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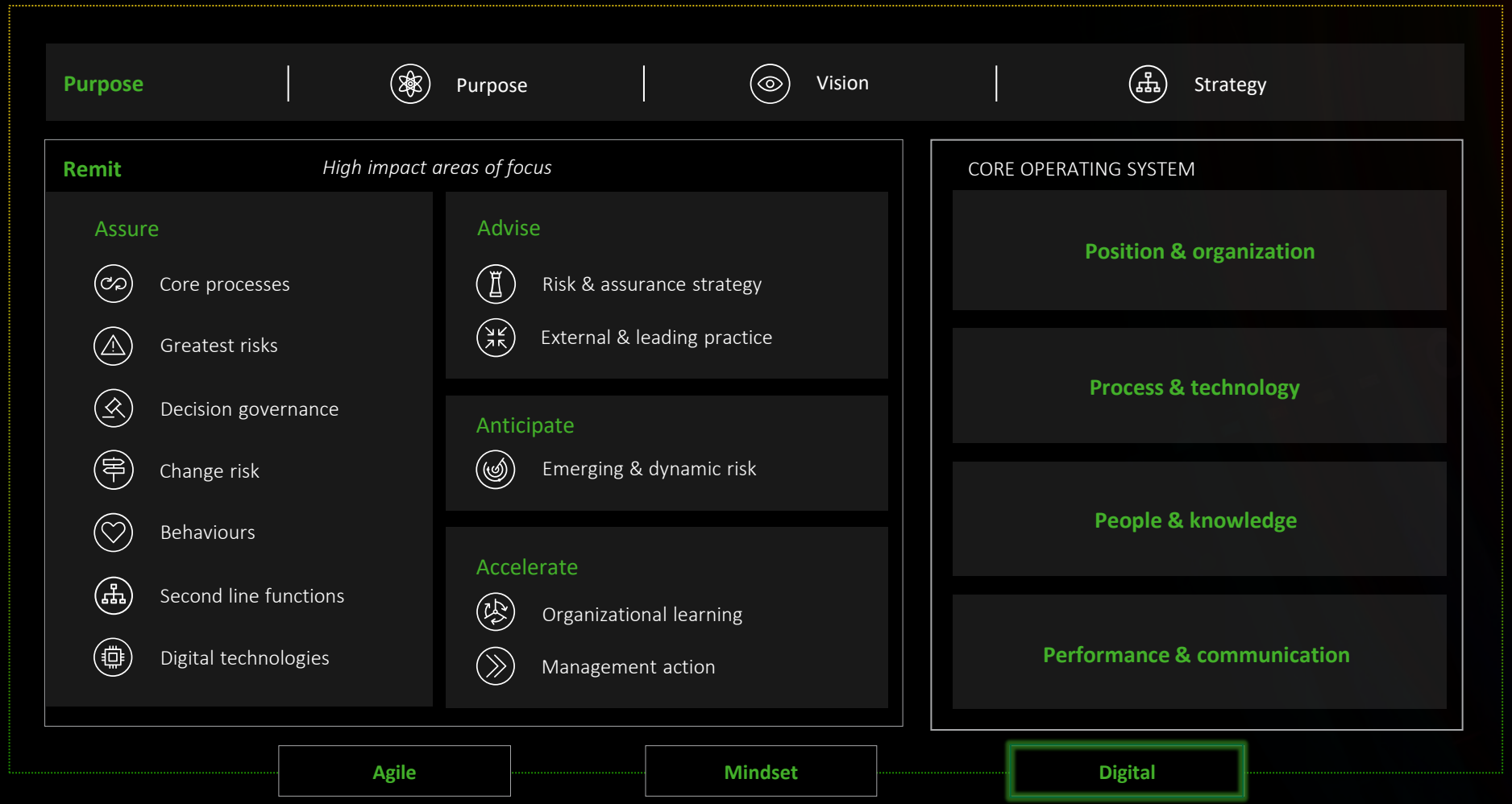
Internal Audit 4.0

