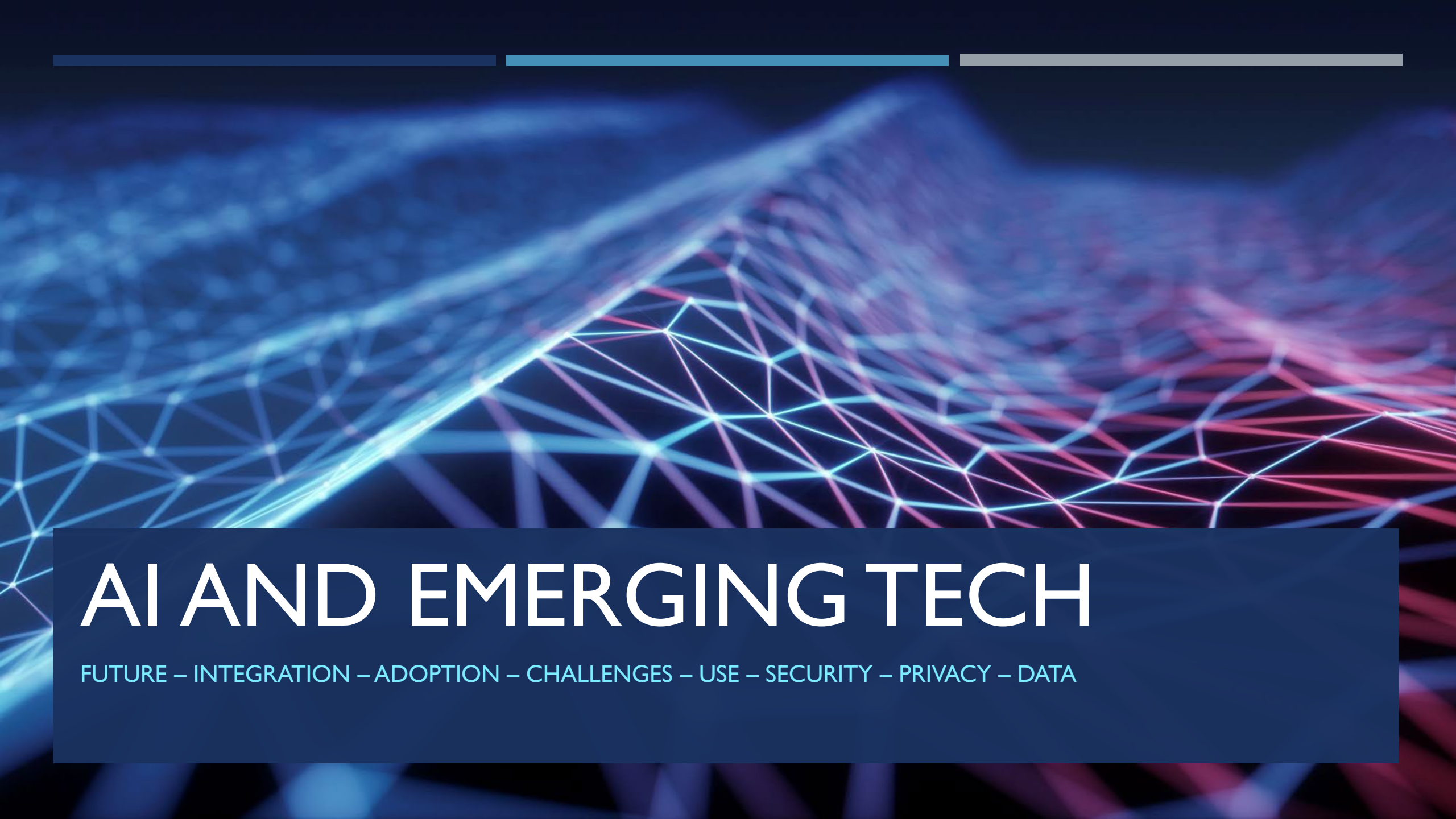


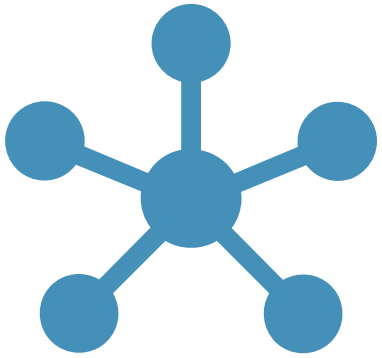
AI AND EMERGING TECH

FUTURE – INTEGRATION – ADOPTION – CHALLENGES – USE – SECURITY – PRIVACY – DATA

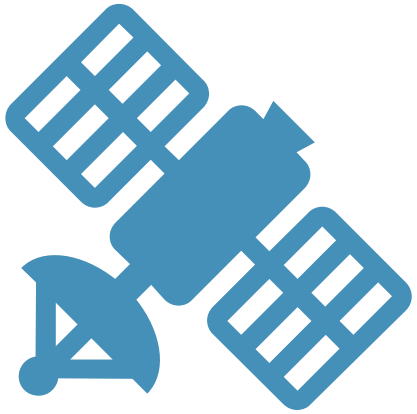
ARTIFICIAL INTELLIGENCE (AI)

Definition:

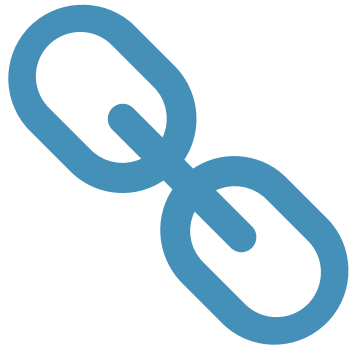
AI is a field of computer science that focuses on developing intelligent machines that can perform tasks that typically require human intelligence, such as visual perception, speech recognition, decision-making, and language translation.



Narrow



General



Superintelligent

AI CLASSIFICATIONS

AI CLASSIFICATIONS

Artificial Narrow Intelligence (ANI)

- Designed to perform a single or narrow set of related tasks

Broad Artificial Intelligence

- An intermediate step to AGI and more advanced than ANI

Artificial General Intelligence (AGI)

- Closely mimic human intelligence, remains beyond reach

Artificial Super Intelligence (ASI)

