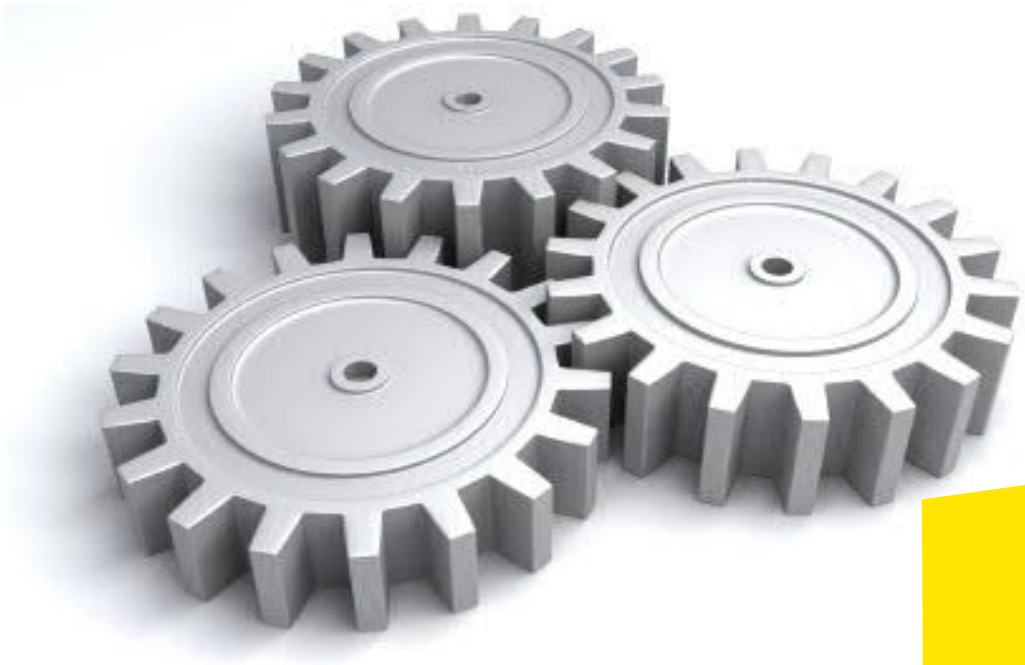

Technological advancements & leveraging the digital space to enhance quality in audit

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Objectives

- ✓ Why technology trends cannot be ignored
- ✓ Local context
- ✓ Level of Assurance
- ✓ Leveraging on technology/ The future of audit

Technology landscape

- The landscapes of technology and business are constantly changing and merging with each new innovation.
- Technology, is a key driver of innovation, and is at the heart of enabling business to evolve and maintain a commercial advantage.
- This shift has seen the role of technology within a business change from a support service to an integral player at the heart of operations, with the potential to be used to influence strategies and affect the shape of a business.

Technology trends

- Technology has become ubiquitous in business - technology is underpinning business models
- Technology is no longer just IT; enterprises are now digital and connected
- There is increase use of 3rd party providers
- Speed of innovation is outpacing risk management capabilities
- Technologies are only going to get more complicated and intricate as innovations advance

Technology stakeholders

- The business entity
- Customers
- Vendors
- 3rd parties
- Regulators

Technology trends

- Cloud computing
- Cybersecurity
- Artificial intelligence/ Machine learning
- Mobile computing
- Internet of things
- Quantum computing
- Robotic process automation
- Blockchain/ digital currency
- Wearable technology
- Virtual reality, Augmented reality, extended reality

What is emerging technology

- Emerging technology is difficult to define on its own because many enterprises have their own definitions and guidelines applicable to this term

- How do you define emerging technology

  - The ability of emerging technology to disrupt current markets is an important characteristic of emerging technology

  - The ability of a technology to solve current problems is the most prominent characteristic of an emerging technology

Why adopt use of emerging technology

- The COVID-19 pandemic forced many enterprises to reshape and rethink the way they conduct business, & emerging tech has helped organisations adapt quickly.
- Why adoption of emerging technology
  - Anticipated cost savings
  - Improved cybersecurity
  - Increased agility
  - The ability to reach new customers
  - Meet regulatory requirements
  - New revenue stream
  - Improved data privacy
  - Reputational value to your organization
  - A competitor’s successful implementation