Unlocking the power of digital through Artificial Intelligence

September 2025

Internal Audit 4.0
Purpose driven, digitally powered



Digitalising Internal Audit

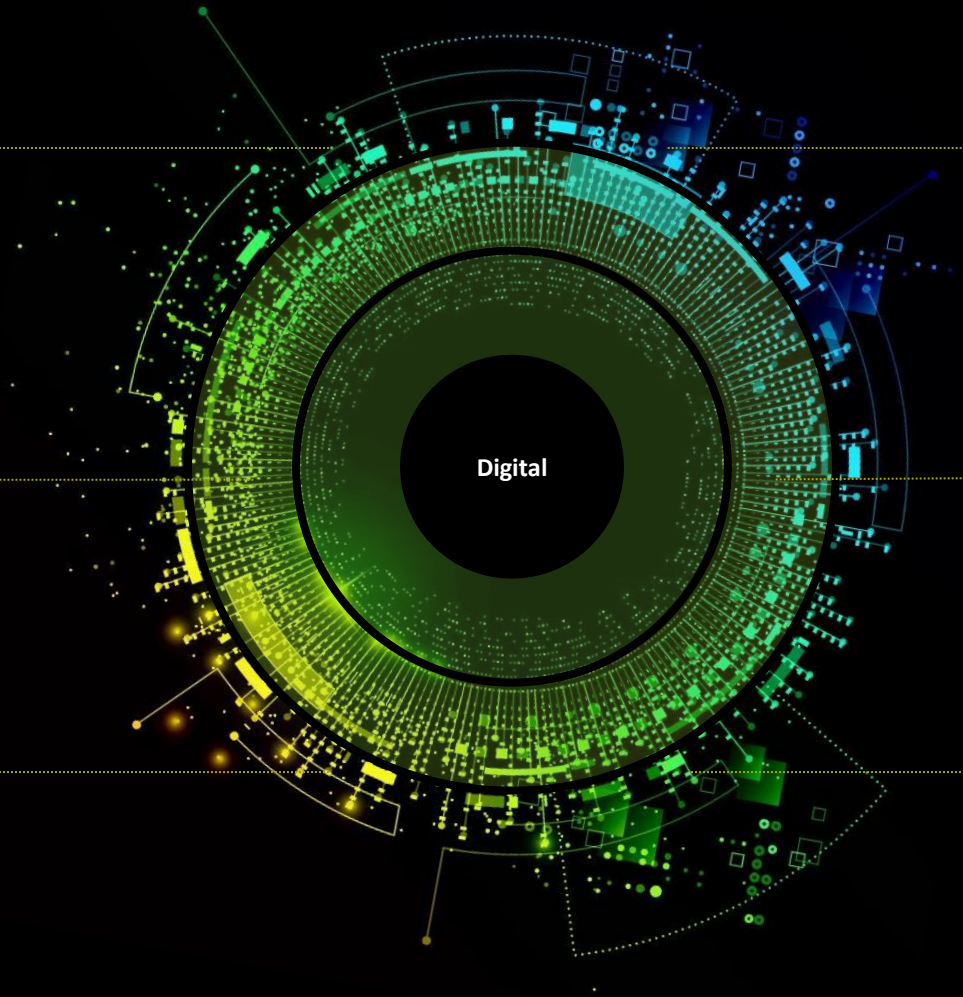
We believe digitalisation of Internal Audit is critical to achieving value, yet it remains a significant gap and opportunity for many functions.

Digitalisation refers to the integration of enabling technologies and ways of working to transform existing Internal Audit practice. Digital is not the goal, but it's what it can help you achieve be that maximising the value provided to stakeholders, enhanced quality, greater levels of assurance, increased impact, greater productivity, or new efficiencies.

For Internal Audit leaders and teams, it requires a cultural shift and a mindset of experimentation, innovation and challenging the status quo.

Whilst many functions have made good progress in the adoption aspects of digital such as analytics and visualisation, most Internal Audit functions are yet to truly harness the power of digital.

Internal Audit’s digital landscape



Artificial Intelligence

The simulation of human intelligence in machines programmed to think, reason, learn, and problem-solve

Automation

Automation of routine and labour intensive tasks to help drive productivity, efficiencies and improved quality

Cloud & platforms

The technology ecosystem, applications and cloud based tools such as Audit Management Systems, SaaS solutions, and integrations to enterprise systems

Visualisation

Creating insight and impact through engaging visualization of data to inform, support and report Internal Audit’s activity

Analytics

The analysis and use of data to help provide assurance, advice and insight across risk domains and Internal Audit data

Process mining

Visualising representations of business processes and workflows to drive insights into governance, risk and control design and effectiveness

