

# AI in Banking

## – Leveraging Data from the three lines Perspective

Biju Nair CIA, CISA, CISSP, CRISC, CRMA, CFE  
Chief Audit Executive  
United Arab Bank

Disclaimer- The views expressed in this presentation are solely those of the speaker and not necessarily represent those of UAB

# Agenda

- Technology Evolution – Industrial Revolution – 4.0
- Evolution of Financial Services/Banking over the years
- AI/GenAI – What, When and How?
- Importance of Data in AI
- Leveraging Data by 3 lines for uniform results
- Role of Internal Audit in AI adoption
- Future of Internal Audit

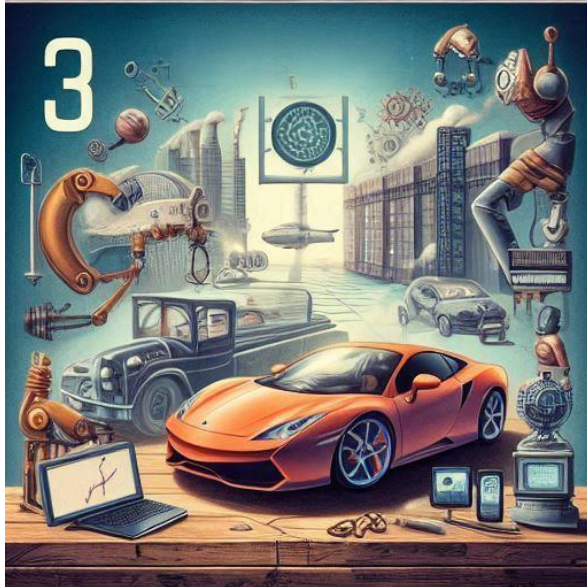
# Understanding the Audience



**Kindly select the functional role that closely reflects your current position**

# Technology Evolution – Industrial Revolution – 4.0

# Industry 4.0 – Smart, Connected, Futuristic world



## First Industrial Revolution (Late 18th to Early 19th Century)

•Timeline: Approximately 1760 to 1840

## Second Industrial Revolution (Late 19th to Early 20th Century)

•Timeline: Approximately 1870 to 1914.

## Third Industrial Revolution (Mid 20th Century to Early 21st Century)

•Timeline: Approximately 1950s to 2000s.

## Fourth Industrial Revolution (Early 21st Century to Present)

•Timeline: Approximately 2010s to present

# Solutions through Evolutions & Revolutions

## First Industrial Revolution Key Features :

- **Mechanization:** Introduction of machinery to replace manual labor, particularly in the textile industry.
- **Steam Power:** Development and use of steam engines, notably improved by James Watt.
- **Factory System: Shift from home-based hand production to factory-based machine production<sup>12</sup>.**

## Second Industrial Revolution Key Features:

- **Mass Production:** Introduction of assembly lines, pioneered by Henry Ford.
- **Electrification:** Widespread use of electricity in industries and homes.
- **Telecommunications: Invention and spread of the telegraph and telephone<sup>12</sup>.**

## Third Industrial Revolution Key Features:

- **Digital Revolution:** Introduction of computers and digital technology.
- **Automation:** Use of robots and automated systems in manufacturing.
- **Information Technology:** Development of the internet and information systems.

## Fourth Industrial Revolution Key Features:

- **Cyber-Physical Systems:** Integration of physical and digital systems.
- **Artificial Intelligence:** Advanced AI and machine learning applications.
- **Internet of Things (IoT):** Network of interconnected devices.
- **Biotechnology:** Advances in genetic engineering and biotechnology.

## Result of Industry 4.0 – A New Way of Life

The Fourth Industrial Revolution, finally, will change not only what we do but also who we are. It will affect our identity and all the issues associated with it: our sense of privacy, our notions of ownership, our consumption patterns, the time we devote to work and leisure, and how we develop our careers, cultivate our skills, meet people, and nurture relationships. It is already changing our health and leading to a “quantified” self, and sooner than we think it may lead to human augmentation. The list is endless because it is bound only by our imagination.

**Klaus Schwab**

Founder, Executive Chairman, World Economic Forum

<https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>



# What is making this possible?

**Moore's Law:** The number of transistors on microchips has doubled every two years



Moore's law describes the empirical regularity that the number of transistors on integrated circuits doubles approximately every two years. This advancement is important for other aspects of technological progress in computing – such as processing speed or the price of computers.

