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MARIM

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NAVIGATING UNCERTAINTY:
STRATEGIES FOR
RESILIENT FUTURE



Risk Management in the Age of Artificial Intelligence

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Risk Management in the Age of A.I.

Embracing Opportunities, Mitigating Risks

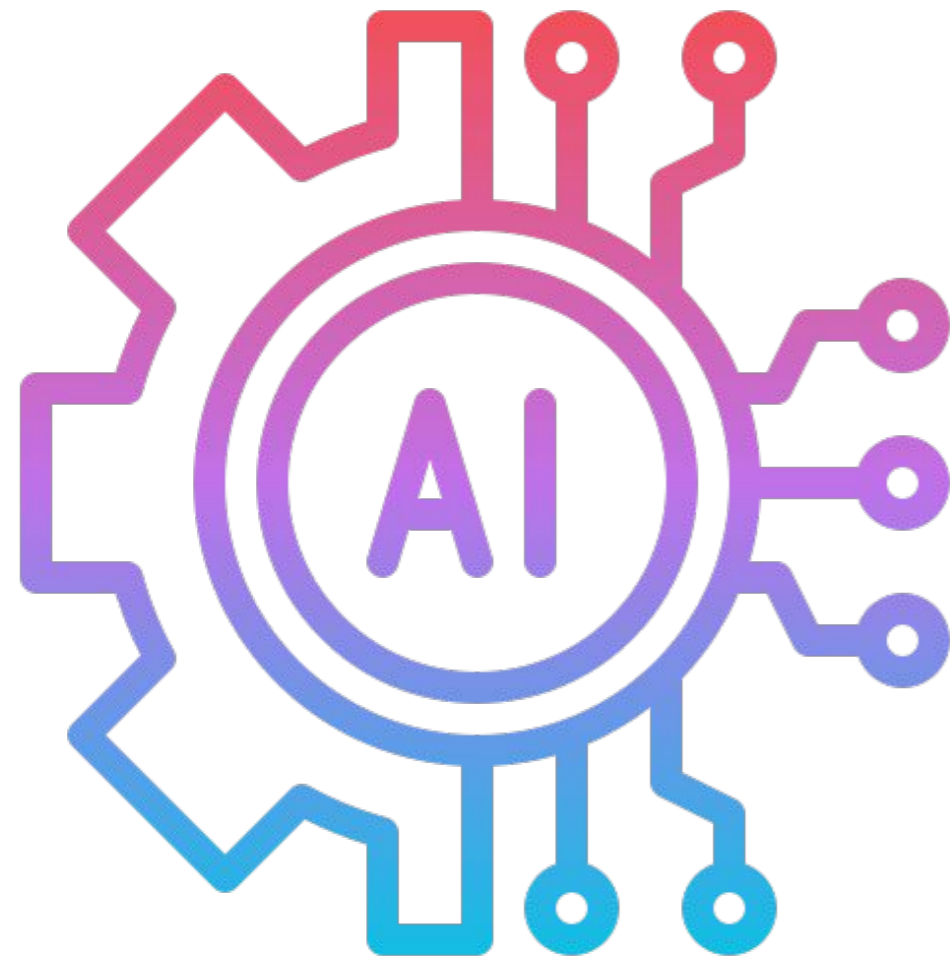
[#navigatinguncertainty](#)

17th July 2024





Agenda



- ▶ **What is this 2-letter acronym?**
- ▶ **A.I.'s Value Proposition to Risk Management**
- ▶ **Use Cases of A.I. in Risk Management**
- ▶ **A.I. - The Double-edged Sword**



“Machine intelligence is the last invention that humanity will ever need to make.”

Nick Bostrom

Founding Director of

Oxford University’s Future of Humanity Institute





What is This 2-Letter Acronym?



Artificial Intelligence (A.I.)

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think and learn.



Generative Artificial Intelligence (Gen. A.I.)

Generative AI refers to AI systems that can generate new content, such as text, images, music, or code, by learning from existing data.





