



# AUDIT COMMITTEE



# AGENDA

1. Artificial intelligence background.
2. Artificial intelligence myths and facts.
3. Artificial intelligence use case examples.
4. Artificial intelligence risks.
5. Current regulatory landscape.

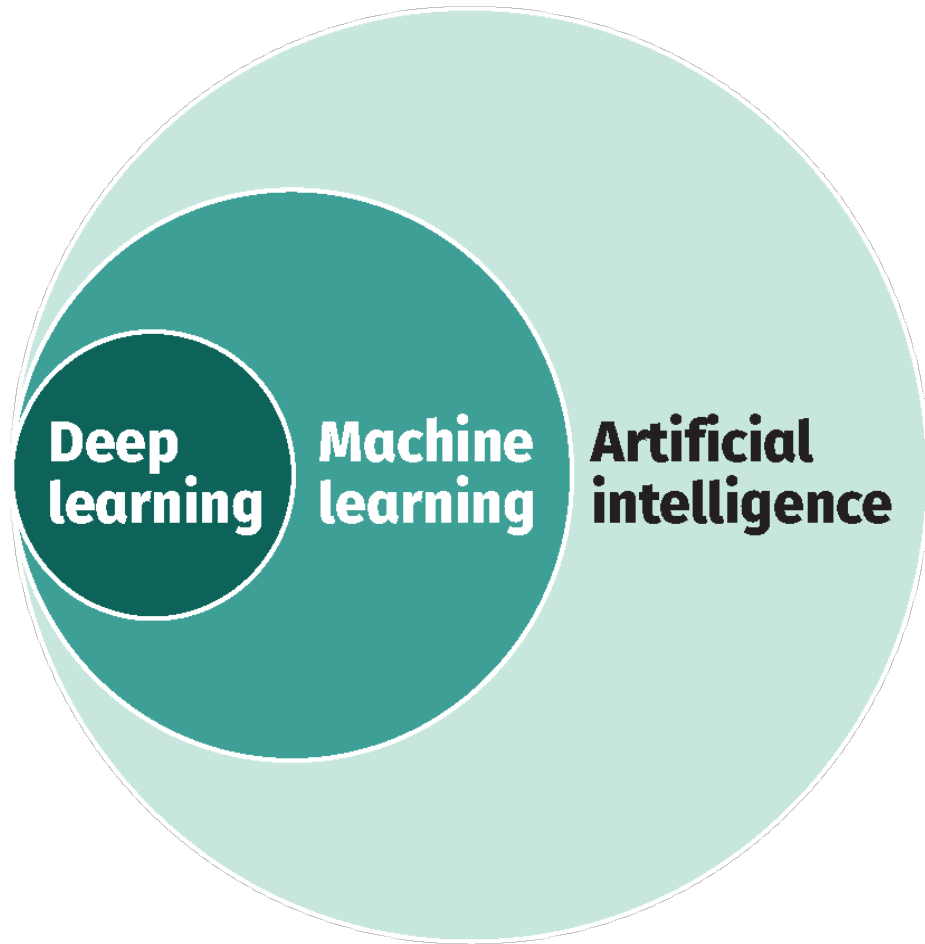
# ARTIFICIAL INTELLIGENCE DEFINITION



**IBM** defines Artificial Intelligence as “Artificial intelligence, or AI, is technology that enables computers and machines to **simulate** human intelligence and problem-solving capabilities.”

**Microsoft** defines Artificial Intelligence as “the capability of a computer system to **mimic** human-like cognitive functions such as learning and problem-solving...**Using math and logic**, a computer system **simulates** the reasoning that humans use to learn from new information and make decisions.”

# Deep learning vs. machine learning vs. artificial intelligence



## Artificial intelligence

Any technique that enables computers to mimic human intelligence, using logic, if-then rules, decision trees, and machine learning (including deep learning).