## Transistor count

50,000,000,000

10,000,000,000

5,000,000,000

1,000,000,000

500,000,000

100,000,000

50,000,000

10,000,000

5,000,000

1,000,000

500,000

100,000

50,000

10,000

5,000

1,000

1970

1975

1980

1985

1990

1995

2000

2005

2010

2015

2020

Year in which the microchip was first introduced

Data source: Wikipedia ([wikipedia.org/wiki/Transistor count](https://www.wikipedia.org/wiki/Transistor_count))

Rapid reduction in cost of storing information

Rapid increase in Computing Power

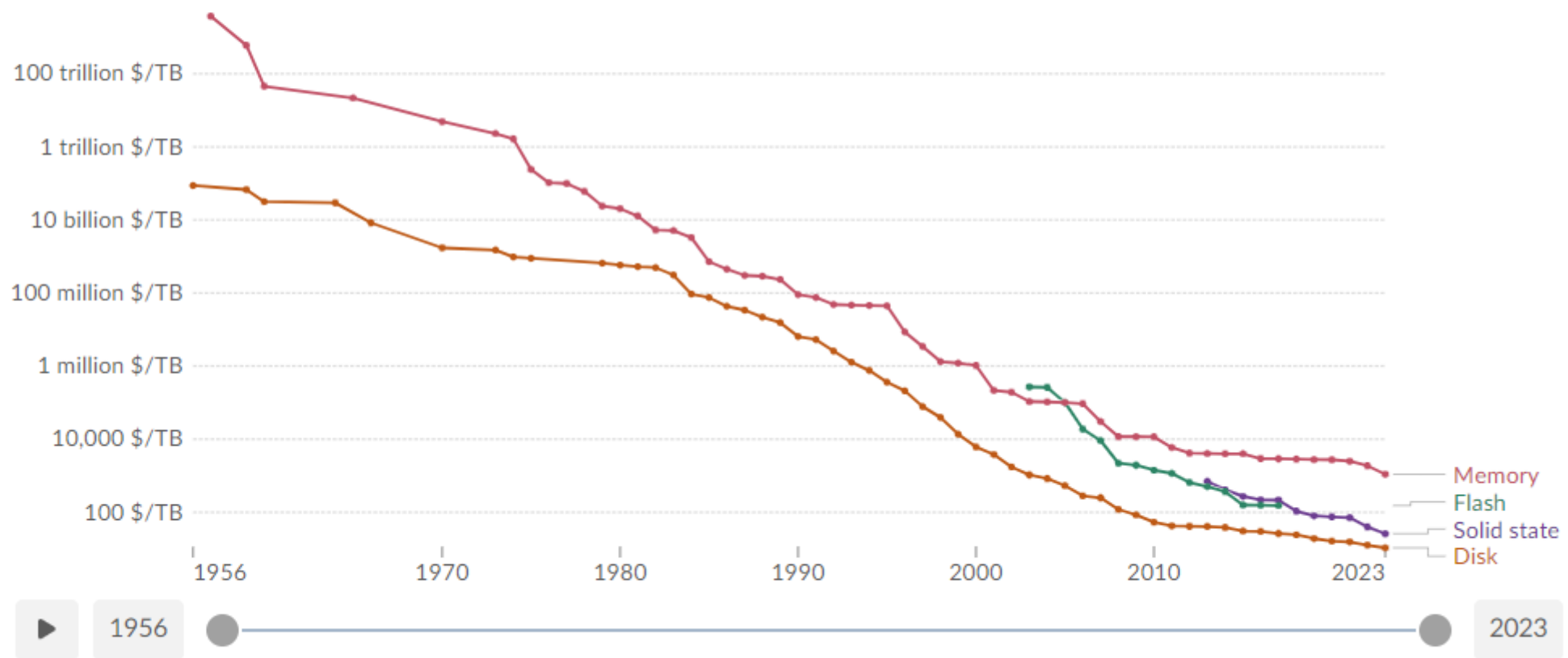


# Historical price of computer memory and storage

This data is expressed in US dollars per terabyte (TB), adjusted for inflation. "Memory" refers to random access memory (RAM), "disk" to magnetic storage, "flash" to special memory used for rapid data access and rewriting, and "solid state" to solid-state drives (SSDs).