Digital is not the goal… it’s what it can help you achieve

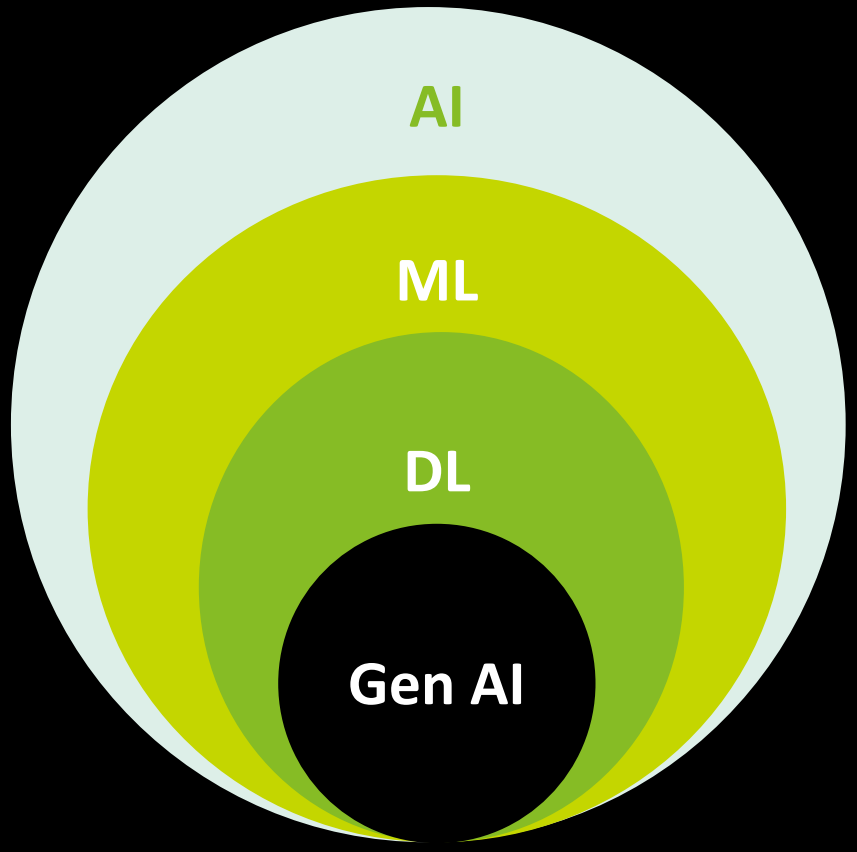
Insight | **Quality** | **Collaboration** | **Efficiency** | **Impact**

Artificial Intelligence

Understanding the terminology

Artificial Intelligence is a broad ‘umbrella’ term given to the field of computer science that focuses on creating systems that can perform tasks requiring human intelligence.

Most people are already using forms of artificial intelligence in their daily life without realising it. For example, tools like autocomplete, spellcheck, smart calendar scheduling, and suggestions on the most effective ways to visualise data in applications such as Power BI, are all powered by forms of artificial intelligence. However, the emergence of accessible Generative AI tools, and in particular, Large Language models such as Open AI’s ChatGPT, have excited the world around the potential these tools offer. Before jumping straight to these, it’s helpful to gain some digital fluency around AI. The below diagram helps show how terms like machine learning and generative AI sit in the context of AI.



Artificial Intelligence (AI)
The capacity for machines to perform tasks that simulates human intelligence such as *data processing, robotics and problem solving*.

Machine Learning (ML)
ML trains models to identify and predict patterns based on human processed data, rather than relying on hard-coded rules.

Deep Learning (DL)
DL is a powerful and advanced ML paradigm that leverages neural network models to improve model performance without feature engineering.

Generative AI (Gen AI)
Gen AI is a highly sophisticated subset of AI using large parameter models to create data across a variety of modalities e.g. text, images, audio, video.

Artificial Intelligence

Major approaches and capabilities

Examples of how AI learns and works

Machine learning

A subfield of AI where algorithms learn from data to make predictions or decisions. The primary types of ML include:

1.Unsupervised learning

UL discovers patterns in data, even though no explicit feedback or labelled examples are provided as they are in supervised learning.

2.Supervised learning

Learning from example. SL uses labelled training data to learn a model or a function to produce the correct output given an input.

3.Reinforcement learning

RL is learning by doing or by trial and error. It enables an agent to become proficient in an unknown environment, given only sensory input and occasional rewards or punishment.

Neural networks

A subset of machine learning inspired by the structure and function of the brain, which are often designed to recognize patterns in data.