- Designed to perform a single or narrow set of related tasks

AI TYPES

Rule-based Systems

Rule-based systems are a type of AI where the system follows a set of predefined rules to make decisions or take actions. This approach is suitable for applications where the problem domain is well defined, and the rules are clear.

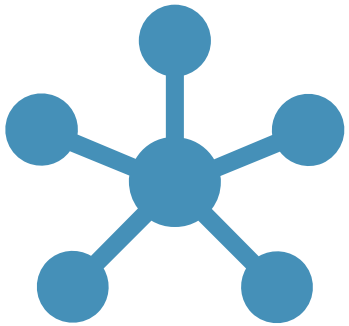
Machine Learning

Machine learning is a type of AI where the system learns from data without being explicitly programmed. This approach is suitable for applications where the problem domain is complex, and the rules are not well defined.

Deep Learning

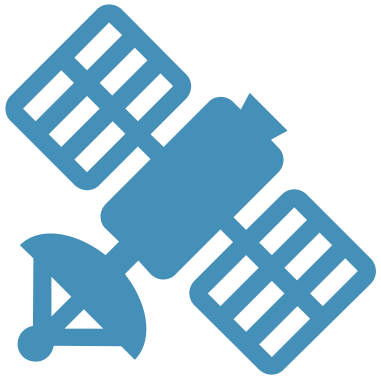
Deep learning is a type of machine learning that uses neural networks with many layers to learn from data. This approach is suitable for applications that require high accuracy and can handle large amounts of data. Chat GPT is a type of deep learning based on a neural network architecture that leverages natural language processing.

