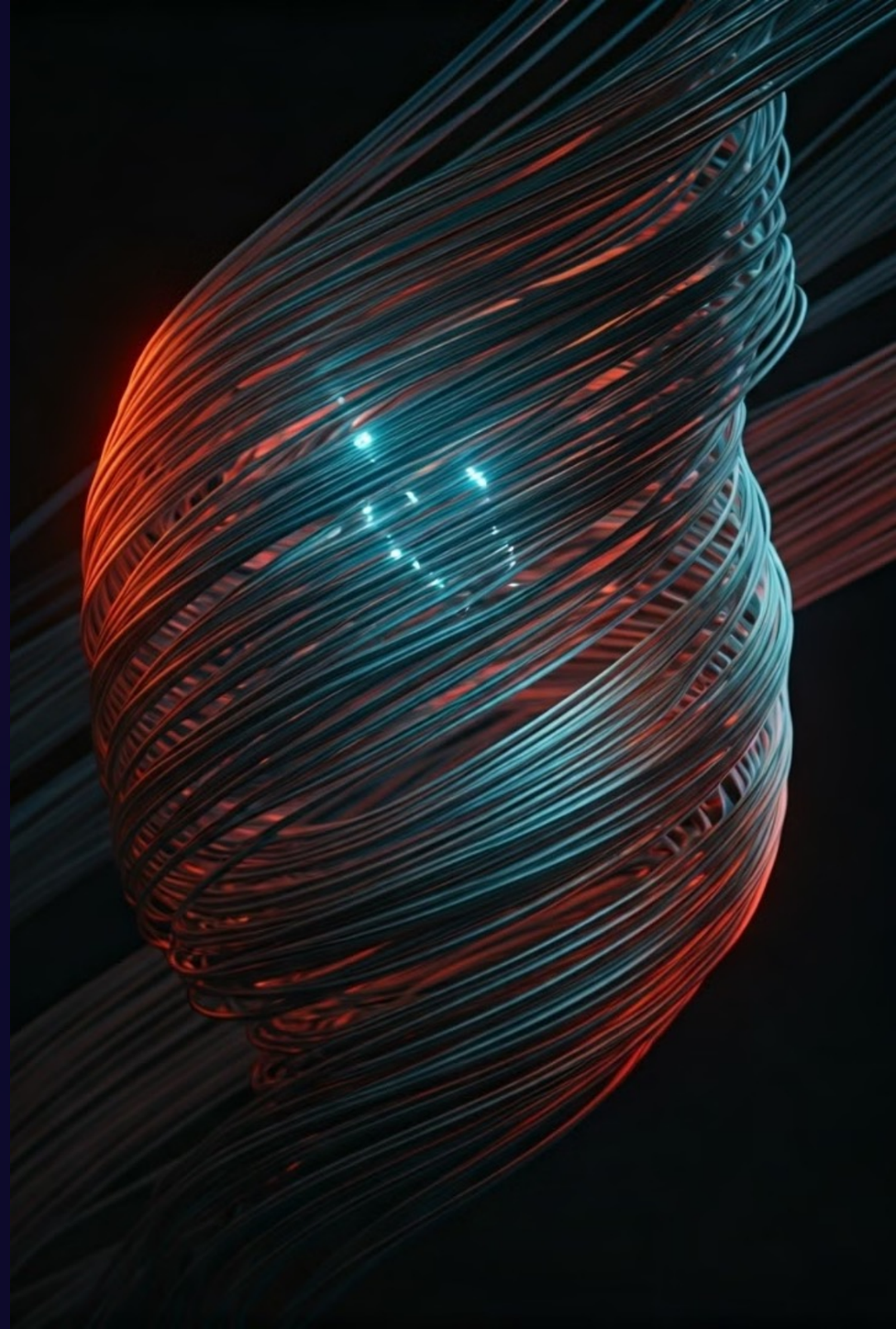
# AI: Threat and Solution in Risk Management