Examples include image and speech recognition, and text classification.

Deep Learning

A specialized subset of neural networks that deals with networks containing multiple (usually many) layers, known as deep networks. DL enables complex ML tasks to be completed.

Examples include natural language processing/generation, autonomous vehicles, advanced image recognition, etc.

Examples capabilities provided by AI approaches

Natural Language Processing

The algorithmic ability of a machine or computer system to process large amounts of human or “natural” language.

Examples include data extraction, language translation, sentiment analysis, and chatbots.

Natural Language Generation

A subfield of natural language processing focused on generating coherent and contextually relevant text based on a set of conditions, rules, or input data.

Examples include automated reporting, chatbots, and text summarization.

Large Language Models

Specialized machine learning models for used in NLP tasks, including but not limited to NLG. They are designed to understand and generate human like text.

Whilst they are often used for text generation, their capabilities extend to other tasks like text classification, sentiment analysis, translation and question-answering.

LLMs are usually based on deep learning architectures and are trained on massive datasets.

Speech recognition

The process of using algorithms and software techniques, including ML, to recognize, focus on, and accurately transcribe human speech into text and other data points.

Example: transposing meeting audit into transcripts, personal assistants, etc.

Perception and sensing

Allows machines to interpret and make decisions based on visual data.

Examples include facial recognition, object detection, and medical imaging.

Robotics

Robotics uses a variety of AI approaches, such as computer vision and machine learning, to help robots understand their surroundings and interact with them, often performing complex activities.

Generative AI

An overview

Generative AI describes algorithms which can be used to create new content, including audio, code, images, text, simulations, and videos. Generative AI systems fall under the broad category of machine learning and include large language models, but also many other applications. Generative AI is moving at pace and there are new fields and a huge number of organizations developing AI platforms, with both narrow and broad capabilities.

Common types of generative AI capability include:

Image creation

e.g. text to image

Video creation

e.g. text to video, editing

Voice generation

e.g. text to speech

Music generation

e.g. AI generated music, lyrics, genres

Text generation

e.g. Content generation, copy, editing

Code generation

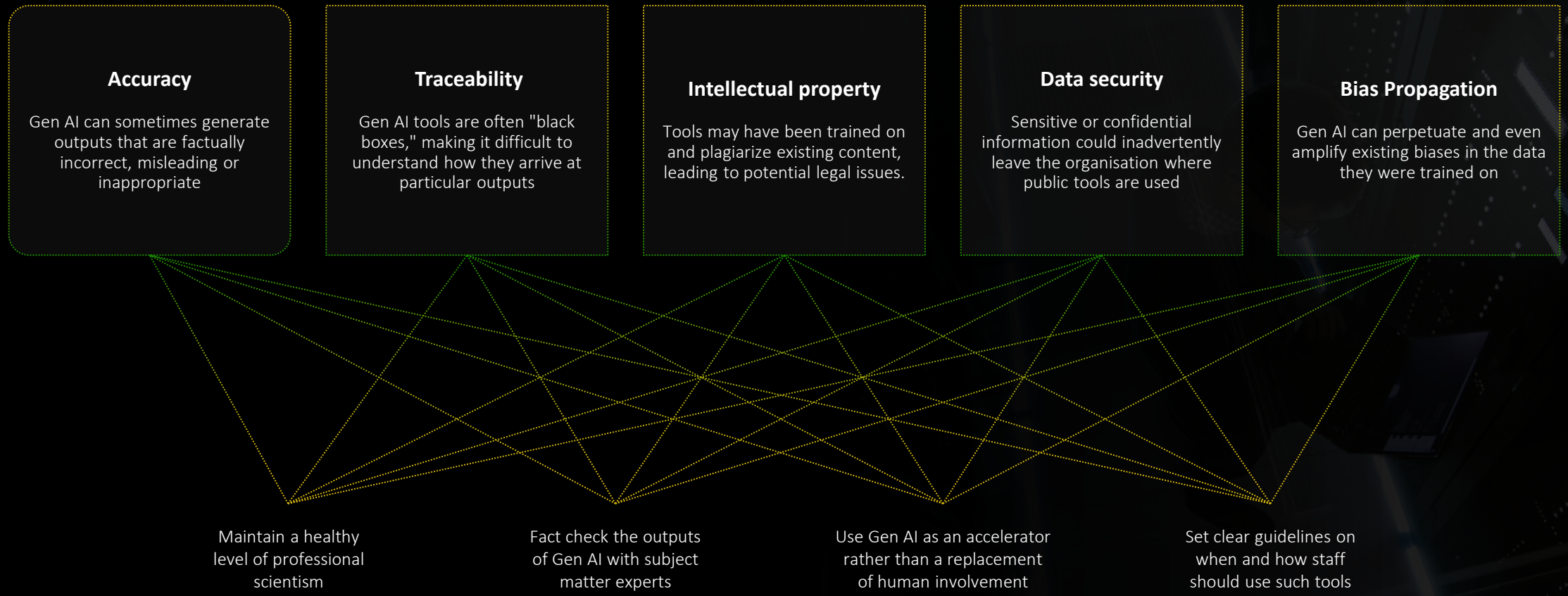
e.g. intelligent coding, generation and review