Table Chart

Settings



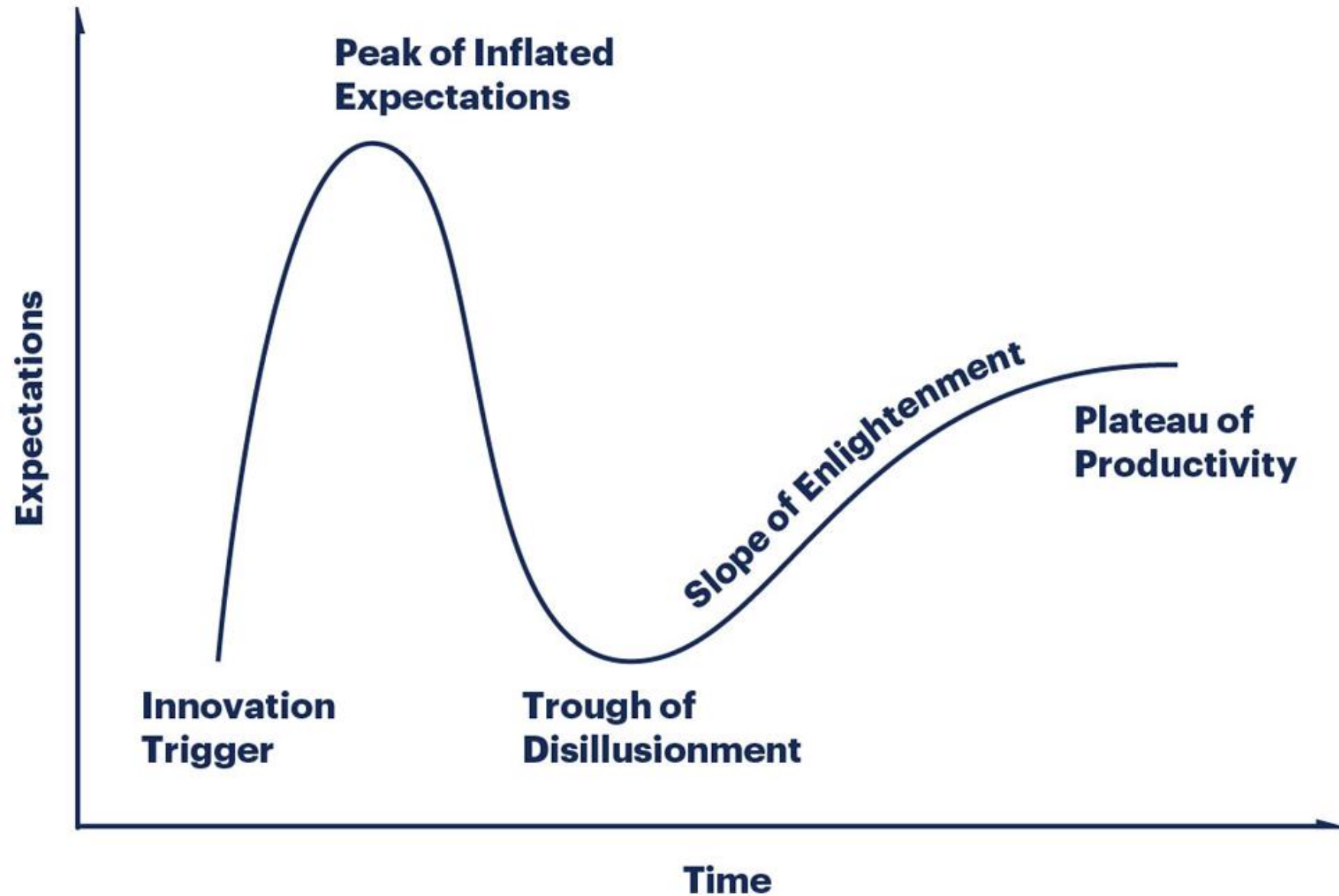
Data source: John C. McCallum (2023); U.S. Bureau of Labor Statistics (2024) - [Learn more about this data](#)

Note: For each year, the time series shows the cheapest historical price recorded until that year. This data is expressed in constant 2020 US\$.



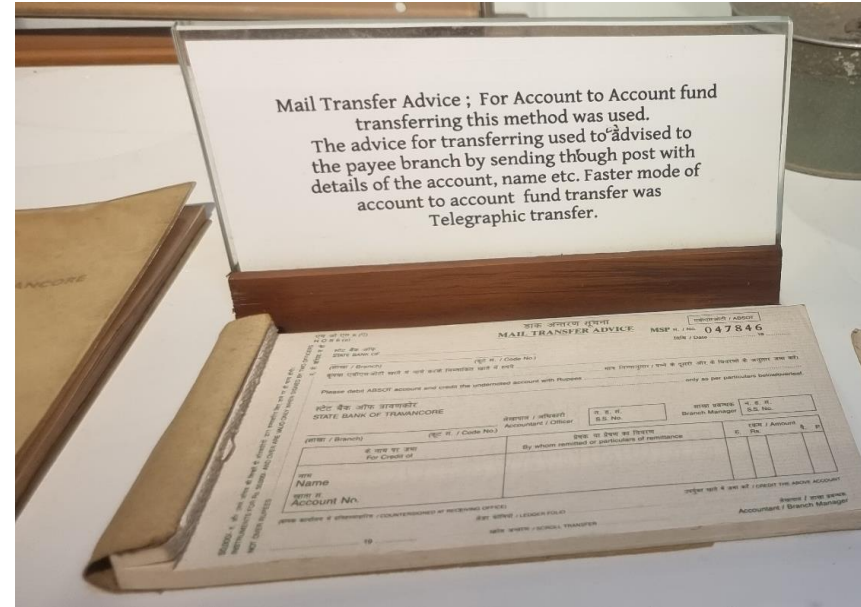
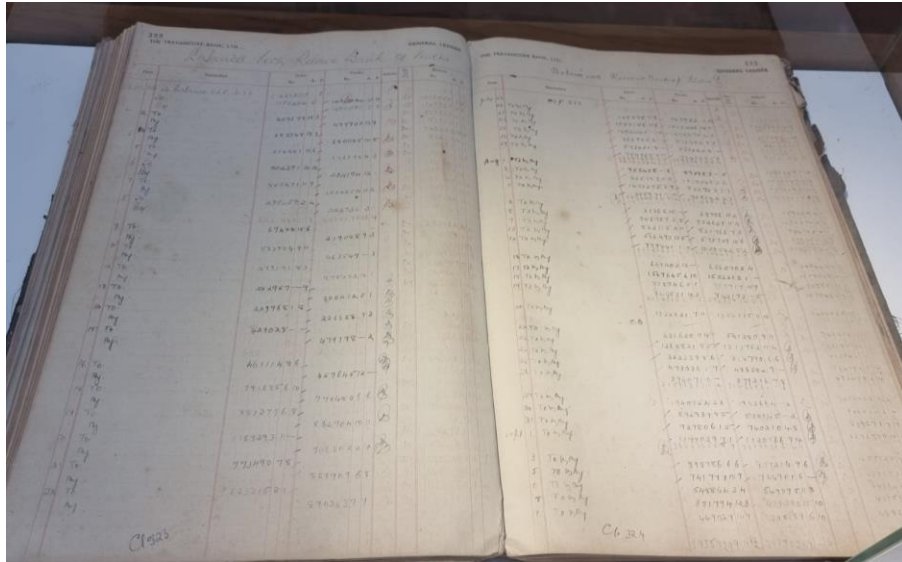
# What do you think will be the future of AI?