## Machine learning

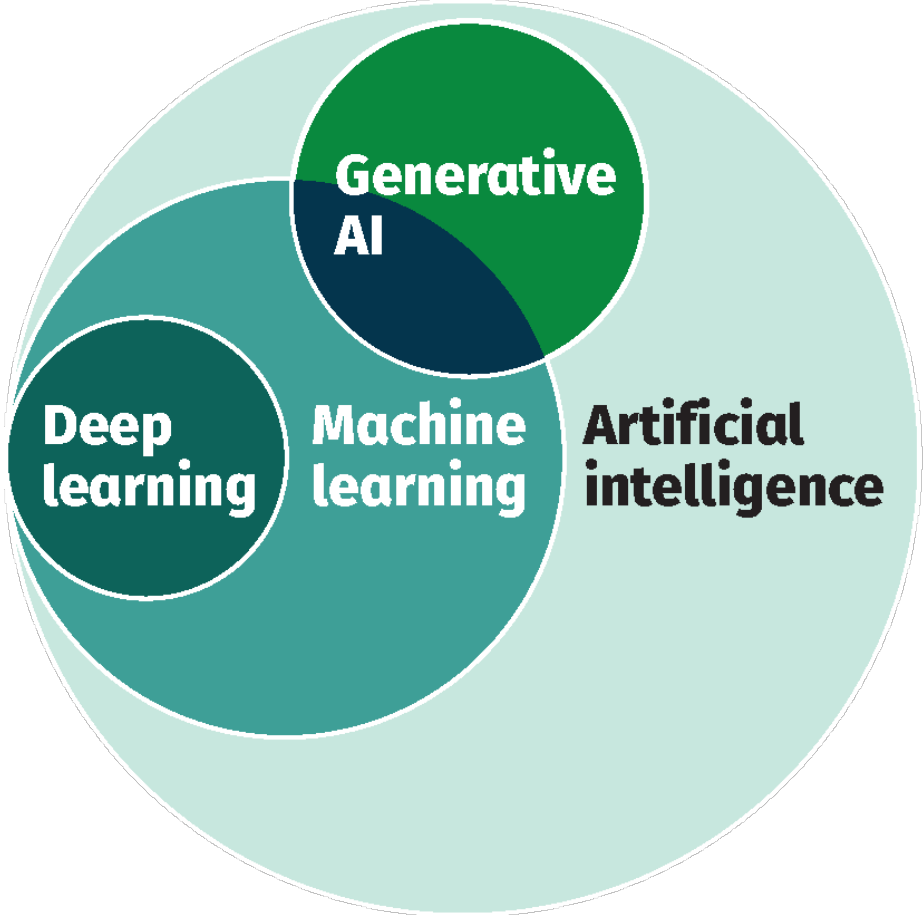
A subset of AI that includes abstruse statistical techniques that enable machines to improve at tasks with experience. The category includes deep learning.

## Deep learning

The subset of machine learning composed of algorithms that permit software to train itself to perform tasks, like speech and image recognition, by exposing multilayered neural networks to vast amounts of data.

**Source:** <https://www.unite.ai/machine-learning-vs-deep-learning-key-differences/>.

# Deep learning vs. machine learning vs. artificial intelligence



**Generative AI**  
 A subset of AI that trains on vast amounts of data and information from which it uses to generate “original” content.

**Source:** <https://www.unite.ai/machine-learning-vs-deep-learning-key-differences/>.

# BRIEF HISTORY OF ARTIFICIAL INTELLIGENCE



- **Early 1950s** – Herbert Simon, Allen Newell, and Cliff Shaw build Logic Theorist.
- **1956** – Dartmouth summer research project on artificial intelligence.
- **1957 to 1979** – Computers can store more information and are faster, cheaper, and more accessible. Machine learning algorithms improve. People get better at knowing which algorithms to apply to their problems.

# BRIEF HISTORY OF ARTIFICIAL INTELLIGENCE

*continued*



- **1980** – First expert system becomes commercially viable. Designed to assist fulfilling computer system orders by automatically picking components based on customer need.
- **1981** – Japanese government allocates \$850 million (over \$2 billion dollars in today's money) to the Fifth Generation Computer project. Aim to create computers that can translate, converse in human language, and express reasoning on a human level.

# BRIEF HISTORY OF ARTIFICIAL INTELLIGENCE

*continued*



- **1987-1993** – Artificial intelligence winter.
- **1997** – IBM’s Deep Blue becomes the first program to beat a human world chess champion, Gary Kasparov, in a highly-publicized match.
- **1997** – Windows releases speech recognition software developed by Dragon Systems.

# BRIEF HISTORY OF ARTIFICIAL INTELLIGENCE

*continued*



- **2011** – IBM’s Watson, a natural language processing computer, wins Jeopardy against two former champions in a televised game.
- **2018** – European Union establishes artificial intelligence guidelines.