How Generative A.I Works - Roughly



Training on Large Datasets

Generative models are trained on vast amounts of data to learn patterns and structures



Generating New Content

Once trained, these models can generate new data that is similar to the training data

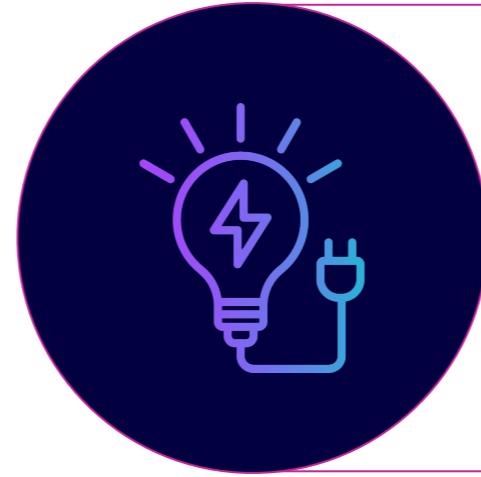
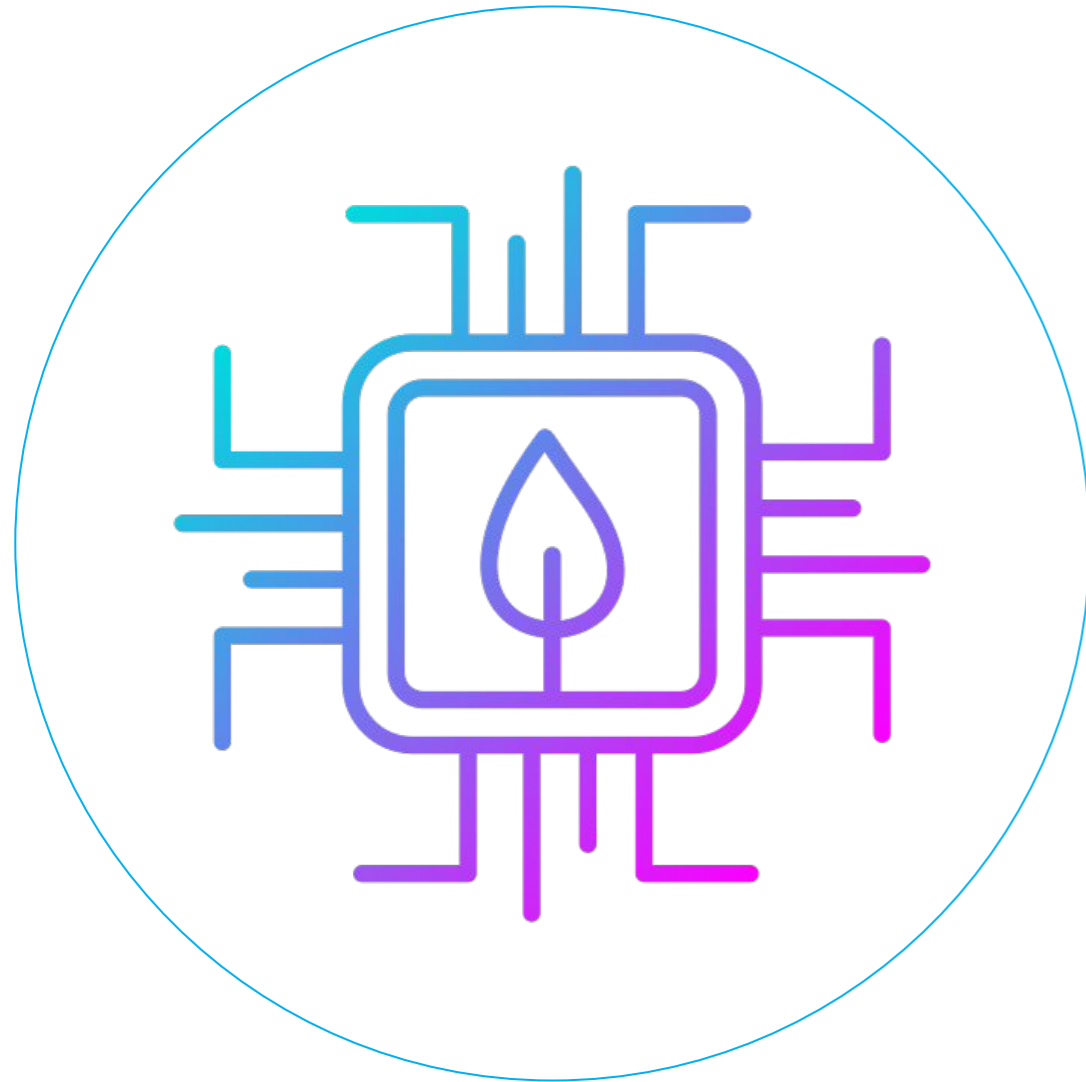


Techniques Used

- GANs (Generative Adversarial Networks).
- VAEs (Variational Autoencoders).
- Transformer-based models



Differences between Traditional A.I. Vs. Generative A.I.