# Gartner's Hype Cycle for Technology



# Five Decades of Evolution in Banking

# Banking Transformation



Reg Varney makes the first ever ATM withdrawal – 1967 in Enfield, North London



# Banking Landscape in UAE

**Table-2 Banks, Other Financial Institutions & ATM**

**2021 - 2023**

	2021	2022				2023			
	Dec	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec*
<b>Locally Incorporated Banks</b> (excluding investment banks)									
Main Branches	22	22	23	23	22	22	22	22	22
Additional Branches	513	511	508	506	498	494	493	492	489
Electronic Banking Service Units	41	42	43	44	45	47	47	47	46
Cash Offices	20	20	21	21	21	21	21	21	21
<b>GCC Banks</b> (excluding wholesale banks)									
Main Branches	6	6	6	6	6	6	6	6	6
Additional Branches	6	6	6	6	6	6	6	6	6
<b>Other Foreign Banks</b>									
Main Branches	21	21	21	21	22	22	22	22	22
Additional Branches	68	68	68	68	67	66	66	66	66
Electronic Banking Service Units	21	21	21	22	21	21	21	21	21
Cash Offices	1	1	1	1	1	1	1	1	1
<b>Wholesale Banks</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>
of which GCC Banks	1	1	1	1	1	1	1	1	1
<b>Representative Offices</b>	<b>78</b>	<b>77</b>	<b>76</b>	<b>73</b>	<b>72</b>	<b>72</b>	<b>71</b>	<b>71</b>	<b>71</b>
<b>Finance Companies</b>	<b>19</b>	<b>19</b>	<b>19</b>	<b>18</b>	<b>16</b>	<b>16</b>	<b>17</b>	<b>17</b>	<b>17</b>
<b>Moneychangers</b>	<b>89</b>	<b>87</b>	<b>86</b>	<b>86</b>	<b>86</b>	<b>84</b>	<b>77</b>	<b>81</b>	<b>74</b>
<b>ATM</b>	<b>4,396</b>	<b>4,400</b>	<b>4,389</b>	<b>4,376</b>	<b>4,426</b>	<b>4,425</b>	<b>4,458</b>	<b>4,534</b>	<b>4654</b>