# BRIEF HISTORY OF ARTIFICIAL INTELLIGENCE

*continued*

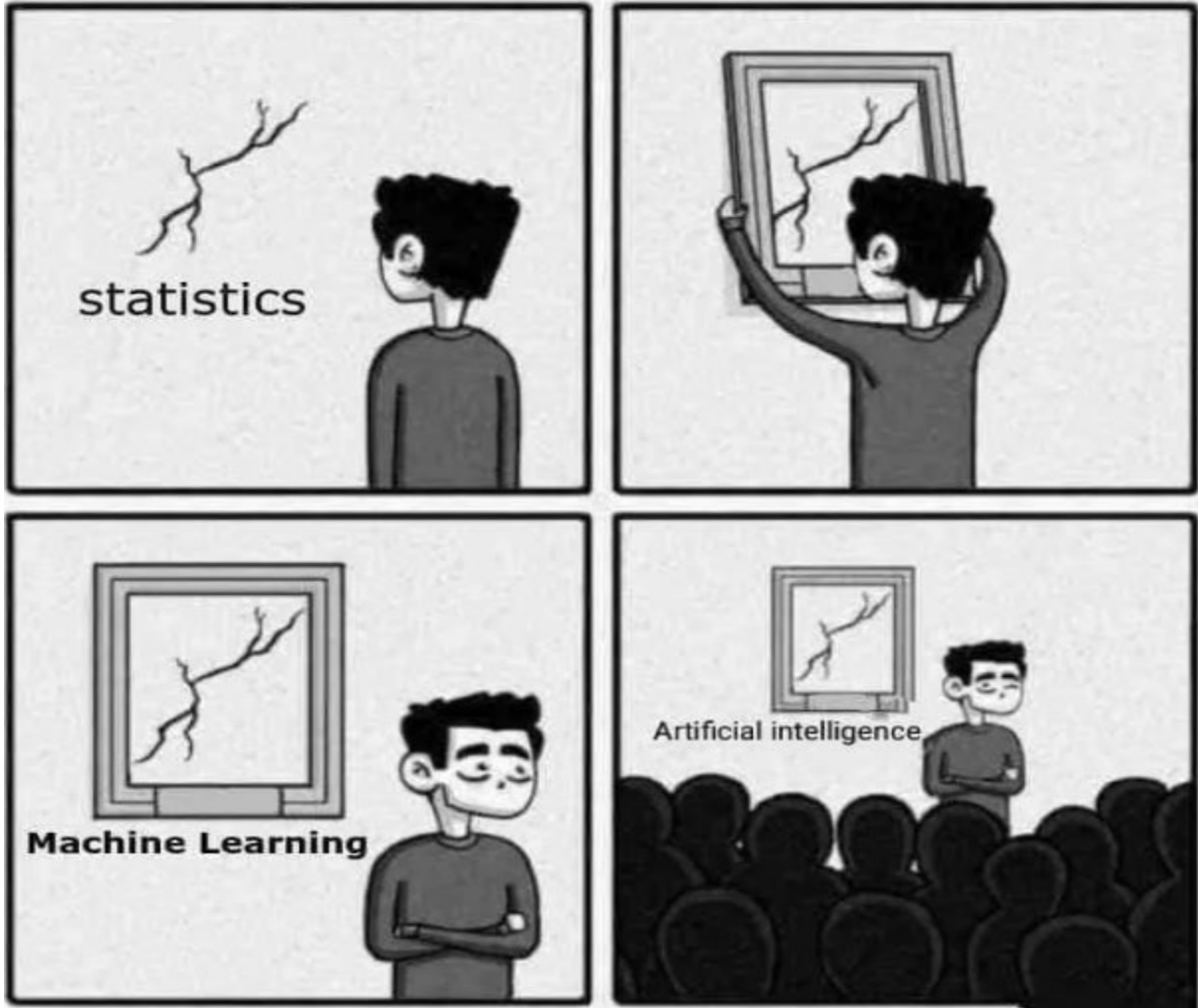


- **2020** – OpenAI starts beta testing GPT-3, a model that uses deep learning to create code, poetry, and other language and writing tasks. Not the first of its kind but is the first to create content almost indistinguishable from that created by humans.
- **2024** – Artificial intelligence is more embedded in society in ways most people may not realize. Governments become more involved in regulating its use.