Generative AI has the potential to impact all industries with an infinite number of business applications and use cases.

Text, code, video and voice generation offer the most likely opportunities for Internal Audit functions to leverage Generative AI in order to create impact and reveal new possibilities.

The risks of using Gen AI tools

Generative AI is impressive. The ability of technologies such as large language models to provide coherent and insightful responses, in a human like dialogue, can quickly lead to high levels of trust being placed in their output. Functions who choose to ignore these technologies will fall behind, but their adoption of them must be managed and considered.



Generative AI for Internal Audit

How it could help…

Generative text, code and video technologies, including Large Language Models like ChatGPT, can offer a vast range of possibilities for Internal Audit. Their use is only limited by the imagination and creativity of teams. However, we have outlined some example use cases of how Internal Audit groups can embrace these across the audit lifecycle below.

Risk assessment

Supporting auditor research and understanding of risk for a specific industry

Supporting audit universe creation e.g. guidance on universe design, process universe, etc.

Audit plan development

Supporting auditor research and understanding on risk, business process and expected controls in advance of engagement planning.

Suggested audits against the risk assessed audit universe.

Suggested scheduling and resource allocation based on known constraints e.g. number and levels of staff

Engagement Planning

Supporting auditor research and understanding on risk and business process in advance of planning

Suggest control objectives and test procedures based on in scope risk areas

Suggest data sources, tables and potential analytics tests

Generate scripts for data extract and analytics execution

First draft of scope/terms of reference

Execution

Analysis of data through natural language questioning

Suggested interview questions for different stakeholders

Critical assessment of risk and control descriptions (e.g. if it covers who, what, where, when, etc.)

Initial draft of workpaper

Drawing themes from interview notes / audio

Summation/interrogation of audit evidence documents

Initial workpaper review and QA

Initial draft of issue/observations

Reporting

Initial draft report

Initial draft report review and QA

Editorial QA e.g. simplifying language, sentiment analysis

Summation of reports for Audit Committee summaries

Generation of video/audio reporting

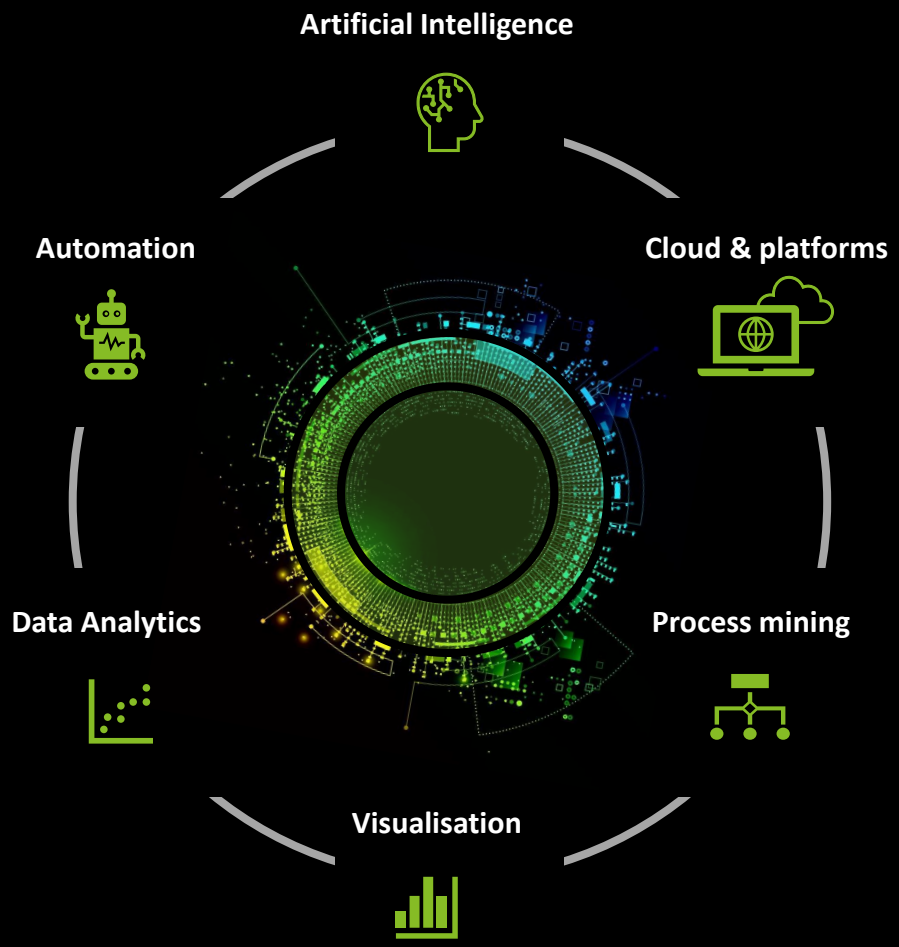
Customised communications stakeholders style