TYPES OF MACHINE LEARNING



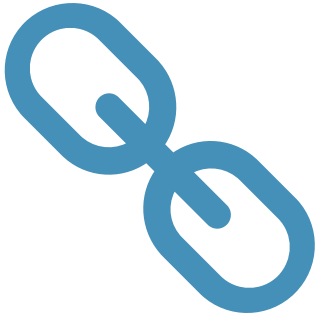
Supervised Learning

This is labelled data that is grouped or classified into categories via the AI system.



Unsupervised Learning

Unlabeled data, typically used for pattern detection.



Reinforcement Learning

The AI system is rewarded for performing a task well and penalized for not performing it well.

MILESTONES

Concepts

modern era of AI began in the 1950s with the development of computers and algorithms capable of performing basic tasks.

Expert Systems

earliest AI breakthroughs, enabling machines to perform human tasks

Machine Learning

subfield of AI, allows computers to learn from data and improve their performance over time.

GROWTH

- Research

Recent years have seen significant advancements in AI research, with deep learning, natural language processing, and computer vision paving the way for future innovation.

- Applications
  - Healthcare

AI is revolutionizing healthcare by enabling faster, more accurate diagnoses, predicting disease outbreaks, and developing new drugs.

  - Finance

AI is transforming the finance industry by improving fraud detection, predicting market trends, and automating trading

Agriculture, Infrastructure, Manufacturing, and other critical areas of infrastructure.

BREAKTHROUGHS & ADVANCEMENTS

- AlphaGo's Victory

AlphaGo's victory over a human world champion in the game of Go was a breakthrough in AI and demonstrated the ability of AI to perform complex tasks that require human-level intelligence.

- Advancements
  - GPT-3

GPT-3 is a language processing model with 175 billion parameters that can generate human-like text. It represents a major advancement in natural language processing and has the potential to transform the way we interact with machines.

  - Robotics and Autonomous Vehicles

AI is advancing rapidly in areas such as robotics and autonomous vehicles. Self-driving cars and drones are already in use, and the potential applications of AI in these areas are vast.