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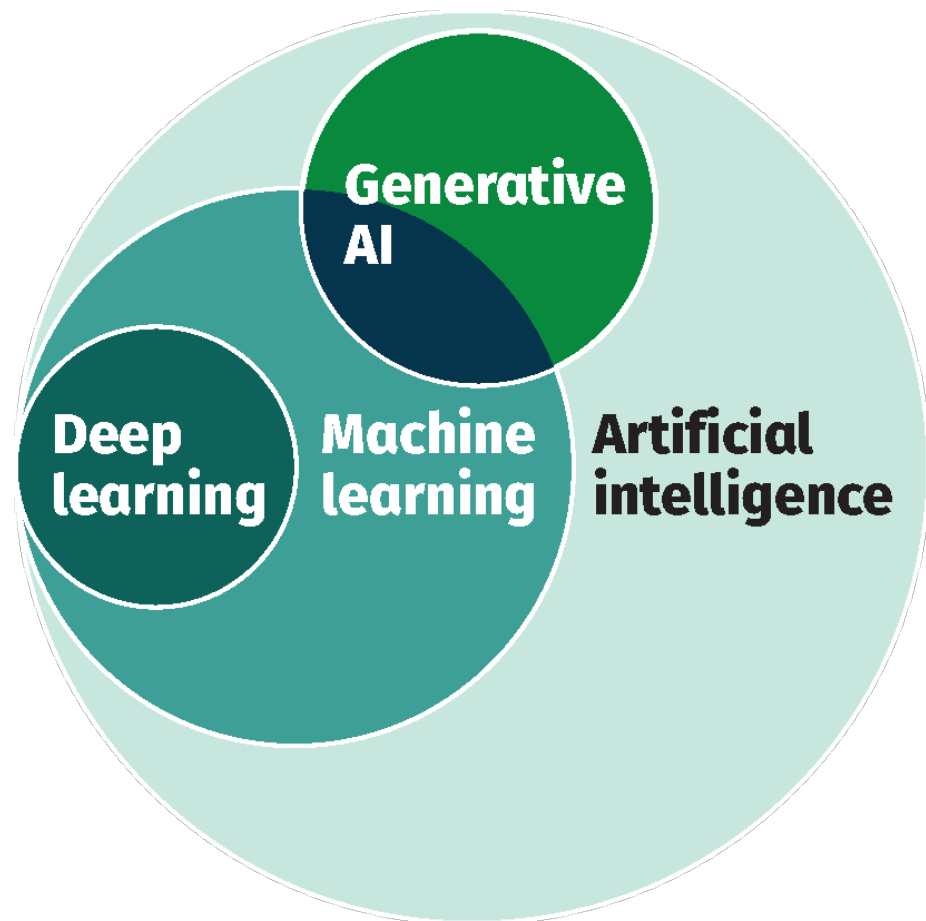


# Artificial intelligence



Source: Original comic by [sandserif](http://sandserif.com).

# Deep learning vs. machine learning vs. artificial intelligence



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# TYPES OF ARTIFICIAL INTELLIGENCE