What an automated environment looks like

- Centrally located databases
- Seamless integrated business modules
- High speed real time update of databases
- Automated processing of transactions with no typical manual audit trails
- Uniform processing of transactions thus reduced human error
- Dependent on automated controls and data input & validation controls
- Volumes of transactions processed at any given time

Local context trends

- https://www.businessdailyafrica.com/bd/corporate/technology/where-kenya-uk-russia-in-tech-adoption-3334942

The survey, Technology and Innovation Report 2021, shows that Kenya is way above developed economies such as the United Kingdom and Russia in utilising Fourth Industrial Revolution (4IR) technologies to address various challenges, when per capita income is weighted against ability to adopt modern technologies.

Local context trends

- https://ca.go.ke/wp-content/uploads/2019/07/Emerging-Digital-Compiled.pdf

Working with Twiga Foods, a Kenyan fast-moving consumer goods start-up, IBM has managed to fuse Blockchain, AI and big data, to develop credit profiles to access non-collateralised loans to hundreds of small-to-medium businesses, many of whom were owned by female vegetable vendors. Under normal circumstances, these businesses would not be issued credit from any banking institution due to lack of a credit history and inadequate documentation for KYC

M-Shule, a start-up in Kenya, leverages AI to provide an adaptive learning engine that continuously analyses each learner's abilities to track and build skills, and generate personalised learning. M-Shule solves a major problem that normal schooling has not been able to address. Educators understand that different students possess different abilities and consequently exhibit different requirements, strengths and objectives. The AI systems can be employed to identify each individual child's competency and deliver the right lesson at the right time.

Local context trends cont'd

Revenue collection

- Counties have automated the revenue collection process with an aim of introducing efficiency and minimising fraud in the process.

Kiambu county	Kisumu county
CountyPro revenue collection system Implemented in **2015** Revenue increased by **60%** https://www.standardmedia.co.ke/business/article/2000173952/kiambu-county-lauds-strathmore-s-it-solution	**Electronic Trade Licensing (ETL)** system for revenue collection Revenue collection has increased by Sh200 million Financed by world bank

"It has helped us improve decision making and modernise revenue collection. This has given the county agility in finance."

Local context trends cont’d

- Cybersecurity attacks

Kenya is among African countries facing a possible increase in cybercrime this year, amid economic uncertainty occasioned by the Covid-19 pandemic.

• Malware attacks were the highest at 46 million, followed by web application attacks at 7.8 million while 2.2 million Distributed Denial of Service(DDOS) out of the threats detected by the National Computer Incident Response Team Coordination Centre.

Regional context trends cont'd

Ethiopia

The Ethiopian Commodities Exchange e-Trade Platform:[109] This was a joint project by IBM and Wavetech that built a coffee traceability solution based on advanced data analytics, mobile and IoT technology. This solution tracks coffee from farms to the market supply chain. With this solutiotn, farmers can obtain Fair trade and organic certification for their products. In addition, the solution provides Ethiopians with a competitive edge internationally and improves its exports. To date, the exchange has tracked more than 5 million bags of coffee and plans to extend services to 5 million farmers. They plan to expand to other commodities produced in the country.

Rwanda

In Rwanda, drones are used to deliver blood to patients in rural areas through what has been termed as the world's first 'national drone delivery network' for medical aid. The California-based robotics[112] company, "Zipline," is working directly with Rwanda's National Centre for Blood Transfusion to realise 50 to 150 deliveries of blood per day to 21 transfusing facilities in western Rwanda. Rwanda has formalised drone regulations and is currently building a drone airport to be completed in 2020.

What does this mean for Audit?

