Mastering the Machine: Auditing AI: The Basics

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and Audie the Internal Otteror!

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Meet Elizabeth

- 2023 Internal Audit Beacon Award Winner!
- 20 years audit experience + CPA + CIA
- Passionate about internal audit advocacy and changing industry perception of auditors!
- From Tuscaloosa, AL 🐘 and live in Denver, CO 🏔️
- Dog mom to Finn and Orion

AI is Constantly Improving!

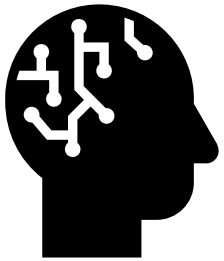
Meet Audie the Internal Otteror!

Elizabeth and Audie help companies *Audit Smarter, not Harder* – do more with the tools you already have!

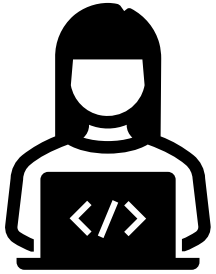
- ***Internal audit consulting and co-sourced audits***
- ***Quality Assurance Reviews (QARs)***
- ***Training for Boards and Committees***
- ***Optimize your GRC system***
- ***Smarter and digitized branch audits (financial institutions)***
- ***Automate employee account monitoring (financial institutions)***

Today's Agenda

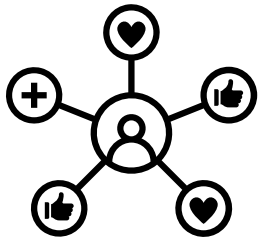
Demystifying AI



AI 101, Definitions, and Examples



AI Risks and Internal Controls



Next Steps

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IA's Role in Artificial Intelligence

> It is critical that internal auditors pay attention to the practical application of AI in business and develop competencies that will enable the internal auditing profession to provide AI-related advisory and assurance services to organizations in all sectors and across all industries.
>
> Leveraging their experience evaluating and understanding risks and opportunities, internal audit can help an organization evaluate, understand, and communicate the degree to which artificial intelligence will have an effect (negative or positive) on the organization's ability to create value in the short, medium, or long term.
>
> ***- Institute of Internal Auditors***