*Source: Banking Supervision Department and UAESWITCH*



# Foreign Banks Licensed in the UAE

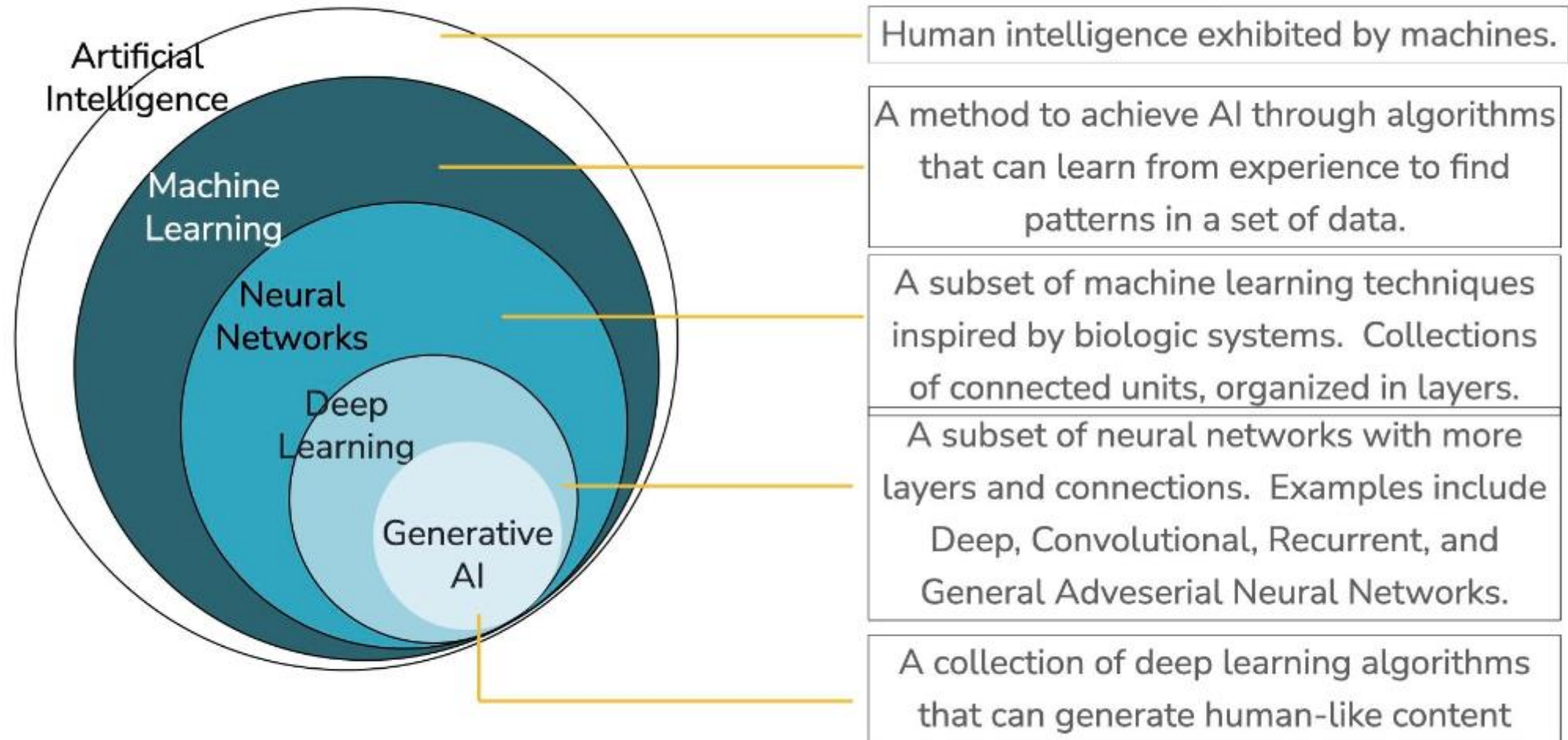


# Leading Digital Banks Licensed and Operating in UAE



# AI and GenAI – What, When and How?

# The Journey from AI to GenAI



## Some AI Use cases in Banking in India

- SBI Intelligent Assistant (SIA), an AI-powered smart chat assistant, addresses customer enquiries instantly and helps them with everyday banking tasks like a human does. Developed by an AI banking platform Payjo, this smart chat assistant is equipped to handle nearly 10,000 enquiries per second or 864 million in a day.
- ICICI Bank, has applied software robotics in over 200 business processes across diverse functions of the company. ICICI bank has scaled its RPA initiative to over 750 software robotics handling nearly 2 million transactions daily, which is 20% of the transaction volumes.
- Axis bank allows its customers to talk about their banking issues anytime, anywhere through an AI-powered bot. They unveiled a conversational interactive voice response (IVR) system, called AXAA. As a next-generation multilingual voice bot, AXAA assists customers to traverse through the IVR and addresses their queries and requests, without the need for any human intervention in most cases.

Source – “Role Of Artificial Intelligence in The Banking Sector “ Dr.S. Umamaheswari, Associate professor, Vivekananda institute of management studies Coimbatore

## Few AI Use cases in Banking in UAE/GCC

- ENBD has 25 plus use cases across various business functions that are live. This includes a knowledge portal that answers customer queries, real time analysis of Social Media sentiments, analysis of new regulations and compare with existing ones to identify gaps etc. Bank is also implementing CoPilot at an enterprise level.
- RAK Bank uses AI during the customer onboarding , specifically on handling KYC and EDD (Enhanced Due Diligence) during the onboarding process.
- Other Banks in the region like Kuwait International Bank has put together a 5-year road map on AI.
- Several other use cases like documentation mapping on TradeFinance transactions, reducing false positives in AML transaction monitoring, hyper personalization of customer experiences through various digital channels, Supply Chain risk assessments, more Straight Through Processing (STPs) are some of the use cases at various stages of implementation across the Banking sector.