- **New risks** inherent in automated business environment means new auditing approach – controls are automated thus testing should be automated.
- **Automated processing of transactions** implies application controls become paramount in an ERP environment. These include data input and validation controls, processing controls, output controls, data integrity controls etc
- **Lack of transaction trails in manual form** implies errors embedded in an application's program logic may be difficult to detect on a timely basis by manual procedures.
- **Uniform processing of transactions** implies clerical errors ordinarily associated with manual processing are virtually eliminated. Conversely, programming errors (or other systematic errors in hardware or software) ordinarily result in all transactions being processed incorrectly.
- Many control procedures that would ordinarily be performed by separate individuals in manual systems may be concentrated in ERP. Thus, an individual who has access to computer program, processing or data may be in a position to perform incompatible functions. **Thus logical access controls become important.**
- **Large volume of transactions** on real time basis means the traditional manual testing will be too late in the day/inappropriate to detect control lapses

Level of Assurance

- What is the level of Assurance being provided by audit to organisations?
- Basis of opinion on overall adequacy of internal controls over financial reporting
- Examples:
  - Sampling vs entire population
  - What timeline is this level of Assurance provided?

Risks/opportunities of emerging technologies

- With more adoption of technology, there is more risk introduced. This will require different assurance services to address these risks.
  - Auditors need to adjust their auditing lenses and rethink their assessment of third-party risk, outsourcing, application controls, data privacy and cybersecurity.

- With the advancement in technology, the approach is to move away from sample testing to entire population.

Risks/opportunities of emerging technologies

- It is critical for audit practitioners to invest in understanding and developing these technologies to benefit their respective sectors.
  - The attribute that makes each technology different is the way it affects the business model.
- As enterprises adopt emerging technologies, they expect auditors to be forward-looking technology consultants who can add value to the organization.

Risks/opportunities of emerging technologies

- With Covid-19 pandemic that has led to the closing of workplaces and the need for physical distancing, auditors are leveraging existing and new technology to conduct audits remotely.
- The future of audit isn't just about remote audits; it's about transforming underlying processes using technology to achieve three objectives:
  - a higher quality audit,
  - a more efficient audit and
  - better business insights for our clients through the traditional audit process.

Emerging technology analysis canvas (ETAC)

- Example of how you can leverage ETAC to assess emerging tech
- Link

Audit in the technologically advanced age

Robotics Process Automation

Audit
- Evidence collation, issue isolation
- Controls evaluation
- Reporting
- Regulatory compliance

Controls, Governance and Compliance
- Controls testing
- Enterprise GRC enablement
- Application security enforcement

Security
- Digital Identity & access
- Data identification & protection
- Security operations
- Software product & security

Implications

Audit
- Effective challenge of RPA program and robots
- Process modifications
- Impact to existing audit strategy
- Controls baselining, testing, reporting

Controls, Governance and Compliance
- RACM, ITGC, policy & procedure maintenance
- Governance framework enablement, extension

Security
- IAM
- Secure development
- Threat & vulnerability management

Audit in the technologically advanced age

- Cloud adoption

- The auditor needs to check that the controls provided by the cloud vendor are in place to meet the control objective.
- Typical areas to consider:
  - Organisation and administration
  - Monitoring activities
  - Communication
  - Risk assessment
  - Physical and logical controls
  - System operations
  - Change management

Audit in the technologically advanced age

- Cyber security
- Identifying weaknesses in the cybersecurity architecture.

Audit in the technologically advanced age

- Artificial Intelligence

- Auditors should confirm their understanding of how the use of AI affects the entity's flows of transactions, including the generation of reports or analytics used by management.
- In terms of accounting estimate, auditors would consider risks related to completeness and accuracy of the data elements, as well as the AI's methodology, which may present unique challenges due to the machine learning.

Importance of adoption of technology in audit

- This requires audit to transform itself to stay relevant to key stakeholders in response to changes, new risks and disruption occurring throughout the world.

- Audit must balance priorities and resources to help organisations address risks, anticipate emerging risks, provide insights to management to enhance credibility of the function

- The methodologies used must be adapted to used technology in audit execution to provide required insights and become a strategic player.

- The level of Assurance should be timely based on speed and volume of transaction to provide relevant insights to management.

Skills for Audit of the future

There is need to develop talent for tomorrow's risks, where new risk requires new talent

- Expertise in auditing organisation wide functions that have IT infrastructure that support operations
- Expertise in auditing IT systems i.e. cloud based technology, cyber security, network security, data security
- Expertise in usage of data analytics tools and incorporating data analytics into audit methodology
- Knowledge of 3rd party IT dependencies e.g. SLAs, control systems provided by 3rd parties
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Questions?