Narrow

Reactive  
Machine

Limited Memory

General

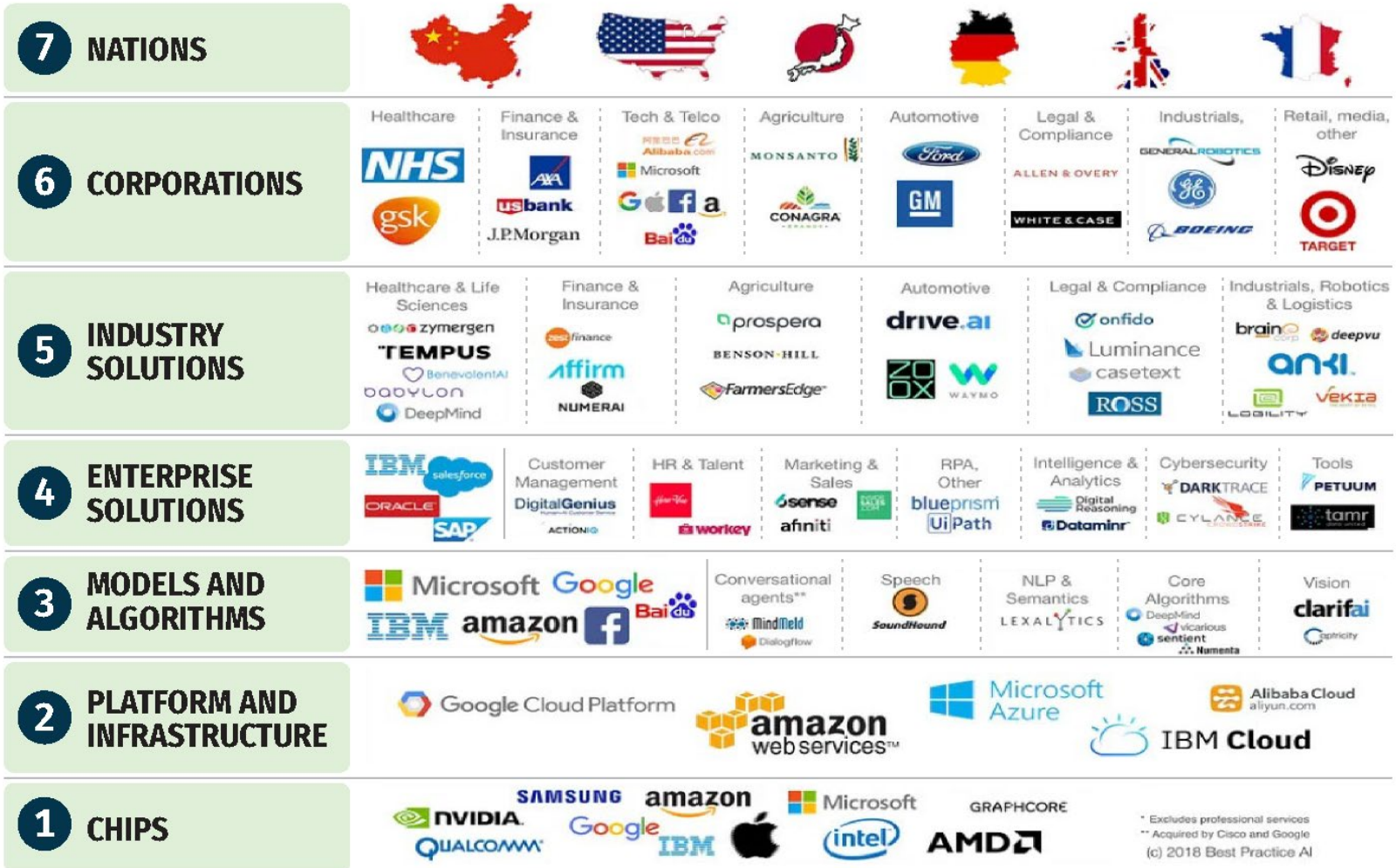
Theory of Mind

Super

Self Aware



# Artificial intelligence use



Source: <https://towardsdatascience.com/who-is-going-to-make-money-in-ai-part-i-77a2f30b8cef>.

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# ARTIFICIAL INTELLIGENCE MYTHS VS. FACTS



## Myth

- Artificial intelligence can replace humans.
- Artificial intelligence is unbiased and fair.
- Artificial intelligence is only for big public companies.

## Fact

- Artificial intelligence needs human oversight.
- Artificial intelligence can have biases.
- Artificial intelligence can be used by anyone.

# ARTIFICIAL INTELLIGENCE MYTHS VS. FACTS

*continued*



## Myth

- Artificial intelligence is too complicated, expensive, or intrusive.
- All forms of artificial intelligence carry the same risk.

## Fact

- As of now, artificial intelligence is easy to use, free with internet access, and non-intrusive.
- Some forms of artificial intelligence have more risk than others.

# ARTIFICIAL INTELLIGENCE POSITIVE USE CASES



- Bank reconciliations.
- Financial close process.
- Large report reviews and summaries.
- Cyber security responses.
- Contract and statement of work drafting.
- Code and information technology infrastructure consistency.
- Data analysis and insights.
- Applicant tracking.

# ARTIFICIAL INTELLIGENCE POSITIVE USE CASES – GOVERNMENT



- **Potential** – Simulate urban planning.
- **Potential** – Case management.
- **Potential** – Summarizing legislative documents and historical contracts.

# ARTIFICIAL INTELLIGENCE POSITIVE USE CASES – GOVERNMENT *continued*



- **Potential** – Multilingual citizen services.
- **Potential** – Drafting contracts and statements of work.
- **Potential** – Policy creation assistant.
- **Potential** – Data analysis.

# ARTIFICIAL INTELLIGENCE NEGATIVE USE CASES



- **Cyber attacks**
  - Social engineering and Deep Fakes.
  - Phish emails.
  - Chatbots.
- **Forgery**
  - Artwork.
  - Financial documents.
  - Contracts.