Source – MEBIS Conference discussions

## Key dependencies/ success factors for AI implementation in the Banking Sector

- Regulations on AI Governance from Central Banks as well as the country legal frameworks
- Country Infrastructure on Citizen Data. Ease of secure access to such data for validations
- Organisational data that is clean, reliable and gives a uniform view of the customers
- Availability of right technology to extract, cleanse, analyse and project outcomes.
- Technology to continuously learn from the available data and take intelligent decisions replacing the need for manual interventions.
- Creation of an Ecosystem covering Customer Journeys, Banking Products, Technology and external FinTech partners.



# Importance of Data in Artificial Intelligence

# Data Challenges in Artificial Intelligence adoption

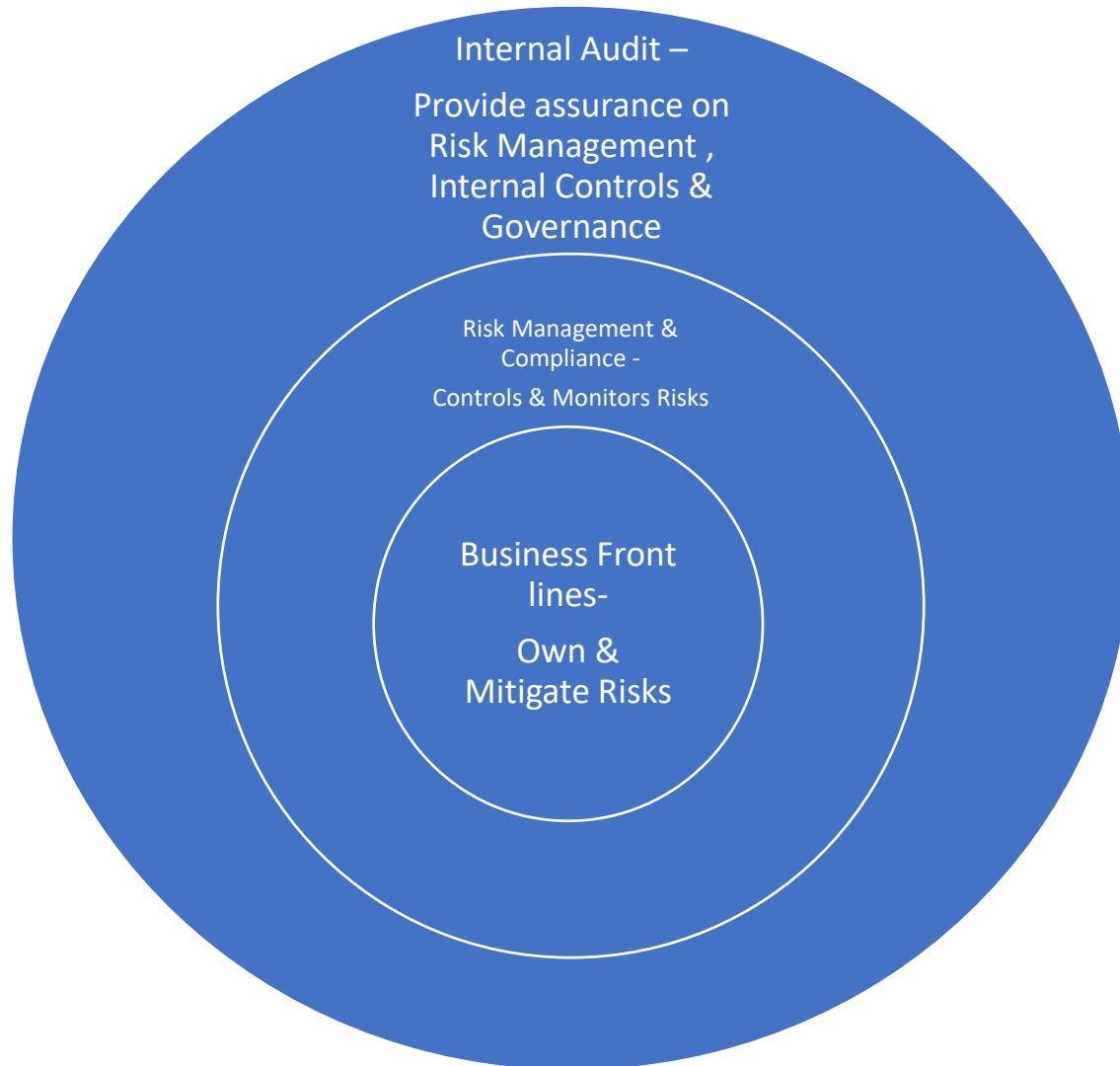
- Data for Gen AI tools is like oxygen for humans.
- AI Needs Data more than Data needs AI
- The quality and quantity of data AI ingests are paramount to its effectiveness.
- Data fuels AI algorithms to learn, adapt and make decisions.

**Waymo & Tesla**  
Case Study explaining different data sets resulting in different behaviors



## Leveraging Data by 3 Lines of Defences

# Same Data – Three Different Perspectives



## Role of Internal Audit in AI adoption



# Role of Internal Audit in AI Adoption

## 1. Risk Assessment and Identification (AI-Specific Risks)

Internal Audit identifies and assesses risks related to AI deployment, such as bias, transparency, data privacy, and cyber threats.