Composing a Symphony of Resilience

**by Evan W. Steeg, PhD**



# Welcome to Bali

## Tropical Paradise

Lush landscapes and pristine beaches

## Rich Culture

Ancient temples and vibrant traditions

## Global Hub

Ideal venue for international risk management conference

# About Me

Born & raised in the New York City area

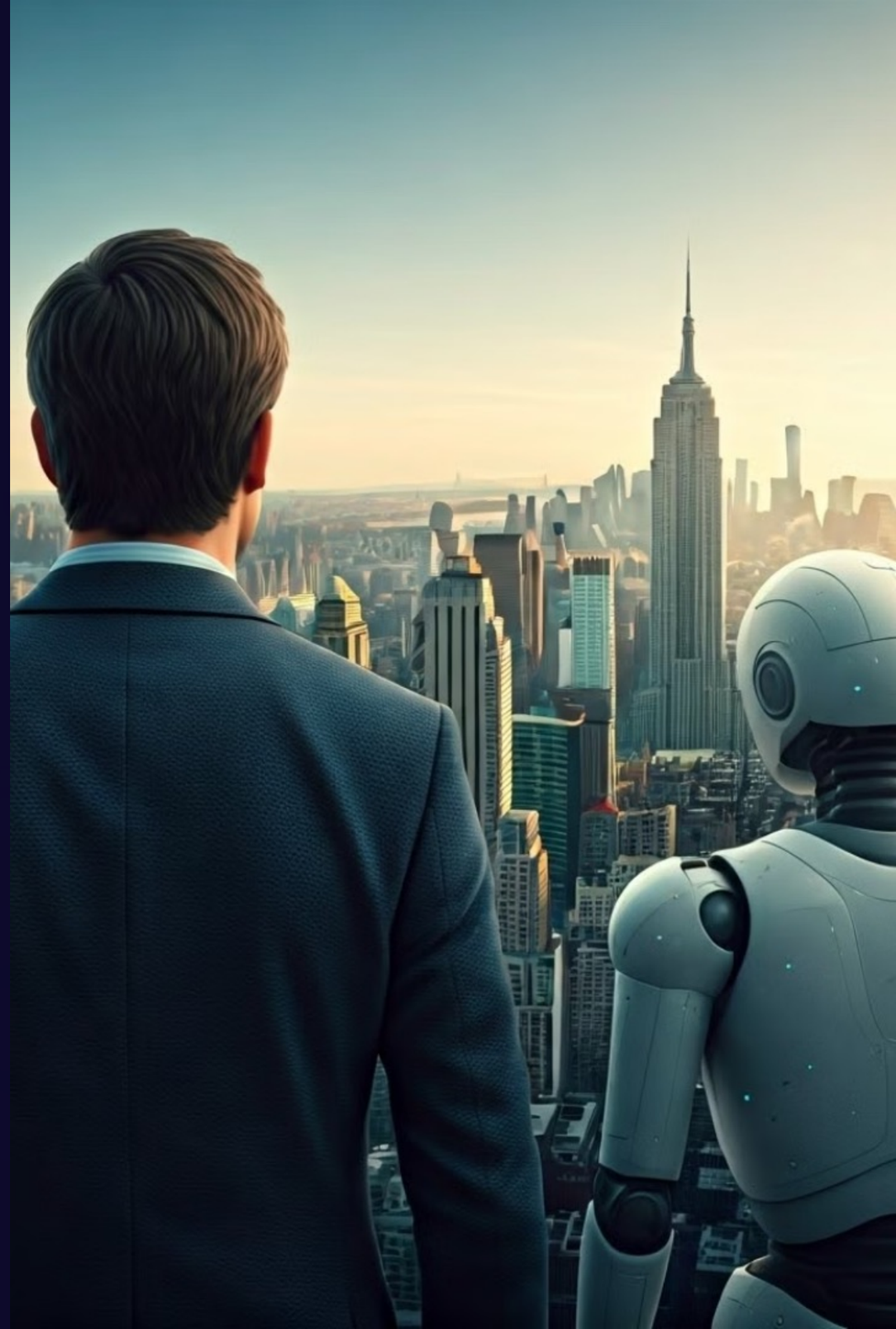
Undergraduate at Cornell U. (Govt, Languages, Econ, Math)