# ARTIFICIAL INTELLIGENCE NEGATIVE USE CASES *continued*

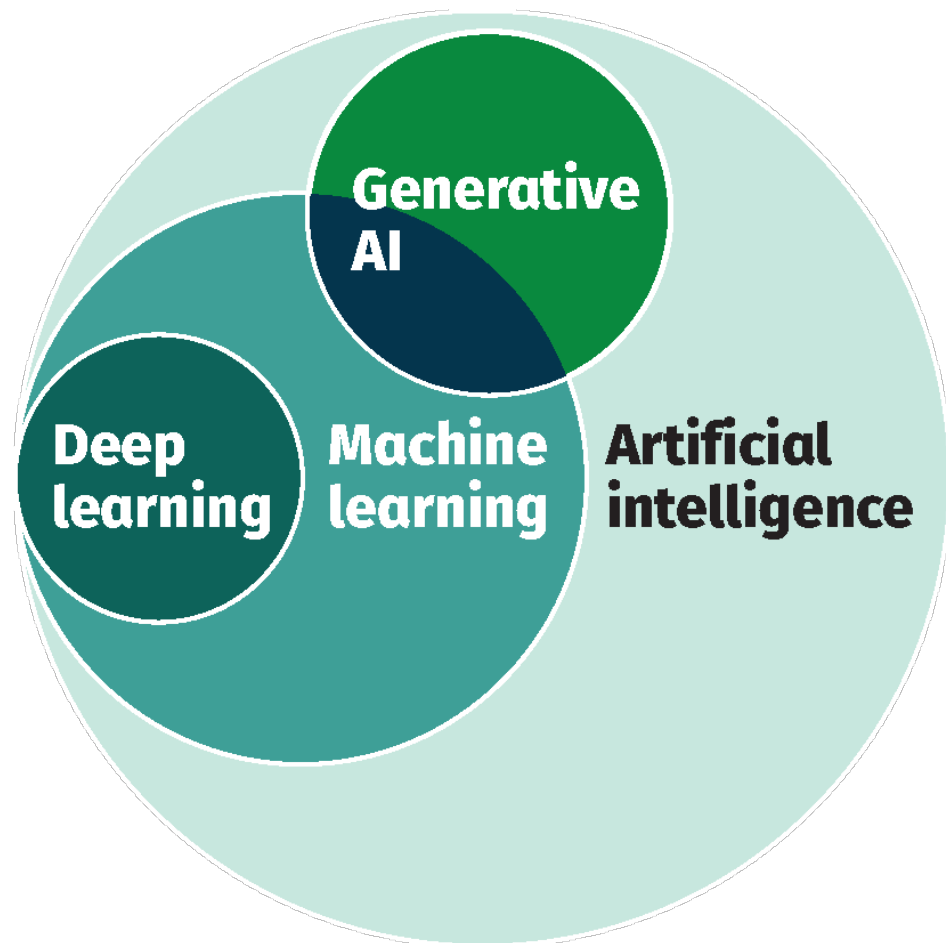


- **Financial Fraud**
  - Financial market manipulation.
  - Data analysis.
- **Social News Networks** – Misrepresentation of actual news.

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# Deep learning vs. machine learning vs. artificial intelligence



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**Source:** <https://www.unite.ai/machine-learning-vs-deep-learning-key-differences/>.



# ARTIFICIAL INTELLIGENCE RISKS

- **Data risk** – Data loss, incomplete data, responsible use.
- **Model risk** – Model design and use.
- **Cyber risk** – Cyberattacks, and unauthorized access and use.
- **Third-party risk** – Subcontracting artificial intelligence activities and unknown use.
- **Legal risk** – Fines, copyright, and intellectual property protection.

# ARTIFICIAL INTELLIGENCE RISKS

*continued*



- **Technology risk** – Over reliance in operations, and unknown use.
- **Compliance risk** – Privacy, regulatory compliance.
- **People risk** – Equity, inclusion, training, and perception.
- **Resource allocation** – Diversion of resources from key activities.

# Artificial intelligence risks *continued*



## STRATEGIC RISK

- Reputational risk.
- Customer experience.
- Stakeholder risk.
- Resource allocation.
- Culture.
- Obsolete workforce.
- Talent management.
- Brand awareness.



## REGULATORY AND COMPLIANCE RISK

- Legal risk.
- Consumer protection.
- Know your customer (KYC).
- Consumer privacy.
- Disparate impact.
- Unfair, deceptive or abusive acts or practices.
- Fair credit and lending.
- Sales practices and incentive compensation.



## OPERATIONAL RISK

- Business disruption.
- System failures.
- Process failures.
- Internal control environment.
- Third-party risk and vendor management.
- Change management.
- Operational errors.



## TECHNOLOGY RISK

- Software and application failure.
- Information and cyber risk.
- Identity and access management.
- Availability and accessibility.
- Black-box issues.
- Data management.
- Data security.