Report language translation

Drafting emails to communicate the audit report

Leveraging the full power of digital

Combining AI with other technologies…



By combining the power of AI with other technologies such as automation, analytics, visualisation, process mining and platforms including the Audit Management System, third party SaaS and enterprise systems, the potential for new capabilities that will drive greater efficiencies, quality, and impact is huge. A small range of potential capabilities unlocked through digital are below.

Predictive text to help drive consistency and quality	Intelligent interview analysis to identify risk, themes and insight	Intelligent analytics; suggested and self-service analytics	Outlier detection with machine learning	AI supported control design through digital twins and synthetic data	Personalised exception workflow management
Optimising risk coverage through intelligent plan development	Resource and schedule optimisation	Automated workpaper creation and QA	Continuous and automated control testing	Automated follow up process and reporting	Text mining & sentiment analysis
Automated skills and capabilities management	Customised L&D pathways and just in time training	Professional practices chatbots to advise on methodology and QA topics	Personalised co-pilot assistants	AI supported quality review	Interactive and visual reporting

Approaching Generative AI solutions

Use, shape or build?

Data entered into open consumer versions of generative AI tools is used to train the models that drive them (the usual trade-off for free services). Organisations want to take advantage of Generative AI solutions but on their own terms. Should they use open tools, shape capabilities developed by others or build their own?

Accessing open AI solutions

Generative AI can be easily consumed through either an API, like ChatGPT, or through another application, like GitHub Co-pilot (for software acceleration).

Given the pace of technology development, buying into consumer solutions ensures new features and plug-ins are readily accessible as they are developed.

Many tools are being integrated in applications which staff already know-how to use e.g. Microsoft Co-pilot in Office 365

Consumer tools can offer significant benefits from their generalised capability but little competitive differentiation due to the lack of customisation.

Shaping AI solutions

Organisations can leverage existing foundational models and retrain them (a process known as fine-tuning) with your own data. This can reduce 'hallucinations' and provide more accurate and relevant results. Fine-tuning applies to both hosted cloud LLMs and open source LLM models you run yourself, so this level of 'shaping' doesn't commit you to one approach.

To benefit from fine-tuning, organisations need to create a data environment that can be consumed by the model. This can require significant data, good quality data, sufficient infrastructure and data engineering and machine learning capabilities.

Hence AI solutions that you calibrate within your four walls will likely to be much smaller in size and narrow in application. For those who do invest in shaping generative AI systems created from existing models and services, these tools most likely to offer competitive differentiation.

Building from scratch

Building AI solutions from scratch is technically difficult and costly for companies that haven't yet made significant investment in generative AI. It requires significant expertise, advanced infrastructure, and few will have access to the levels of petabyte-scale datasets needed to initially train these models to levels of capability seen by open solutions.

By the time it would take an organisation to design and build their own, efforts could be better applied to shaping existing models or making use of general capability in open solutions, and exploring how your organisations processes could evolve using these new capabilities.

What do to now

Immediate steps Internal Audit leaders should take

01

Increase your digital fluency

Starting engaging with learning and development now. You don’t need staff to become data scientists, engineers or digital experts. However, being familiar with the terminology, types of capability and potential for these tools will help accelerate adoption and get your function thinking about the use cases.