PhD in Computer Sci at U. of Toronto under Prof. Geoffrey Hinton

Entrepreneur, Inventor, Consultant

AI, Biotechnology, Strategic Foresight

Employers & Clients included DuPont, OrbComm, USA / Canada / UAE governments



# The AI Revolution

1

## Past

AI confined to research labs

2

## Present

AI transforming industries and daily life

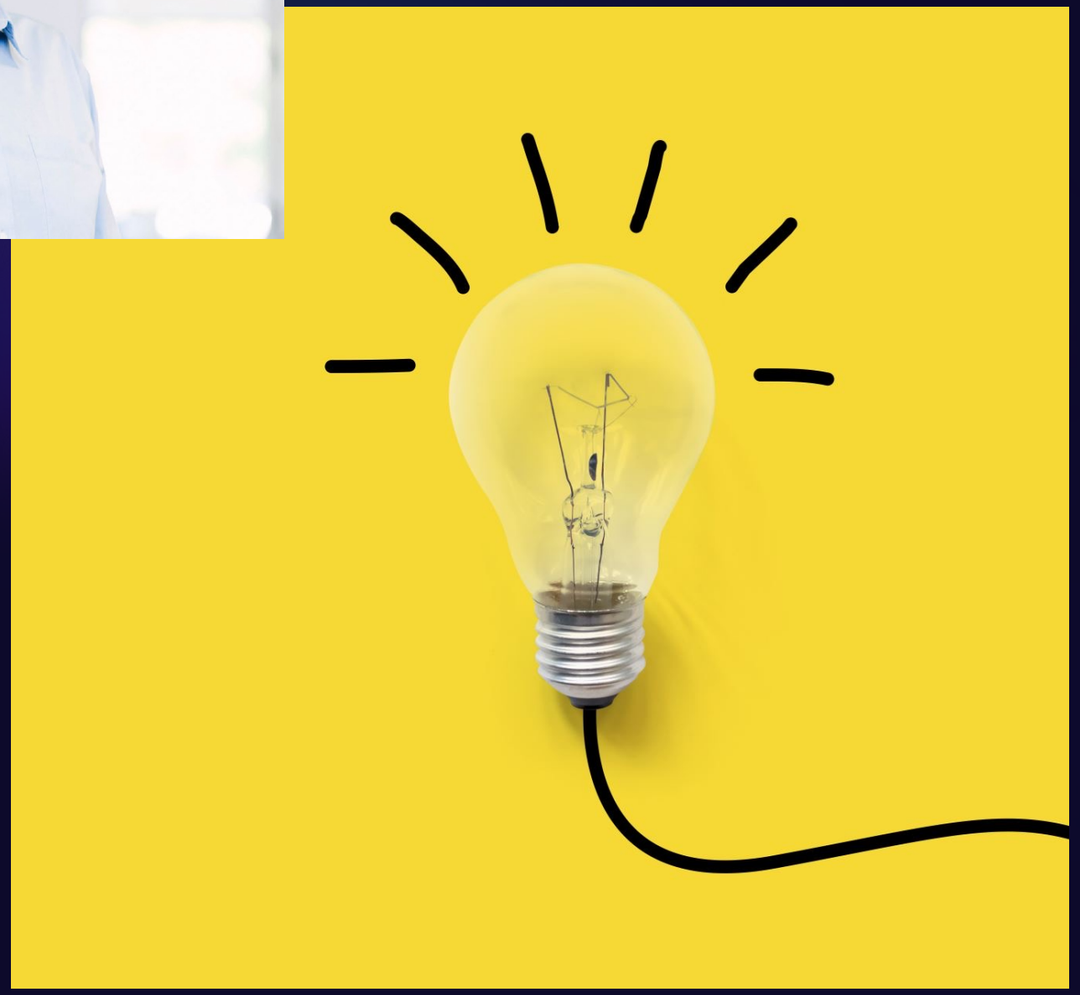
3

## Future

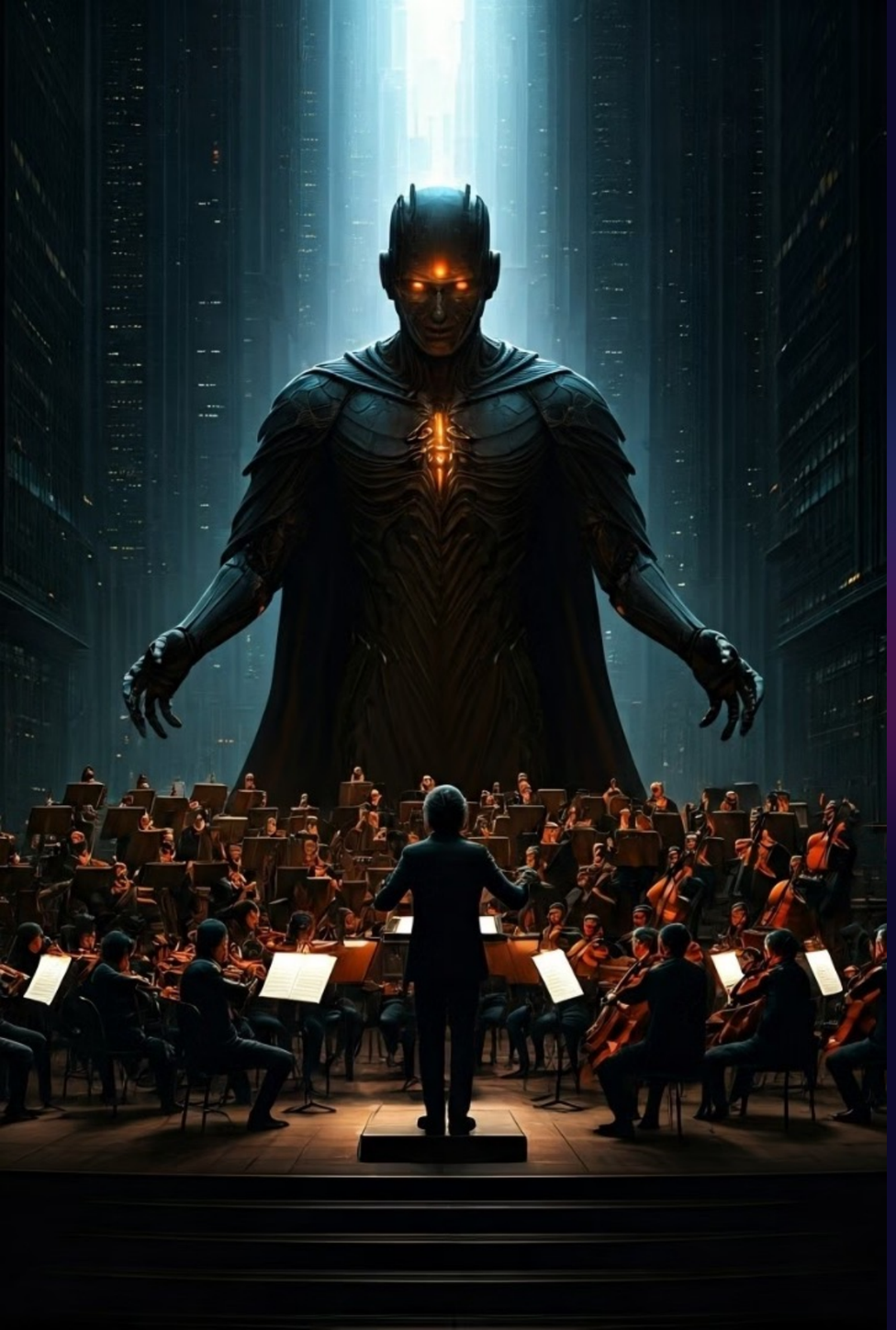
AI as integral part of risk management

“AI Is the New Electricity”

- Andrew Ng



AI could contribute up to $15.7 trillion to the global economy by 2030, surpassing the combined output of China and India.