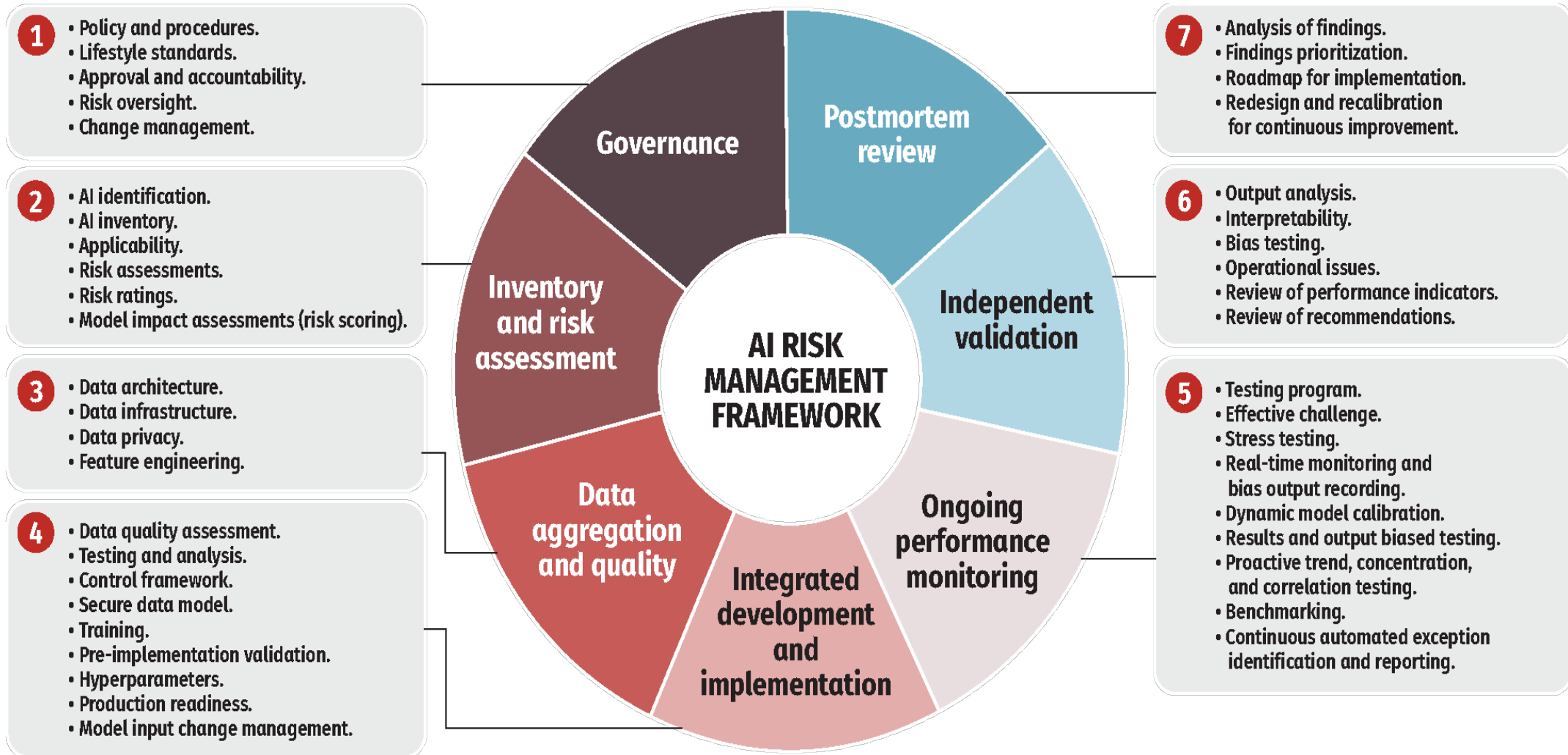
## FINANCIAL RISK

- Credit risk.
- Liquidity risk.
- Market risk.
- Underwriting risk.
- Financial reporting risk.