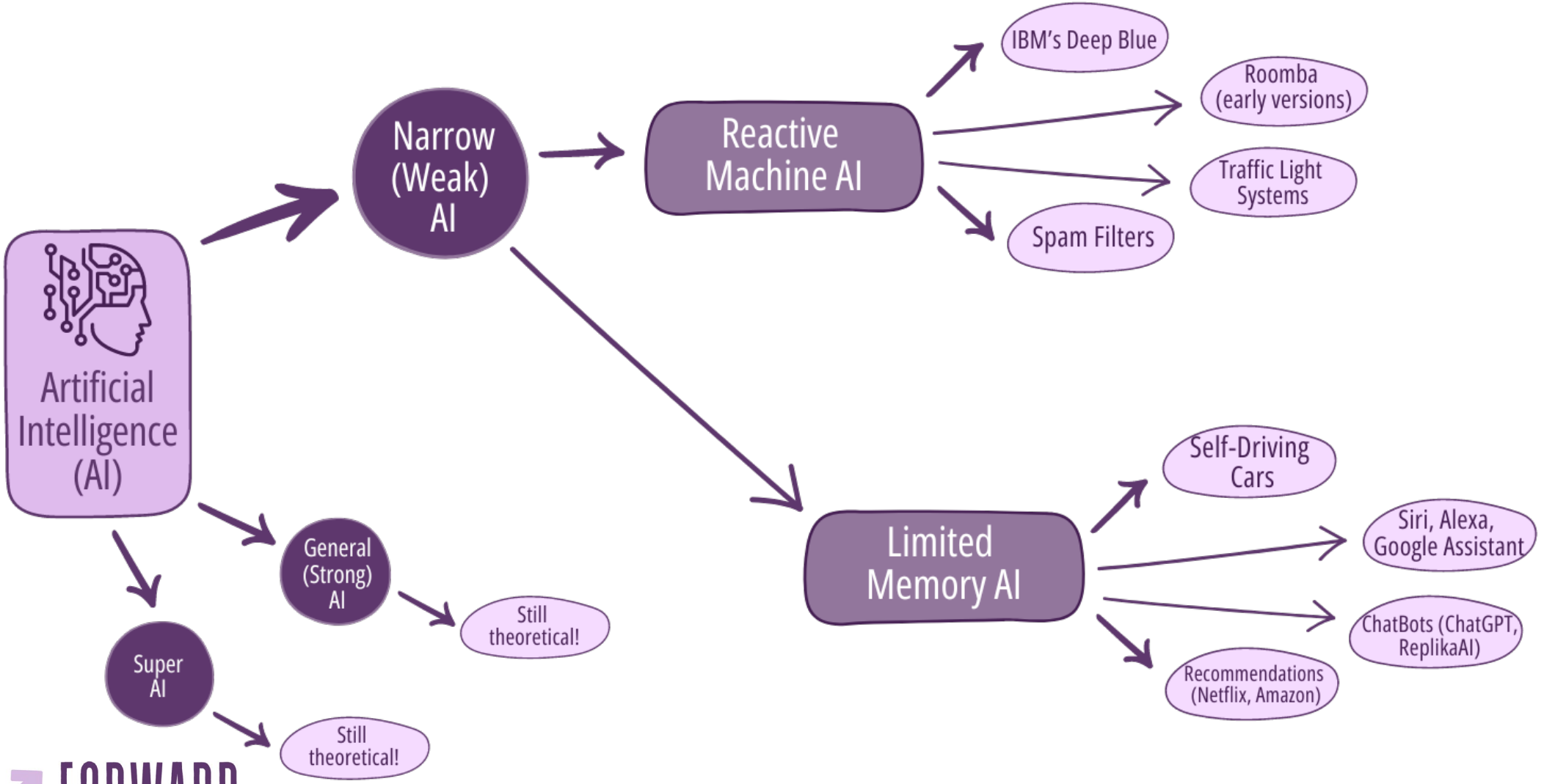
Demystifying AI – It's Just Math!

- AI will HELP enhance internal audit, not replace it
- AI can help us make better decisions
- At it's core, AI is just math – algorithms, formulas, and huge amounts of data
- We must not fear it!

Some Definitions

- **Artificial Intelligence** – the field of computer science dedicated to creating systems and machines that can perform tasks that typically require human intelligence, such as learning, reasoning, problem-solving, perception, language understanding, and decision-making
- **Machine Learning** – a subset of AI that focuses on the development of algorithms and statistical models that enable computers to learn from and make predictions or decisions based on data
- **Deep Learning** – a subset of machine learning; based on artificial neural networks, which are algorithms inspired by the structure and function of the human brain
- **Neural Network** – a type of machine learning model inspired by the structure and function of the human brain. It is designed to recognize patterns and relationships in data through a network of interconnected nodes (neurons)