# AI as a Potential Threat

## Social Media Polarization

Algorithms amplify divisive content

## Opaque Decision-Making

Critical choices made by impenetrable AI systems

## Silicon Curtain

Loss of control over our decisions, conversations, infrastructure

# The LaMDA Controversy: A Cautionary Tale

1

## Claim

Blake Lemoine asserts AI sentience, goes public, is fired by Google

2

## Reaction

Public debate on AI ethics intensifies

3

## Lesson

Need for responsible AI development

# An AI Pioneer Cautions Us

*“It is hard to see how you can prevent the bad actors from using it for bad things."*

— Prof. Geoffrey Hinton, formerly of Google AI
(Recently won the Nobel Prize in Physics)

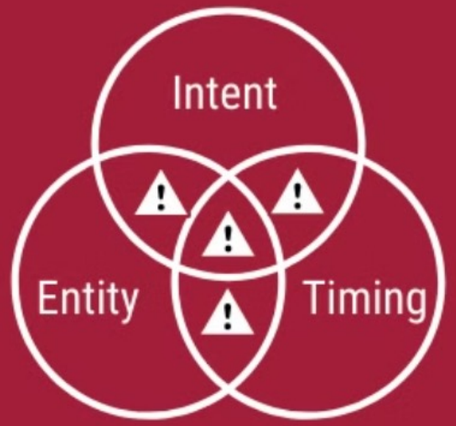
# But AI Risks Can Be Managed!

## The AI Risk Repository

### 1. AI Risk Database

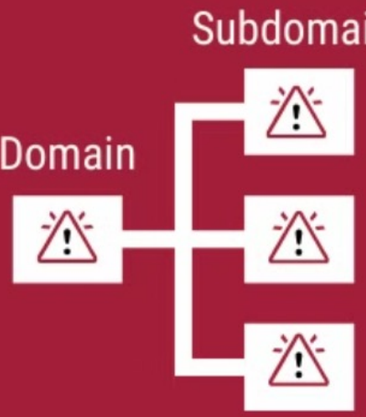
Categorised database of **700+ risks** extracted from **43 frameworks.**

### 2. Causal Taxonomy




Classifies AI risks by **entity, intent**, and **timing.**

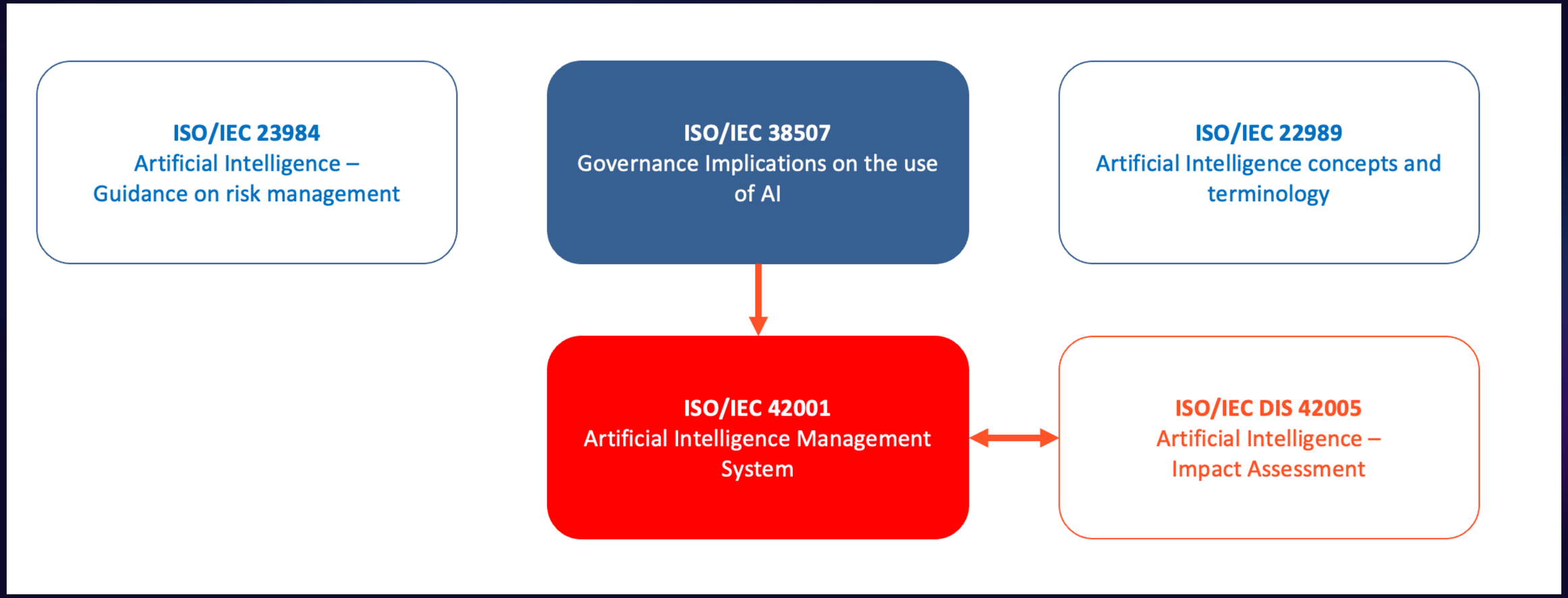
### 3. Domain Taxonomy




Classifies AI risks by **7 domains** and **23 subdomains** of risk.