## 2. Governance and Compliance

AI technologies are subject to regulations, including data protection laws (e.g., GDPR) and ethical guidelines.

## 3. Control Effectiveness

**a. Algorithm and Model Audits:** Internal Audit assesses the design and operational effectiveness of AI algorithms and models. This includes checking for biases in data inputs, reviewing how AI models are trained and validated, and ensuring their outputs are accurate and reliable.

**b. Data Integrity and Quality:** Auditors evaluate the quality of data used by AI systems, ensuring that the data is accurate, complete, and secure. This is essential because AI heavily depends on large datasets for training and functioning.

## 4. Cybersecurity and Data Privacy

Internal Audit evaluates whether AI systems are secure from cyber threats, especially those related to unauthorized data access, adversarial attacks, or vulnerabilities in AI software.

## 5. Ethical Considerations and Accountability

Internal Audit helps ensure that AI-driven decisions are transparent and explainable, particularly in high-stakes areas like finance, healthcare, and law enforcement.

## 6. Third-Party AI Vendor Assessment

Internal Audit evaluates the risks associated with third-party AI vendors, including their security practices, compliance with regulations, and contractual obligations.



# Challenges for Today's Auditor

## Technology Challenges like,

- Cloud
- Virtualization
- Ransomware
- BlockChain
- RPA
- Artificial Intelligence
- Generative AI

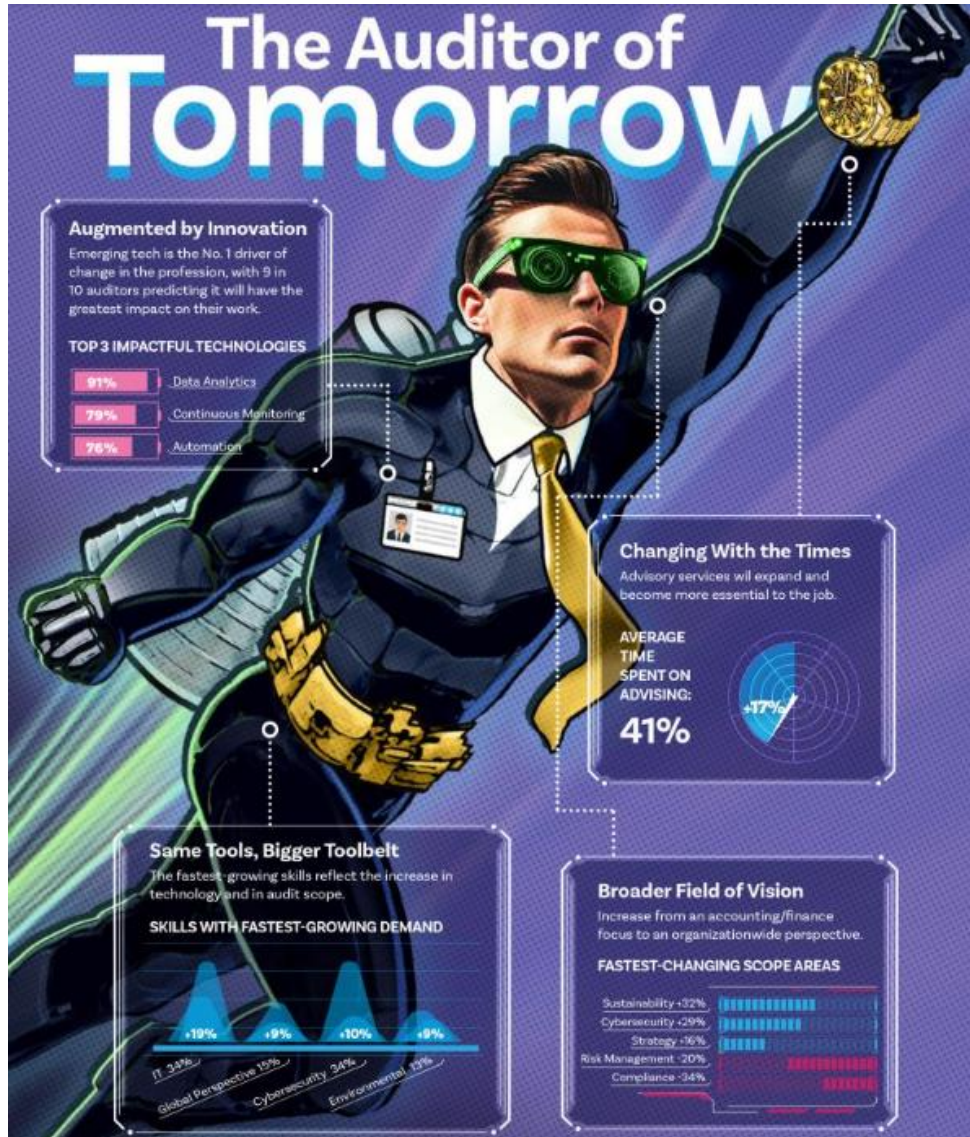


## Evolving Business Challenges like,

- Higher stakeholder expectations
- New Business Models like Open Banking
- Larger regulatory scrutiny
- Rapidly changing business risks
- Absence of the right resources to be future ready