Artificial Intelligence: How it Breaks Down



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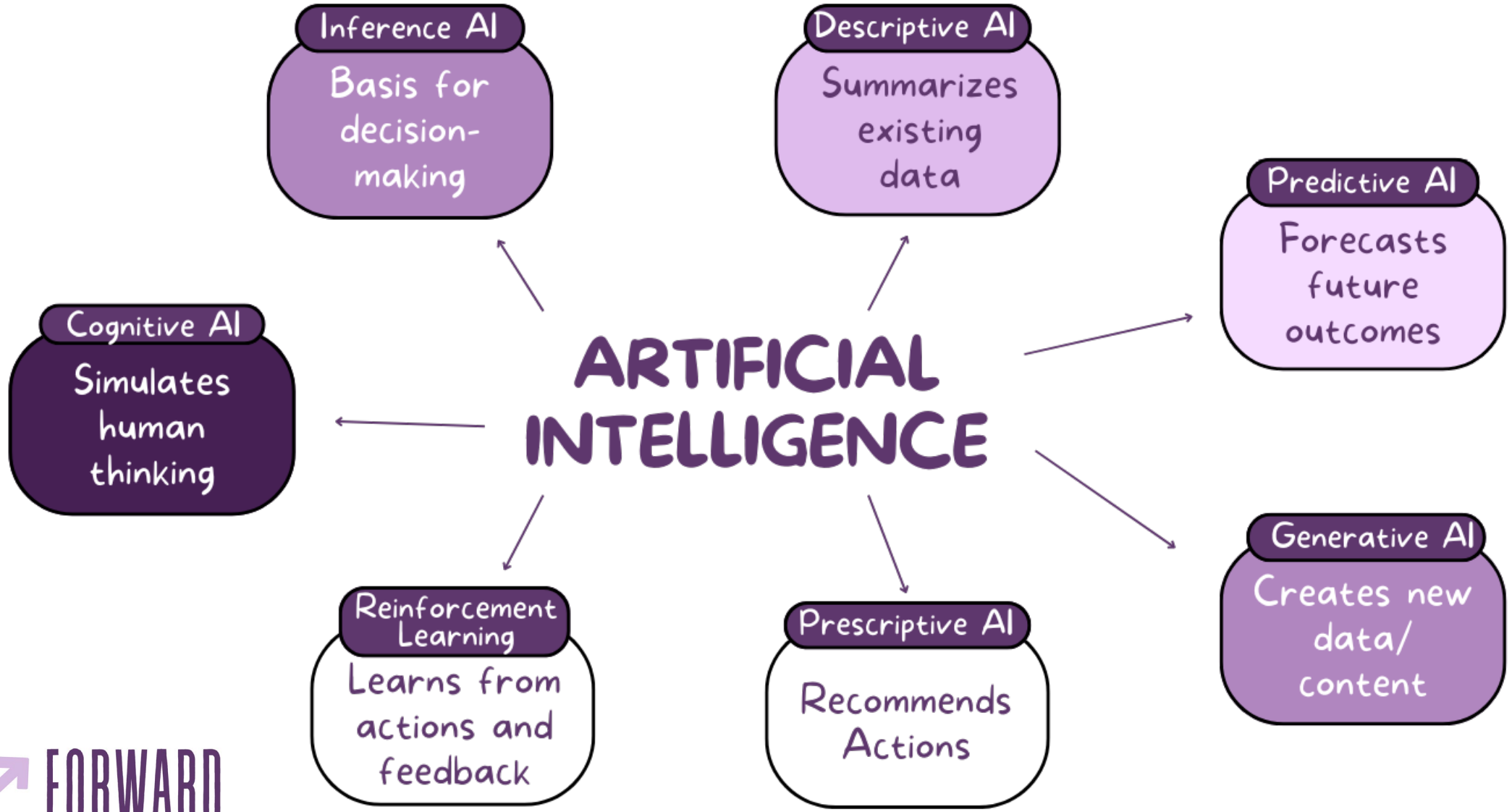
It’s MORE than Just GenAI!