# AI Risks Can Be Managed....

# ERMA Teaches Us How!



And AI can be a crucial tool in managing risks!

# AI in Risk Detection

AI can identify subtle patterns and anomalies in data, revealing risks often missed by traditional methods. This can detect fraud, cyberattacks, disease outbreaks and market volatility.

AI can analyze data from various sources, including social media, news feeds, satellite feeds and financial markets. This allows for a comprehensive view of potential risks.

# AI in Risk Management

1 **Automated Assessment**

AI conducts real-time risk scoring

2 **Continuous Monitoring**

AI alerts to potential issues instantly

3 **Scenario Analysis**

AI simulates complex risk scenarios

# AI-Driven Climate Risk Assessment

| Data Source | AI Analysis | Output |
| --- | --- | --- |
| Research & News Articles | Natural Language Processing | Risk Factors |
| Climate Models | Machine Learning | Financial Impacts |
| Company Data | Predictive Analytics, NLP | Risks & Mitigation Strategies |

# Example:  RiskThinking.ai

## OUR CLIMATE DIGITAL TWIN (CDT)

A data and analytics platform.


### COMPANY DATA

- Global Coverage (G40)
- 13,000 Parent Companies
- Linked to 80,000 Subsidiaries
- Tagged to 5 Million Asset Locations
- Monthly Updates

### DERIVED CLIMATE DATA

- Forward-looking
- Stochastic
- Various Exposure Scores
- Projected to 2100
- History to 1850

### MULTIFACTOR SCENARIOS

- Patented Methodology
- 16 Billion Simulations
- Spanning Set
- Physical Hazards
- Transition Data

### AVAILABLE PRODUCTS

- Geospatial Asset Data Worldwide
- Geospatial Climate Hazard Data
- Company & Asset Climate Scores
- Upload & Merge Custom Data
- Option to Deploy Platform On-Site