02

Engage with your technology teams

Understand your organization’s stance toward artificial intelligence, both from a data privacy and security perspective for open solutions, and it’s appetite for shaping existing solutions within the safety of your organization’s environment.

03

Determine your digital strategy and potential

Determine how digital can help you achieve your broader functional strategy and outcomes. Systematically review your ways of working to identify potential use cases, explore return on investment and pilot through experimentation.

04

Clean up your (and the organisation’s) data

The quality of AI both in terms of its training and it output will be a product of the quality of data it is given and looking at. Many organizations (including Internal Audit) have poor data quality, version control or out of date versions of documents that haven’t been removed from intranets for years. Whilst you’re waiting for some of the tools to become more accessible, getting your house in order will pay dividends to the value AI can deliver.

How we can help

Deloitte’s Digital IA services

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Digital is not the end goal. It's what it can help you achieve

Why Digital matters?

Facing ever growing demands and expectations, Internal Audit leaders must evolve to keep pace. We believe digitalisation of Internal Audit is critical this.

Whilst some functions have made good progress, most are yet to truly harness the power of digital. It remains a significant gap and opportunity.

Digitalisation refers to the integration of enabling technologies to transform existing Internal Audit practices. But digital is not the goal. It's what it can help you achieve that is key; maximising the function's value for, and impact on, the organisation. Digital is a path to enhancing quality, providing greater levels of assurance, revealing insights, achieving new levels of productivity and a tool to reimagine the art of the possible.

The digital landscape is broad, covering artificial intelligence, automation, audit management systems, cloud-based solutions, visualisation, data analytics, and tools such as process mining. Whilst they can be deployed in isolation, the power of digital is in their combination.

Digitalisation requires a holistic and coordinated approach across the function, a clear vision, and the means to achieve it. And therein lies the challenge…

Digitising requires a level of technology fluency, deep knowledge of Internal Audit practice, and a curiosity to explore the 'art of the possible'. To embrace digital, Internal Audit leaders need to have and establish a mindset of experimentation, innovation and challenging the status quo across the function. It's a cultural shift as much as a technology lift.

Challenges facing Internal Audit today

Sourcing and retaining talented analytics resources with the right mix of IA knowledge, business acumen and technical expertise

Desire to incorporate leading edge **AI and Machine learning** but limited ideas, skills, and knowledge hold the IA function back

Delivering on innovation programs fail where a mix of low volume ideas and overall poor governance leads to program collapse

IA faces a need to **upskill talent across the function** on emerging technologies, data science, and project management

Where to start

Be purpose driven

Digitalisation is a journey that has the potential to transform Internal Audit's ways of working, but it has greatest impact when its outcomes and benefits are aligned with the function's purpose. Internal Audit leaders must have clarity on their broader purpose, vision and the desired outcomes before embracing digital.

Digital fluency is important, but mindset drives true value

Upskilling is critical. Auditors need to develop the necessary skills to recognise opportunities for analytics, automation, AI etc. but embedding a culture of innovation and continuous improvement, where challenging the status quo is expected, is key to revealing new possibilities.

Systematically assess your ways of working

The change will take time, but you can't achieve anything without taking your first step on the journey. With clarity of purpose and desired outcomes as your guide, systemically assess your ways of working to identify, evaluate, pilot and deploy digital opportunities across the lifecycle.

Data is still the key

With the right data, digital technologies can drive new levels of insight, assurance, efficiencies and experience for your stakeholders. Alignment with the enterprise's technology and data strategy can help accelerate Internal Audit's progress.

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Our approach to digitising Internal Audit

Setting your digital strategy

Through our experienced facilitators, our digital strategy labs help you connect your digital ambition with your function's purpose, role and remit. We understand your desired outcomes, and help you identify the strategic priorities needed to unlock the power of digital. We benchmark your digital capabilities today using our Digital IA maturity framework.

We show you the art of the possible, providing you insights on leading and innovative practice, and share our experience in how to transform your function successfully.

Step by step, we guide you through our Digital IA framework, designed to help you consider and define your roadmap across multiple areas including:

Strategy – your digital vision, value drivers, organisational alignment, partnerships and eminence.

People - the skills, culture, team structures and behavioural attitudes needed to build your digital capabilities.