Traditional A.I.

- Focuses on classification, prediction, and decision-making.
- Examples: Fraud detection, recommendation systems.



Generative A.I.

- Focuses on creating new data or content.
- Examples: Content creation, creative tasks



A.I.'s Value Proposition to Risk Management





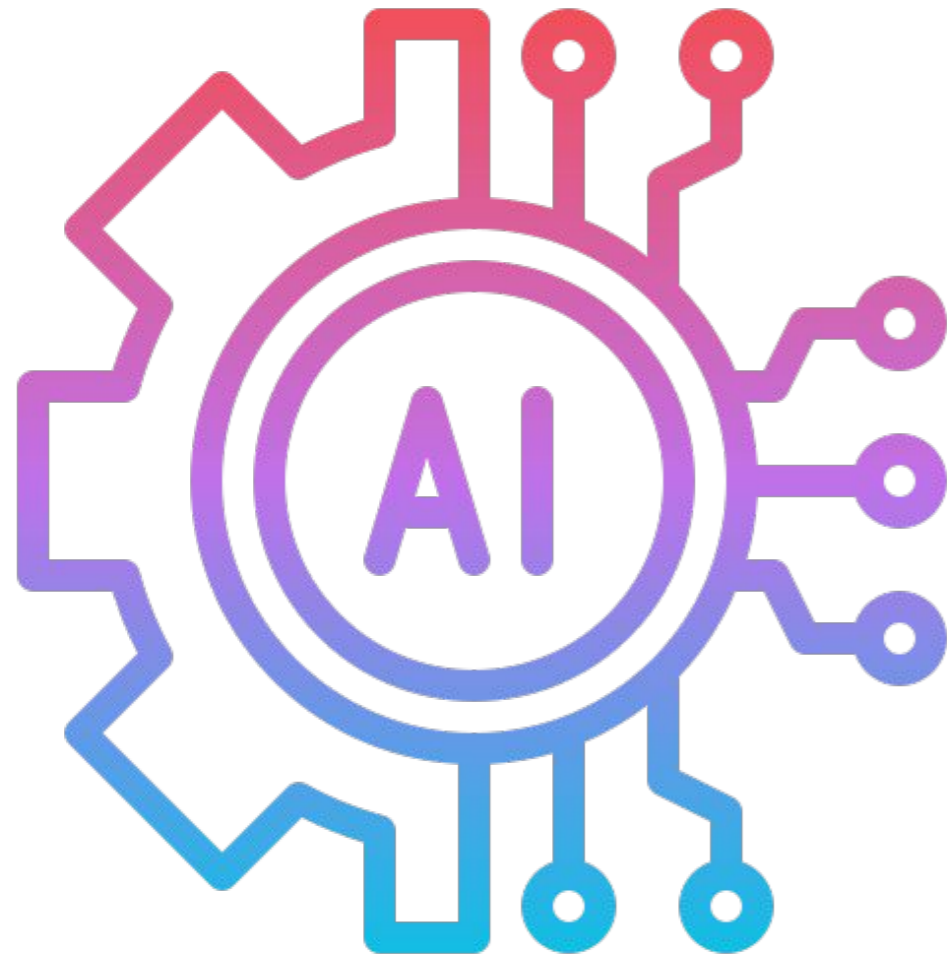
“AI-driven risk management is a game-changer for businesses”

Satya Nadella
CEO, Microsoft





AI is becoming increasingly ubiquitous



Healthcare



Manufacturing



Finance



Transportation



Retail



Opportunities in AI-based Risk Management



Enhanced predictive capabilities

AI enables more accurate predictions and proactive risk mitigation, improving overall risk management strategies.



Efficiency and automation

Automation of risk assessment processes can lead to increased efficiency and cost savings for organizations utilizing AI.



Real-time monitoring and response

AI facilitates real-time monitoring of risks and enables swift, data-driven responses to mitigate potential impacts.

Powered by 5G and beyond





Optimizing risk mitigation strategies with AI

▶ **Dynamic risk scenario simulations**

AI enables the simulation of dynamic risk scenarios, aiding in the development and optimization of responsive mitigation strategies for varying risk scenarios.

▶ **Real-time risk monitoring and alerts**

AI-powered real-time monitoring systems provide proactive alerts and notifications, enabling swift responses to emerging risks and potential threats.