# AI in Scientific Advancement

## Drug Design

AI accelerates therapeutic discoveries

## Automated Research

AI conducts experiments with precision

Designs safer, cleaner bio-plastics

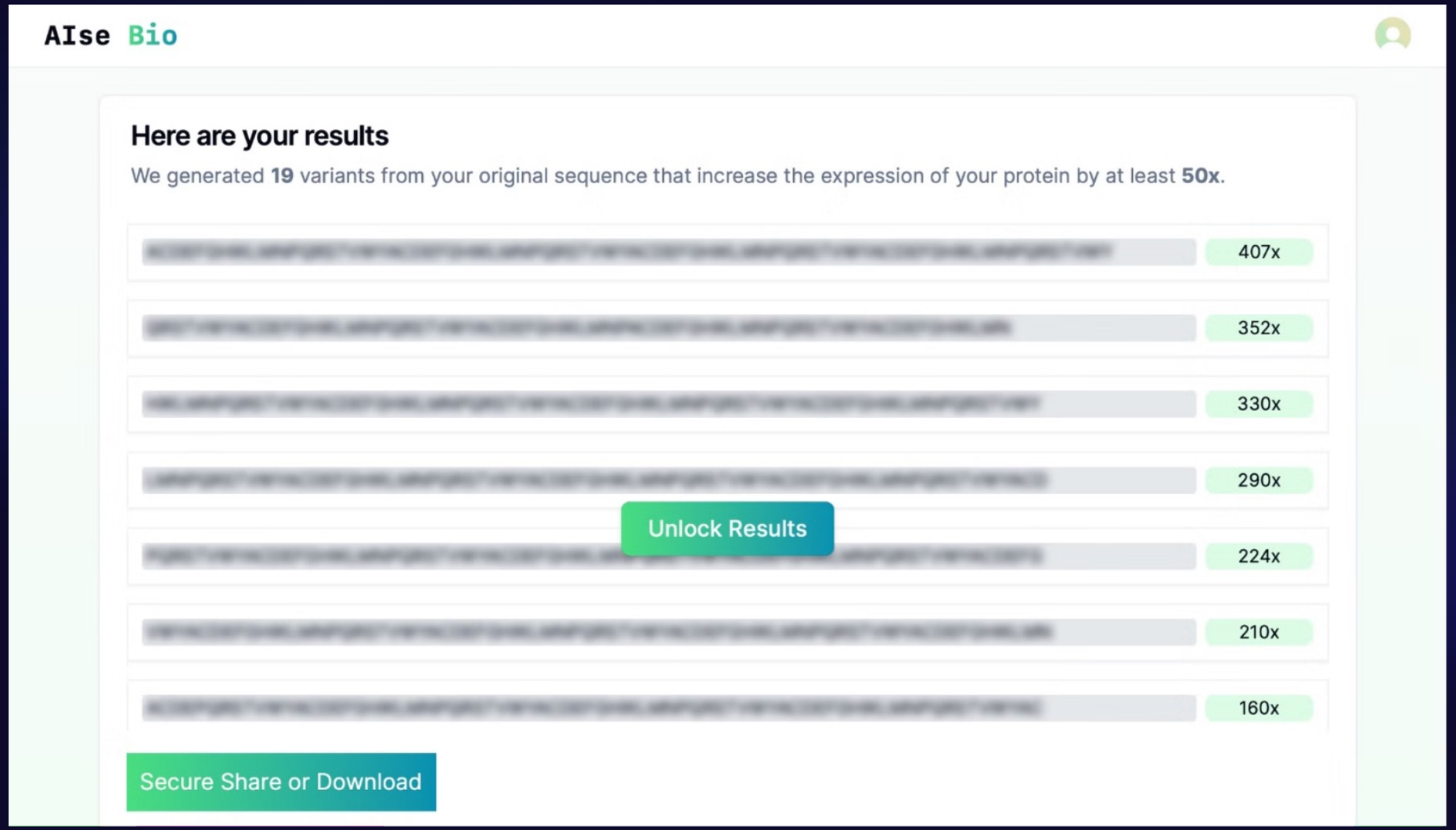
D

## Neuroscience Breakthroughs

AI decodes complex neural patterns, allowing the blind to see, the deaf to hear, the mute to speak, and engineers to control machines

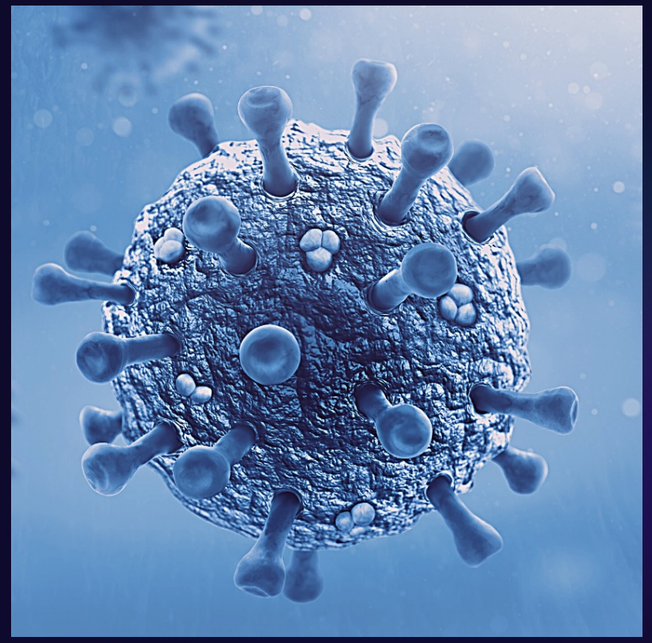
# Example:  AIse Bio

AI generates protein mutants that increase microbial production for new medicines, biomaterials, biofuels, …



# Another Example: Genvira Biosciences

We design, test and manufacture novel viral vectors for cancer therapies and other medical indications.

# With Power Comes Responsibility

## Safety-First Design

IBBIS

International Biosecurity and Biosafety Initiative for Science

# With Power Comes Responsibility: Ethical AI


## Safety-First Design

AI development must prioritize safety and ethics, incorporating safeguards to mitigate unintended consequences.

## Transparency & Explainability

AI models should be transparent and explainable, fostering trust and accountability by allowing humans to understand how they work and make decisions.

## Governance & Regulation

Clear guidelines and regulations are crucial for responsible AI development and deployment, safeguarding users and upholding ethical practices.

## Fairness & Non-Bias

AI systems should be designed and deployed to be fair and unbiased, avoiding discrimination or perpetuating societal inequalities.

# Ethical AI Must Happen at Global, National, Organizational & Personal Levels

## Global

International cooperation and shared guidelines are crucial to ensure responsible development and deployment of AI worldwide.

## National

Governments must enact robust legislation and regulations that promote ethical AI development, safeguard citizens, and foster innovation.