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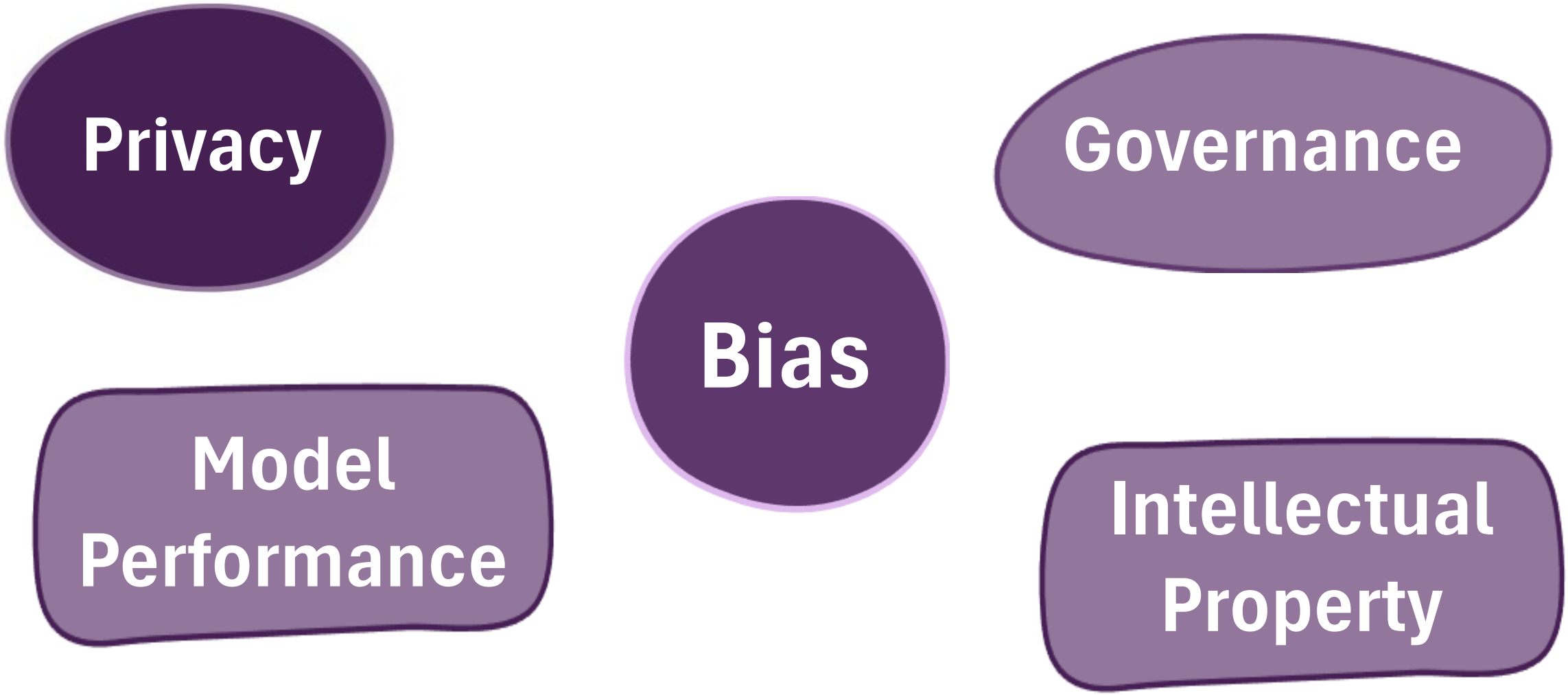
Risks with Artificial Intelligence



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Risk | Privacy

privacy

the protection of the collection, storage, processing, dissemination, and destruction of personal information

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Key Goals for Internal Audit :

- Assess compliance with privacy laws and regulations
- Ensure protection personal data
- Effective management of potential risks

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Privacy | Key Risks & Controls

Risk	Internal Controls
Unauthorized Data Collection and Usage	Clear policies on data collection, use, and retention; obtaining explicit consent; ensuring data anonymization
Insufficient Data Storage and Security	Strong encryption, access controls, secure storage solutions, regular security assessments
Lack of Algorithm Transparency and Accountability	Documentation of AI algorithms, regular audits of AI decision processes, establishing accountability frameworks

Privacy | Key Risks & Controls

Risk	Internal Controls
Non-Compliance with Legal and Regulatory Requirements	Staying up-to-date with privacy laws, regular compliance audits, legal consultations
Vendor and Third-Party Management	Due diligence processes, contractual agreements with privacy clauses, regular third-party audits