AI EVERYDAY LIFE & INDUSTRY

AI in Everyday Life

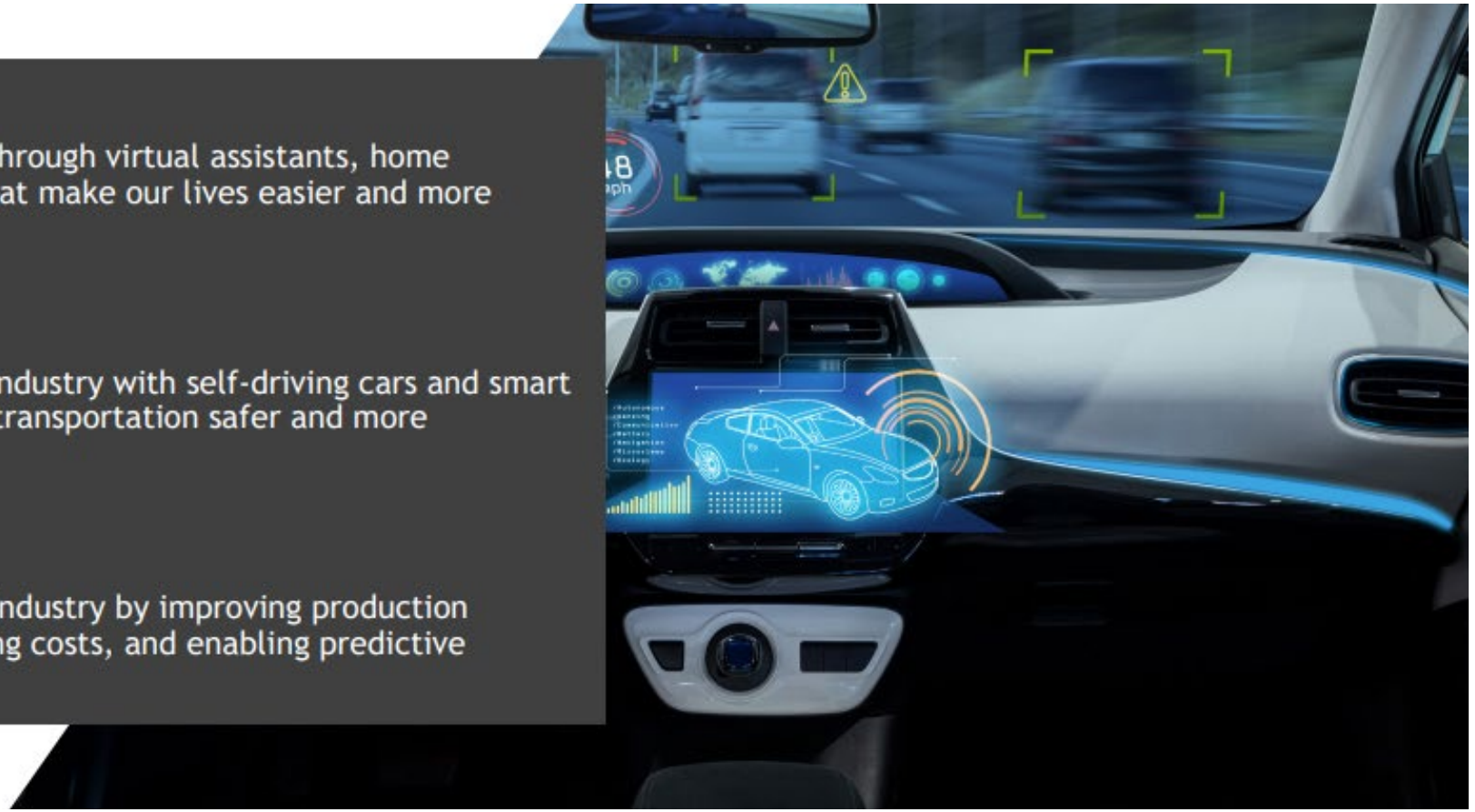
AI is transforming our everyday lives through virtual assistants, home automation, and other applications that make our lives easier and more convenient.

AI in Transportation

AI is transforming the transportation industry with self-driving cars and smart traffic management systems, making transportation safer and more efficient.

AI in Manufacturing

AI is transforming the manufacturing industry by improving production efficiency and quality control, reducing costs, and enabling predictive maintenance.



AI APPLICATIONS

Automotive
Driverless vehicles, personalized driver experience

Banking
Streamlined customer experience, compliance

Cybersecurity
Monitoring, threat protection

Education
Personalized lesson plans, support

Energy
Smart cities, efficiency, resilience

Financial Services
Personalization, detect and prevent fraud, automated risk assessments

Government
Improved decision making, enhanced public services

Healthcare
Personalized medicine, improved patient care

Manufacturing
Process automation, supply chain optimization

Retail
Personalized shopping experience, security

Sustainability
Reduce environmental footprint, accelerate decarbonization

Telecommunications
Optimize network operations, predict and prevent service disruptions

AI CHALLENGES

Transformation transform society and the economy by improving efficiency, productivity, and innovation

Inequality unequal access to its benefits

Employment Automation of tasks can lead to loss of jobs, especially in routine and low-skilled occupations.

AI GOVERNANCE

Privacy

AI relies on data, which raises concerns about privacy, confidentiality, and the responsible use.