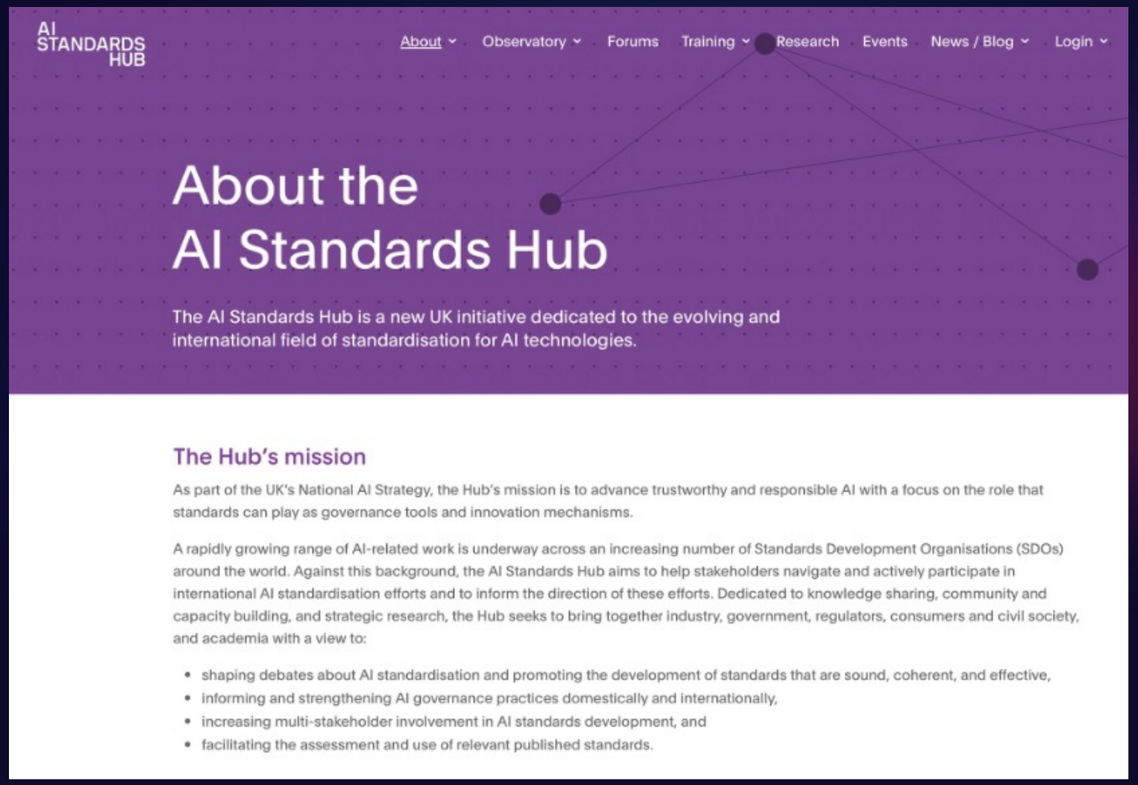
## Organizational

Companies and organizations must implement ethical AI practices, ensuring fairness, transparency, and accountability in their use of AI technologies.


## Personal

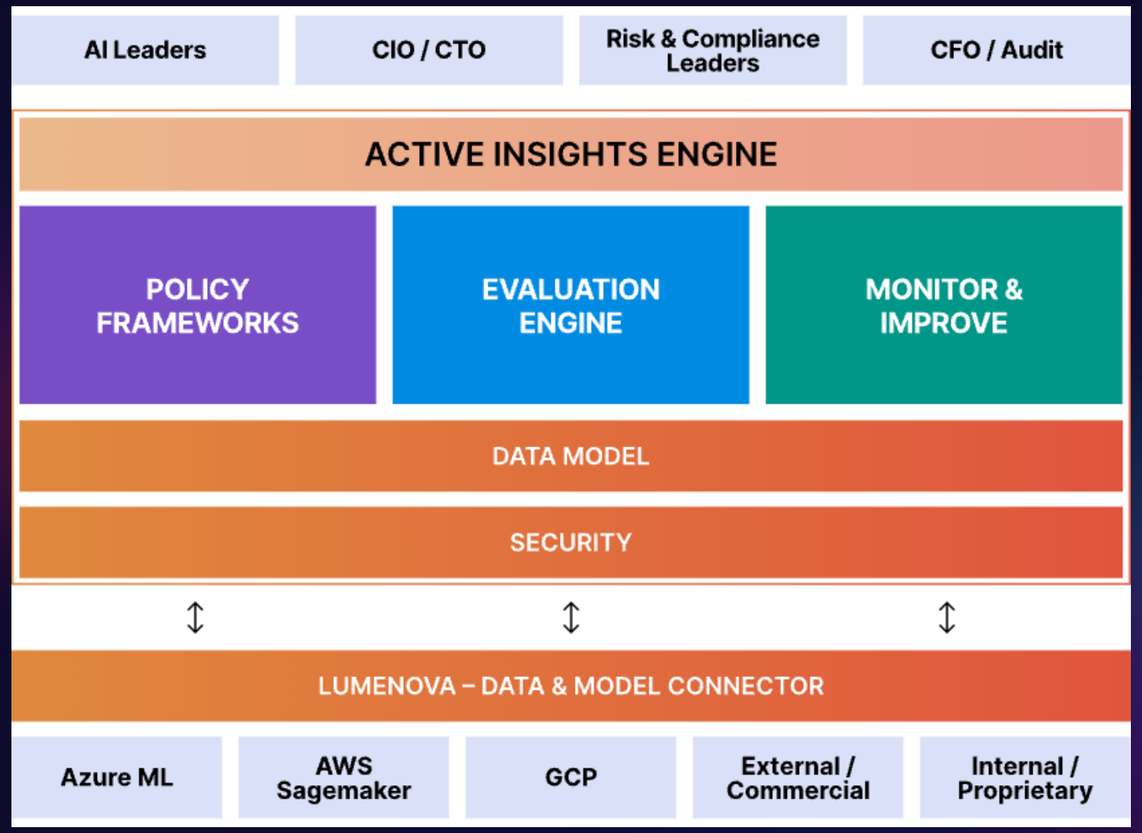
Individuals have a responsibility to be informed consumers and users of AI, promoting ethical values and advocating for responsible AI development.