Privacy | Takeaways

- **Compliance and Accountability** – Comply with relevant regulations and implement robust governance frameworks to manage AI privacy risks.
- **Transparency and Consent** – Maintain transparency in AI decision-making processes and obtain explicit consent for data processing
- **Risk Management** – Conduct regular risk assessments, including Data Protection Impact Assessments (DPIAs), and establish risk management strategies

Risk | Model Performance

model performance

the potential for an AI model to produce inaccurate, biased, or unreliable results, leading to negative outcomes or decision-making error

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Key Goals for Internal Audit :

- Ensure accuracy, fairness, and compliance
- Maintain data integrity and security
- Promote transparency and continuous improvement

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Model Performance | Key Risks & Controls

Risk	Internal Controls
Unauthorized Data Collection	Implement clear policies on data collection, ensure explicit consent is obtained, and regularly audit data collection practices
Misuse of Data	Enforce strict data use policies, provide ongoing training on data handling, and monitor data usage continuously
Lack of Consent	Ensure that explicit consent is obtained and documented for all data collection and usage activities

Model Performance | Key Risks & Controls

Risk	Internal Controls
Data Bias and Discrimination	Use diverse datasets, regularly audit for bias, and implement fairness constraints in model development
Inaccurate Predictions	Establish rigorous model validation processes, conduct extensive testing, and continuously monitor performance metrics
Model Drift	Implement continuous monitoring systems, schedule regular performance reviews, and update models as needed

Model Performance | Takeaways

- **Continuous Monitoring** – Implement automated systems to continuously track AI model performance and detect issues in real-time
- **Regular Updates and Maintenance** – Schedule frequent reviews and updates to AI models to address performance degradation and adapt to new data patterns
- **Comprehensive Documentation** – Maintain thorough documentation of model development, validation, and monitoring processes to ensure transparency and accountability

Risk | Governance

governance

the framework of policies, practices, and processes that guide the ethical, responsible, and compliant development, deployment, and usage of artificial intelligence systems

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Key Goals for Internal Audit :

- Ensure Compliance with AI Policies and Ethical Standards
- Evaluate Risk Management Framework and Practices
- Assess Transparency and Accountability Measures

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Governance | Key Risks & Controls

Risk	Internal Controls
Lack of Comprehensive AI Policies	Develop and regularly update AI policies, ensure stakeholder training, and conduct policy adherence audits
Inadequate Ethical Framework	Establish and enforce ethical guidelines, set up ethical review boards, and engage diverse stakeholders in the review process

Governance | Key Risks & Controls

Risk	Internal Controls
Insufficient Risk Management Procedures	Implement a specific AI risk assessment framework, conduct continuous risk monitoring, and maintain a robust incident response plan
Lack of Transparency and Accountability	Ensure thorough documentation of AI processes, implement explainable AI techniques, establish clear accountability structures, and create regular reporting mechanisms

AI Regulations and Frameworks

- European Union Artificial Intelligence Act
- Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence (White House Executive Order)
- California Consumer Privacy Act and California Privacy Rights Act
- NIST AI Risk Management Framework
- ISO/IEC 42001:2023 – IT – Artificial intelligence – Management System

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Governance | Takeaways

- **Artificial Intelligence Policies** – Ensure that there are detailed and regularly updated AI policies in place to guide development, deployment, and usage
- **Strong Ethical Framework** – Develop ethical guidelines and establish review boards to oversee AI projects and ensure they adhere to ethical standards
- **Risk Management Procedures** – Implement a specific risk assessment framework, continuous monitoring, and incident response plans for AI-related risks
- **Transparency and Accountability** – Increase transparency in AI operations through thorough documentation, explainable AI techniques, and clear accountability structures

Risk | Bias

bias

systematic and unfair favoritism or discrimination in the outcomes generated by an AI system, which can manifest as prejudiced decisions or predictions that disproportionately advantage or disadvantage specific individuals or groups