**Source:** Protiviti – Next Gen Risk Management – How do Machines Make Decisions.



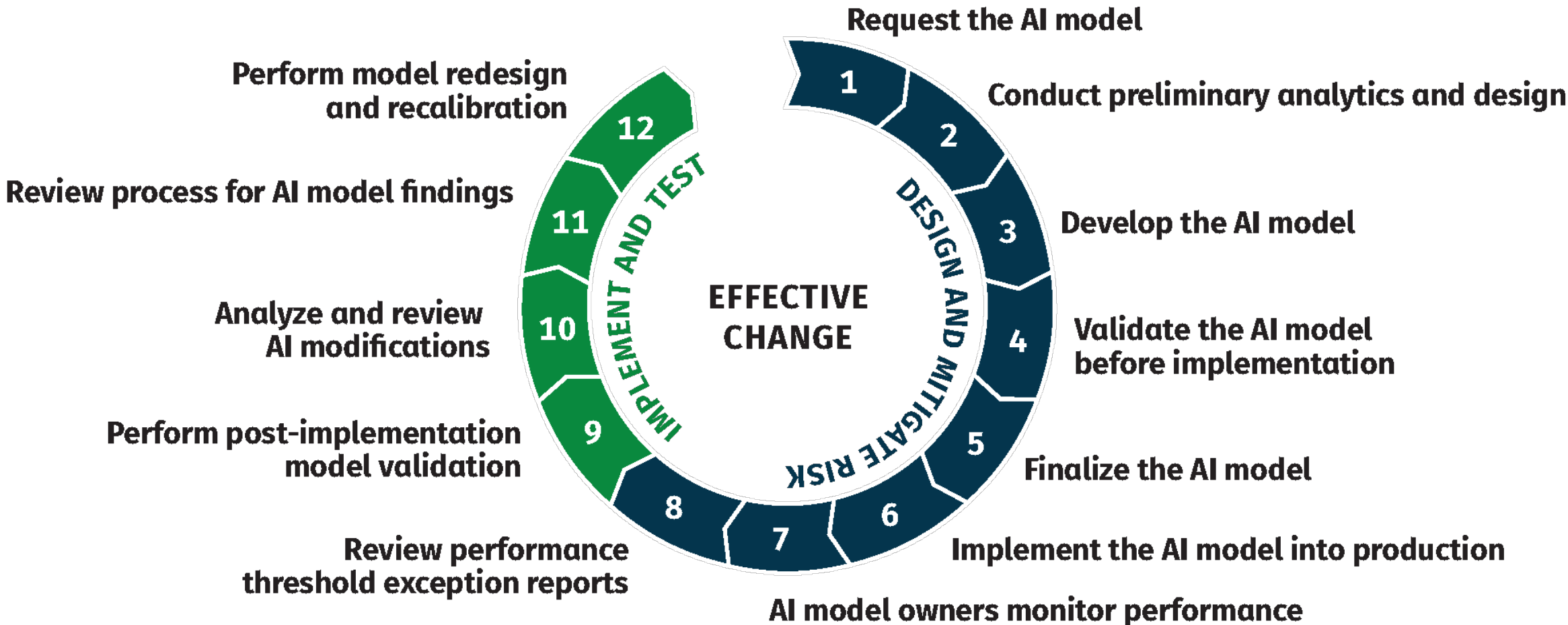
# Artificial intelligence risk management



Source: Protiviti – Next Gen Risk Management – How do Machines Make Decisions.



# Artificial intelligence lifecycle management



Source: Protiviti – Next Gen Risk Management – How do Machines Make Decisions.



# ARTIFICIAL INTELLIGENCE INCIDENTS

- **Deepfake fraud** – A finance worker was defrauded, and their company lost \$25.6 million after an artificial intelligence deepfake was used on a video call — February 2024.
- **Chatbot inaccuracy** – Air Canada paid damages based on inaccurate information provided to a customer — February 2024.
- **Brand damage** – Sport Illustrated was accused of using artificial intelligence disguised as staff writers and not disclosing the use — November 2023.

# ARTIFICIAL INTELLIGENCE INCIDENTS

*continued*



- **Discriminatory behavior** – iTutor was fined \$365,000 for using artificial intelligence recruiting software that automatically rejected older people — August 2023.
- **Inaccurate Data** – A law firm was fined \$5,000 for submitting a brief with six cases that did not exist — June 2023.
- **Over reliance** – Zillow wrote down \$305 million and fired 2,000 employees due to an error in the algorithms they used — November 2021.

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# REGULATORY - DOMESTIC

- **October 2023** – US Presidential Executive Order No. 14110 – Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence.
- **April 2024** – Office of Management and Budget will mandate owners of “critical infrastructure” to adopt National Institute of Standards and Technology artificial intelligence risk management framework.



# REGULATORY - DOMESTIC

- **April 2024** – National Institute of Standards and Technology published the artificial intelligence risk management framework and associated guidance.
- **May 2024** – Colorado Legislature passed SB24-205, enacting protections for consumers in their interactions with Artificial Intelligence systems and sent it to the Governor Polis for approval. Effective date: Feb. 1, 2026.



# REGULATORY - INTERNATIONAL

- **Canada** – “Artificial Intelligence and Data Act” being updated for comprehensive regulations — Estimated effective date 2025.
- **United Kingdom** – “Implementing the UK’s AI Regulatory Principles: Initial Guidance for Regulators” — Published Feb. 6, 2024.

# REGULATORY - INTERNATIONAL

*continued*



- **European Union** – “The EU Artificial Intelligence Act” lays the foundations for artificial intelligence regulations – Awaiting publication for implementation timeline to begin.
- **G7** – “Hiroshima AI Process” aimed at promoting the safe, secure, and trustworthy advanced artificial intelligence systems – December 2023.

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# KEY TAKEAWAYS

- Artificial intelligence is changing rapidly and can be used for good or bad. Knowledge about artificial intelligence is important.
- Governance and a strategic plan are needed to effectively deploy artificial intelligence, manage the risks, and control its use.
- The regulatory environment is growing and changing rapidly.



# QUESTIONS OR COMMENTS

**Thank you**



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