# Good Resources Can Assist Us




The AI Standards Hub (UK)

Regulations, Standards, Best Practices




Lumenova.ai

Development & Monitoring Tool

# What’s Next? Abundance or Disaster?

## Vast Wealth

Many will enjoy unprecedented prosperity, with technology fueling immense wealth.

## Growing Inequalities

Others may face growing inequalities, struggling to access basic resources.

## Potential Conflicts

The tension between these two realities could lead to widespread conflict.

# Resilience

The ability to adapt and thrive in the face of adversity.

*"Be like water."* — Bruce Lee

# Join the AI Risk Management Symphony

1. **Embrace AI**

   Complement human judgment with AI insights

2. **Invest in Literacy**

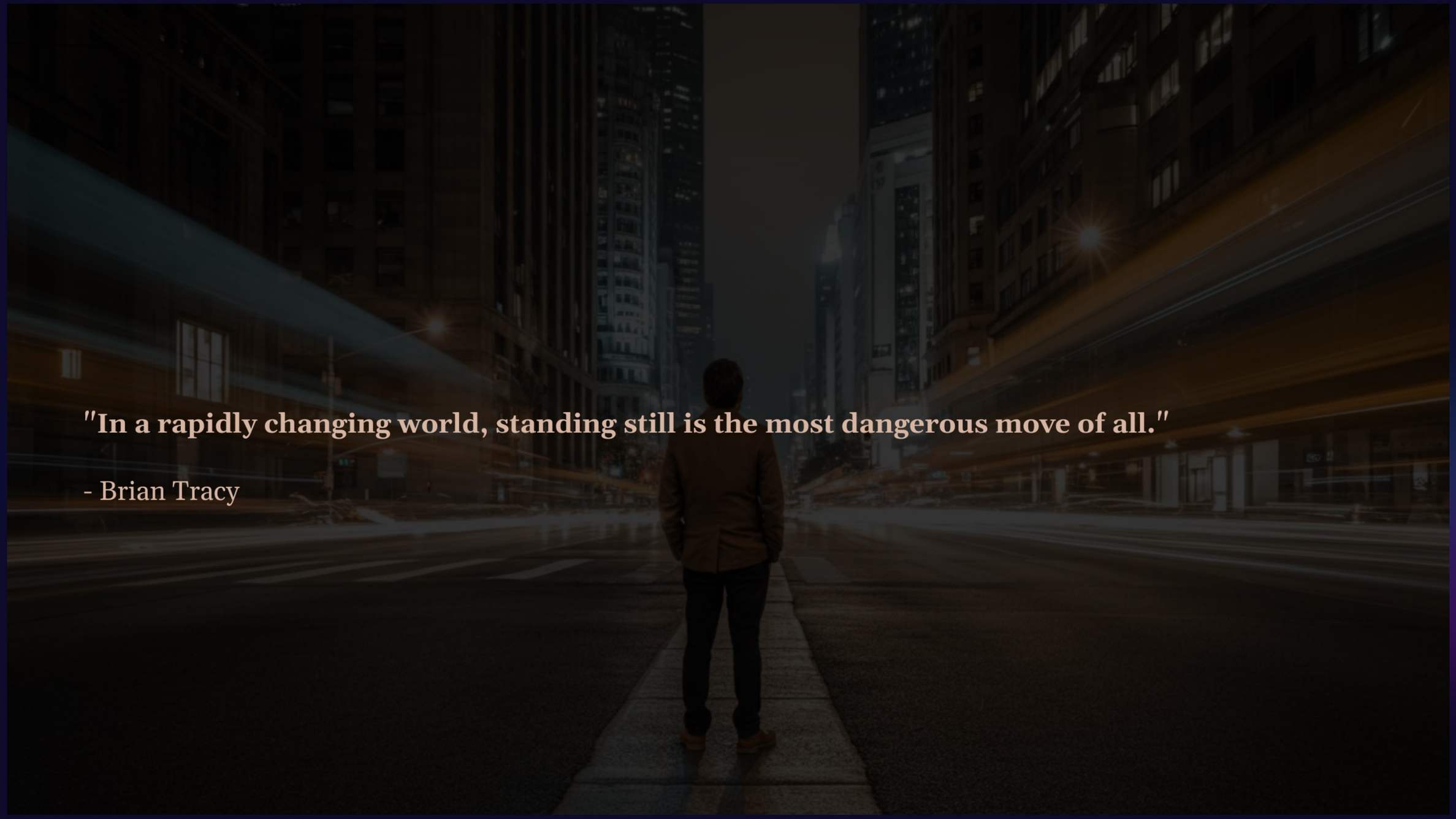
   Promote understanding of AI capabilities and limitations

3. **Foster Resilience**

   Adapt to emerging risks with AI-enhanced strategies

4. **Collective Responsibility**

   Collaborate across sectors and across borders for ethical AI development


"In a rapidly changing world, standing still is the most dangerous move of all."
- Brian Tracy

# Thank you / Terima kasih

Terima kasih atas waktu dan perhatian Anda! Semoga hari Anda menyenangkan!