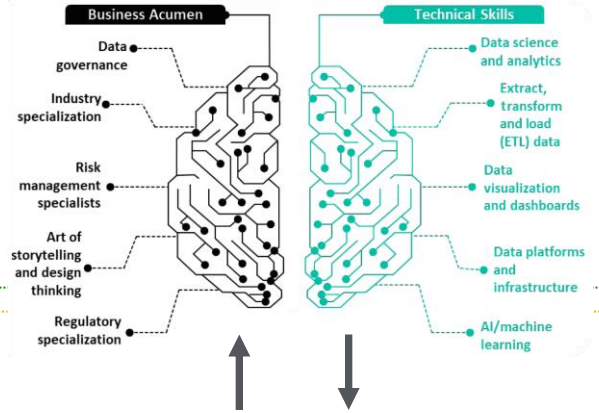
Process - the processes required to establish and industrialise digital ways of working across your function to realise strategic change.

Technology - the relevant tools, technology and infrastructure required to support a digitally enabled function.

Data - the sources, access and potential uses of data across the Internal Audit lifecycle to drive tangible value.

Developing your digital skills and capabilities

To help you grow the skills needed for your digital ambition, we can support you in development of your digital competency framework and skills assessment. Through our Internal Audit Development Pathways, we can give you access into tried and tested learning. Equally, we can design, build and deliver bespoke digital pathways to provide learning and development activities for your teams, specialists and leaders.



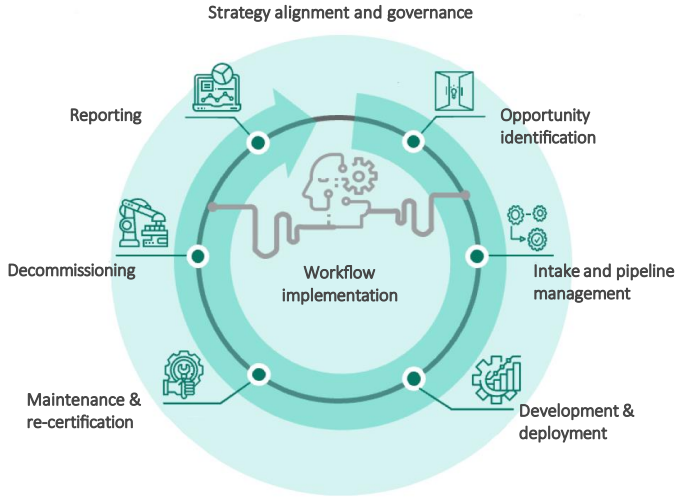
Helping you identify, design and build digital use cases

Opportunity identification - Based on a clear understanding of your desired outcomes, we systematically review and assess your function to identify opportunities to leverage enabling technologies inc. automation, AI, analytics, visualisations, common AMS functionality, etc.

Intake & pipeline management – We help you engage your team to capture ideas quickly and frequently, consider return on investment and prioritise your digital journey.

Development and deployment – we can give you access to our dedicated technology professionals who provide scale to your internal audit team, without the long-term commitment of full-time hires, to accelerate your development and deployment of digital assets.

Maintenance, recertification, decommissioning and reporting – digital assets need ongoing management. We help you design and stand up the governance, processes and monitoring activities needed to support your digital ways of working.



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Connect with us to start your digital journey

Current trends and focus areas

Whilst there is no one-size-fits-all approach to digitalisation, common opportunities have emerged across the Internal Audit lifecycle. For example:

- Audit universe visualisation
- Data driven, automated risk assessment
- Self-service analytics
- Machine Learning for anomaly detection, clustering & predictive analytics
- Automated data extraction and controls testing
- Audit procedure automation providing analysis and workpaper population for in scope risks and controls
- AI powered search engines and knowledge management
- Large Language Model powered document interrogation, and content creation
- Automated follow up process and reporting
- Automated Audit Committee paper production

Contact us to learn more about unlocking the power of digital.

Investing in internal technology and digital opportunities can result in:

01 **Increased automation:**
Reduction of manual processes and increased assurance coverage

02 **Significant cost savings:**
Efficiency gains and cost savings throughout the audit lifecycle

03 **Enhanced analytics:**
Advanced analytics capabilities across each audit phase with centralized data source and greater insight

04 **Staff turnover reduction:**
Significant reduction in IA staff turnover and improved skillsets

05 **Quality customer experience:**
Strengthened IA stakeholder relationships across the organization

Meet our team

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