# Future of Internal Audit

# Internal Auditor of Tomorrow



## Augmented by Innovation

- Data Analytics
- Continuous Auditing
- Automation & AI

## Changing with the Times

- More focus on Advisory

## Same Tools ,

- IT Skills
- Cyber Security Skills

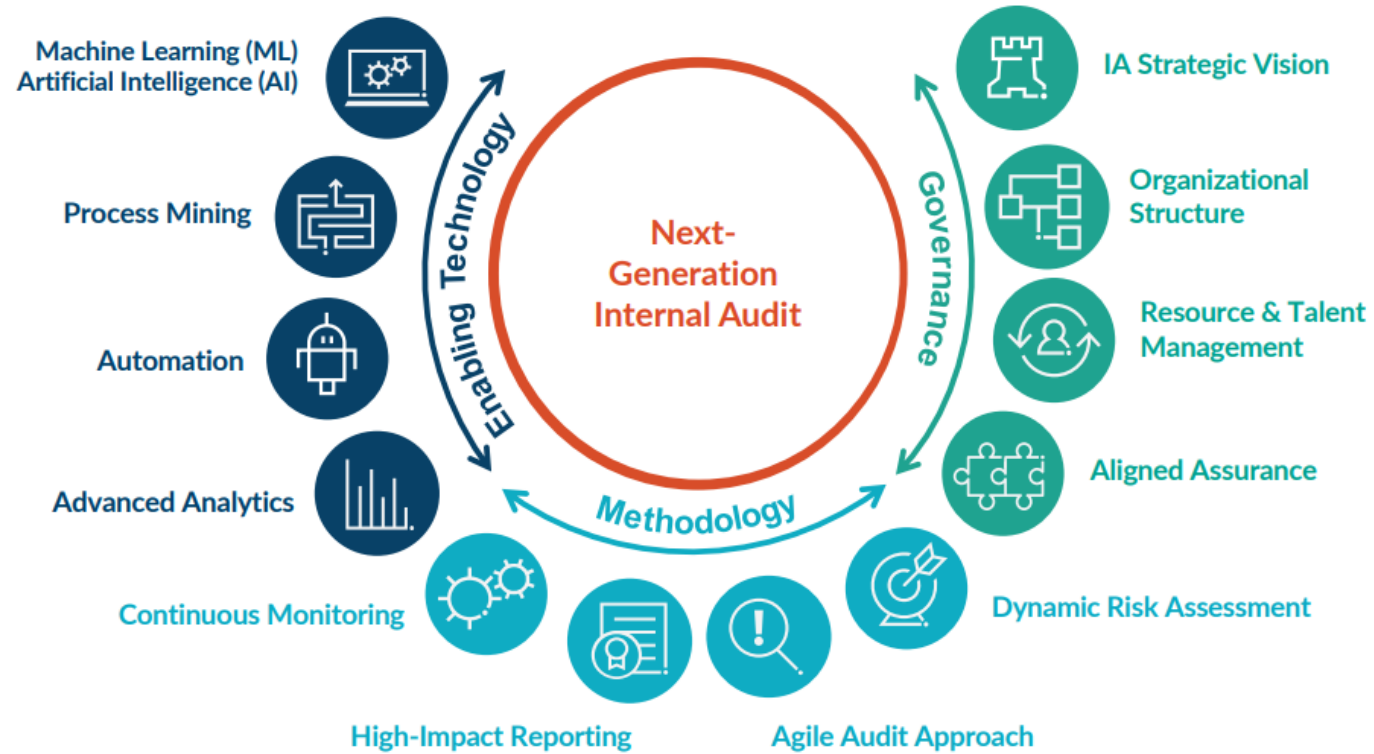
## Broader Field of Vision

- Sustainability
- Cyber Security
- Strategy
- Risk Management
- Compliance

## Bigger Toolbelt

- Global Perspective
- Environmental

# INTERNAL AUDIT OF THE FUTURE



Source- Protiviti – Next Gen Internal Audit Survey



## How will the future Internal Audit teams look like?



- Audit Teams of the future will have a greater percentage of technology auditors who are well versed in all evolving technology as well as cyber security.
- The teams will have data analytics experts who are equally good at number crunching as their business counterparts.
- All business auditors will be IT savvy to such an extent that they can conduct their audits in a fully automated environment utilising the core systems effectively.

# Thank You

<https://www.linkedin.com/in/bijurs/>

<https://twitter.com/bijurs>

Email:- [rsbiju@gmail.com](mailto:rsbiju@gmail.com)

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## Audience Q&A