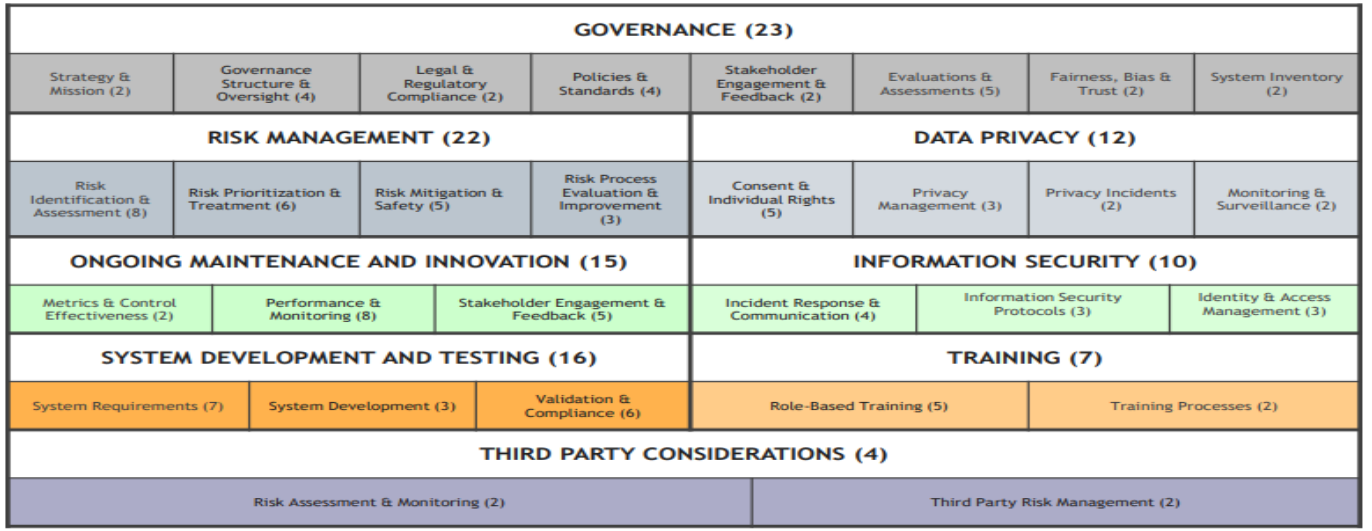
Data

The security of data is crucial for preventing data breaches, cyberattacks, and other security incidents that harm individuals or organizations.

Bias

AI algorithms can be biased and unfair, leading to discrimination against certain groups.

AI GOVERNANCE SAMPLE FRAMEWORK (EXAMPLE ONLY)



Ethical Principles: Existing ethical principles for AI governance aim to ensure that AI is developed and used in ways that are consistent with human values, rights, and dignity.

Legal Regulations: Existing legal regulations for AI governance aim to ensure that AI is developed and used in ways that are safe, transparent, and accountable, and that respect privacy and data protection laws.

Industry Standards: Existing industry standards for AI governance aim to ensure that AI is developed and used in ways that are reliable, interoperable, and scalable, and that promote innovation and fair competition.

QUANTUM COMPUTING

https://www.youtube.com/watch?v=qQvil1d_hFA

https://www.youtube.com/watch?v=lt4OsgmUTGI

OTHER EMERGING TECHNOLOGIES

- Generative AI
- Quantum Computing
- 5G Expansion
- Virtual Reality (VR) 2.0
- Augmented Reality (AR)
- Internet of Things
- Biotechnology in Agriculture
- Autonomous Vehicles
- Blockchain
- Edge Computing
- Personalized Medicine
- Neuromorphic Computing
- Green Energy Technologies
- Wearable Health Monitors
- Extended Reality (XR) for Training
- Voice-Activated Technology
- Space Tourism
- Synthetic Media
- Advanced Robotics
- AI in Cybersecurity
- Digital Twins
- Sustainable Technology
- Telemedicine
- Nano-Technology
- AI TRiSM

https://worldbusinessoutlook.com/how-emerging-technologies-are-changing-product-design/

https://www.brookings.edu/collection/emerging-technologies-in-global-education/

THANK YOU