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Key Goals for Internal Audit:

- Ensure Fairness and Non-Discrimination
- Promote Transparency and Accountability
- Implement Continuous Bias Detection and Mitigation

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Bias | Key Risks & Controls

Risk	Internal Controls
Biased Training Data	Robust data governance policies to curate high-quality, diverse, and representative training datasets to mitigate inherent biases
Opaque Algorithms	Algorithms are well-documented and explanations are provided to stakeholders, enhancing transparency and enabling informed oversight

Bias | Key Risks & Controls

Risk	Internal Controls
Insufficient Bias Detection and Correction	Continuous bias testing and monitoring protocols to identify, address, and correct biases in AI systems promptly
Lack of Diversity in AI Development Teams	Diverse hiring practices and ensure development teams include a wide range of perspectives to better identify and mitigate potential biases

Bias| Takeaways

- **Importance of Diverse and Representative Data** – High-quality, diverse data is crucial for developing unbiased AI systems
- **Need for Algorithm Transparency** – Clear documentation and explanations of AI algorithms are essential for accountability and trust
- **Ongoing Bias Detection and Mitigation** – Continuous testing and monitoring are necessary to prevent and address AI bias effectively
- **Value of Diverse Development Teams** – Including diverse perspectives in AI development teams is key to identifying and mitigating biases

Risk | Intellectual Property

intellectual property

a category of legal rights that grants creators and owners exclusive control over the use and distribution of their inventions, literary and artistic works, designs, symbols, names, and images

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Key Goals for Internal Audit :

- Protect innovation and competitive advantage
- Ensure compliance and risk mitigation
- Facilitate collaboration and strategic partnerships

IP | Key Risks & Controls

Risk	Internal Controls
IP Theft or Infringement	Implement stringent access controls, encryption, regular monitoring, and employee training to safeguard IP against unauthorized use
Loss of Trade Secrets	Use NDAs, secure communication channels, data classification protocols, and restricted access to protect trade secrets and confidential information

IP | Key Risks & Controls

Risk	Internal Controls
Inadequate Patent Protection	Thorough patent searches, timely filings, use of patent attorneys, and maintenance of a comprehensive patent portfolio
Weak Third-Party Agreements	Agreement templates/contracts, due diligence, strong IP protection clauses, and monitoring of third-party IP usage to ensure compliance

Intellectual Property | Takeaways

- **Access and Encryption Controls** – Protect AI IP by enforcing strict access controls and utilizing robust encryption methods
- **Confidentiality and Trade Secrets** – Use NDAs, secure communication channels, and data classification protocols to safeguard trade secrets
- **Clear Collaboration Agreements** – Use clear and detailed collaboration agreements, conduct due diligence on partners, include strong IP protection clauses, and monitor third-party IP usage to ensure compliance and avoid disputes

In Summary: Themes Across AI Risks

1. **Data Integrity and Quality** – Ensuring that the data used in AI systems is accurate, complete, and representative is crucial to addressing risks related to bias, privacy, and model performance.

2. **Transparency and Explainability** – Making AI decision-making processes transparent and understandable is essential for building trust and accountability.

3. **Governance and Ethical Standards** – Establishing strong governance frameworks and adhering to ethical standards are necessary to guide the responsible development and deployment of AI.

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In Summary: Themes Across AI Risks

4. **Security and Privacy** – Implementing robust security measures and privacy protections is vital to safeguard sensitive data and maintain user trust.

5. **Continuous Monitoring and Evaluation** – Regular monitoring and evaluation of AI systems are necessary to ensure ongoing compliance with ethical standards and to identify and mitigate emerging risks.

6. **Human Oversight and Control** – Maintaining human oversight in AI processes ensures that human judgment can intervene in AI decision-making, preserving ethical standards and accountability

Stay in Touch!

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