▶ **Adaptive risk response mechanisms**

AI facilitates the development of adaptive risk response mechanisms that can dynamically adjust based on evolving risk conditions and organizational needs.



Predictive risk trend analysis

AI enables predictive analysis of risk trends, empowering organizations to anticipate and address potential future risks before they escalate.

Improved decision-making process

▶ **Enhanced risk assessment models**

AI integration led to more accurate risk assessment models, improving decision-making processes.

▶ **Real-time monitoring and alerts**

AI enabled real-time monitoring of risks and generated instant alerts, facilitating quick response.

▶ **Predictive analytics for risk mitigation**

AI-driven predictive analytics identified potential risks, aiding proactive risk mitigation strategies.



Automated risk evaluation

Automation of risk evaluation tasks using AI algorithms streamlined the decision-making process.



Efficient resource allocation and optimization

Resource allocation optimization

AI-driven resource allocation optimization ensured efficient use of resources, minimizing risk exposure.

Cost-effective risk management

AI integration led to cost-effective risk management strategies, optimizing resource allocation.



Dynamic resource reallocation

AI enabled dynamic reallocation of resources based on risk analysis, optimizing resource utilization.

Operational efficiency enhancement

Operational efficiency was enhanced through AI-driven resource allocation and optimization techniques.



AI-Driven Governance, Risk, and Compliance

Navigating regulatory complexities with AI solutions

AI solutions can aid in navigating intricate regulatory requirements by keeping up with evolving regulatory standards.

AI-augmented audit and reporting capabilities

Leveraging AI for audit and reporting enhances accuracy and efficiency, supporting comprehensive documentation.



Risk-aware AI governance and compliance frameworks

Establishing risk-aware AI governance frameworks in risk management practices.



Use Cases of AI in Risk Management





Natural Disaster Risk Management

▶ Use Case

Insurance companies and governments assess and manage risks related to natural disasters.

▶ How it Works

AI models analyze historical weather data, satellite imagery, and geological information to predict the likelihood and impact of natural disasters such as earthquakes, floods, and hurricanes.

▶ Example

IBM's Watson is used to analyze large datasets to provide insights and predictions on natural disaster risks, helping in disaster preparedness and response.





Cybersecurity Threat Detection

▶ Use Case

Organizations use AI to protect against cyber attacks, utilizing trends to plot controls for prevention, detection and response to cyber attacks.

▶ How it Works

AI systems monitor network traffic and user behavior to identify and respond to potential security threats.

▶ Example

Darktrace uses AI to detect and respond to cyber threats in real-time by modeling normal network behavior and identifying deviations.





Portfolio Risk Management

▶ Use Case

Financial institutions manage risks associated with market volatility.

▶ How it Works

Machine learning algorithms continuously monitor and adjust portfolios to maximize returns while mitigating potential risks.

▶ Example

Maybank's AI-powered asset management leverages artificial intelligence and machine learning technologies to enhance investment strategies and portfolio management.





A.I. - The Double-edged Sword





Challenges in AI-based risk management



Data quality and accuracy

Ensuring that the data used for risk management is accurate and of high quality is crucial for AI systems to make reliable decisions.



Integration with existing frameworks

Integrating AI into existing risk management frameworks presents strategic alignment and operational effort.



Adapting to evolving AI technologies

Organizations must continuously adapt to evolving AI technologies to effectively leverage advancements in risk management processes.



Transparency and accountability

AI systems must uphold transparency and accountability to ensure ethical risk management practices and decision-making processes.



Bias and fairness in AI algorithms

Addressing biases in AI algorithms is crucial to ensure fair risk assessment and management, mitigating potential discriminatory impacts.



Data privacy and security concerns

Maintaining data privacy and security is essential in AI-based risk management to uphold ethical standards and protect sensitive information.





Mitigating risks associated with AI in Risk Management



Data privacy and security concerns

Addressing the risks related to data privacy and security in the context of AI-powered risk management systems.



Robustness and reliability of AI models

Ensuring the robustness and reliability of AI models to minimize potential risks in risk management processes.



Impact assessment of AI decisions

Conducting thorough impact assessments to understand the potential implications of AI decisions on various stakeholders.





“As AI continues to evolve, its role in risk management will become increasingly critical, transforming how we identify, assess, and respond to risks.”

Fei-Fei Li

Founder of ImageNet



Thank You

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