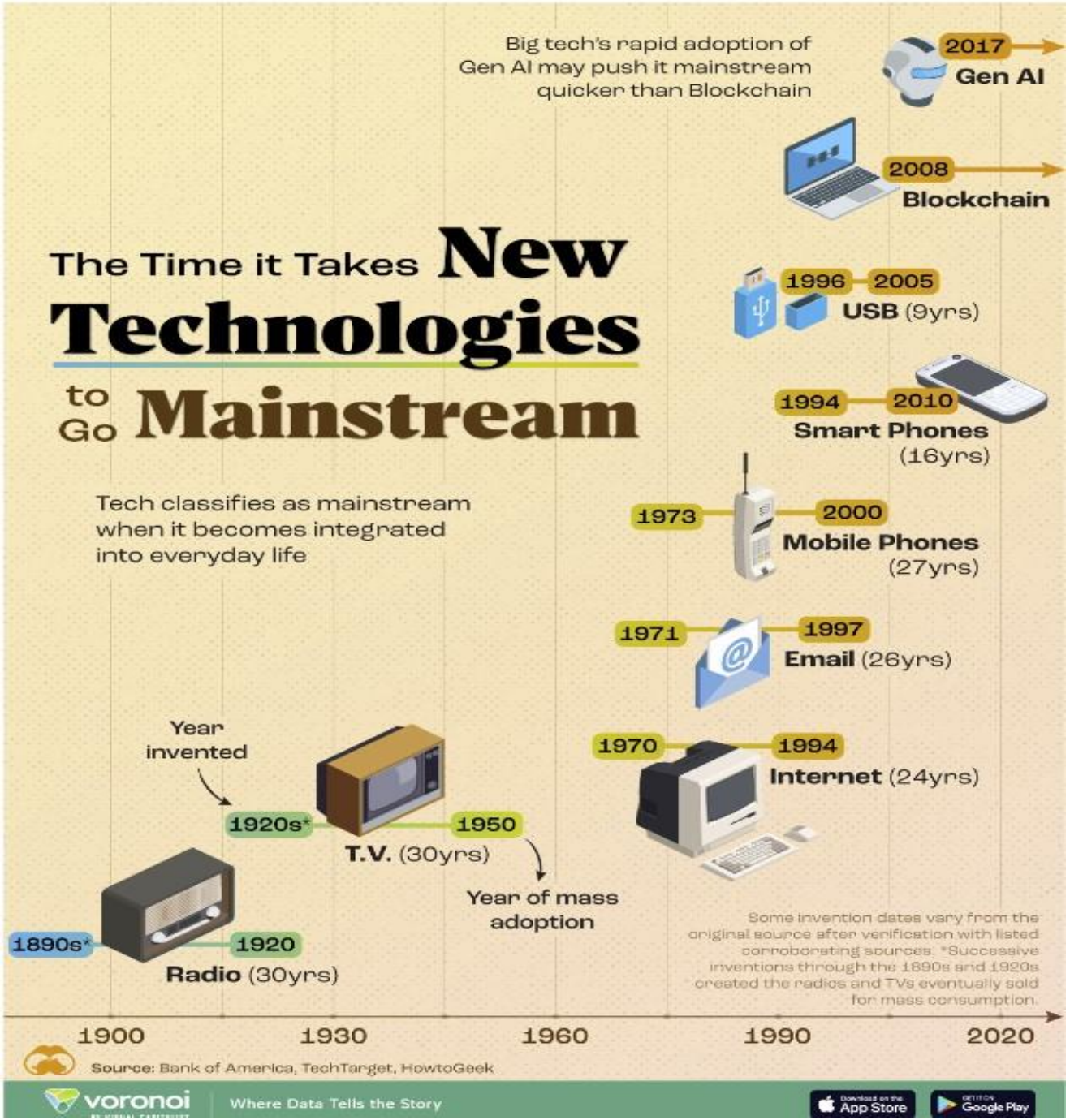


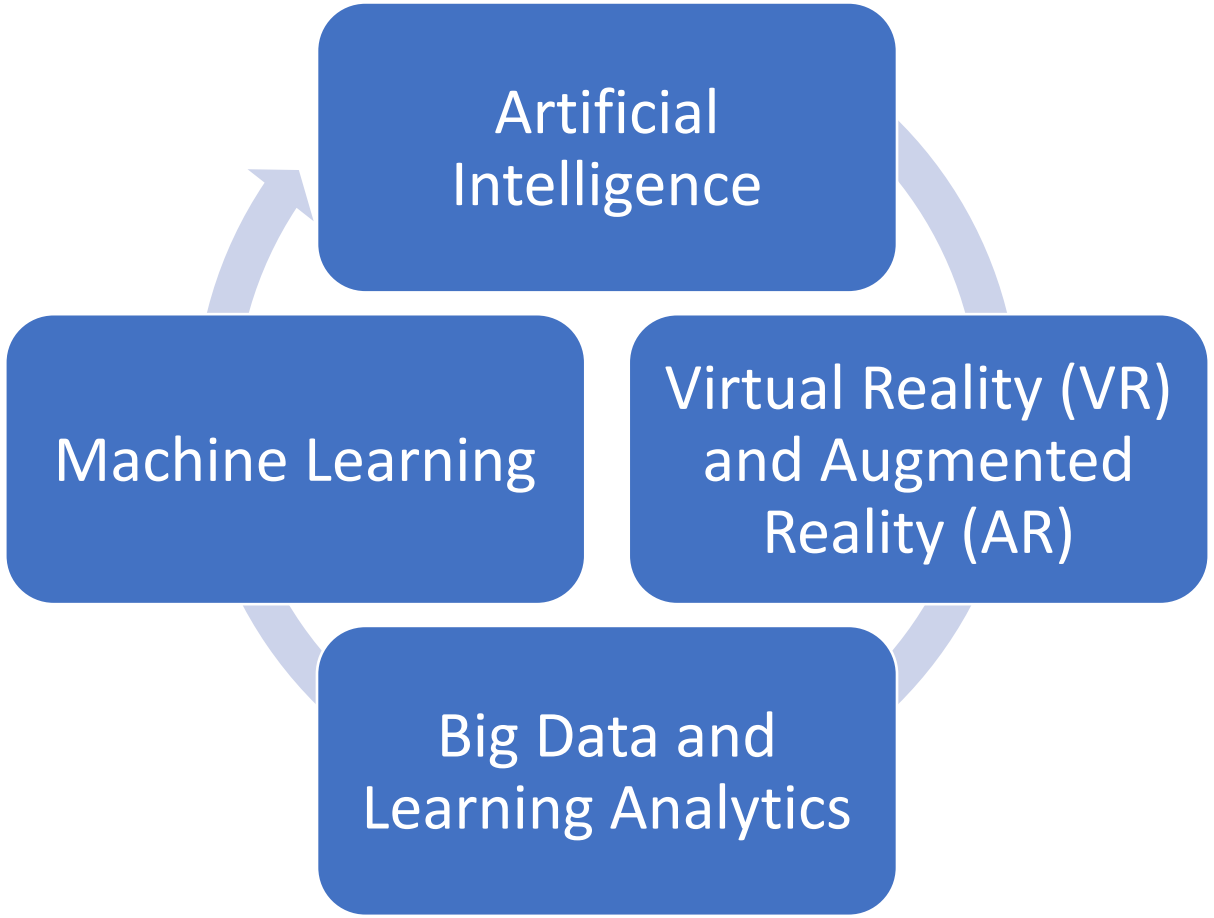
Navigating the Ethical Maze: Emerging Technologies and Pedagogies in Higher Education

Dr. Harika Rao

Associate Dean

Lynn University

Overview of the Emerging Technologies



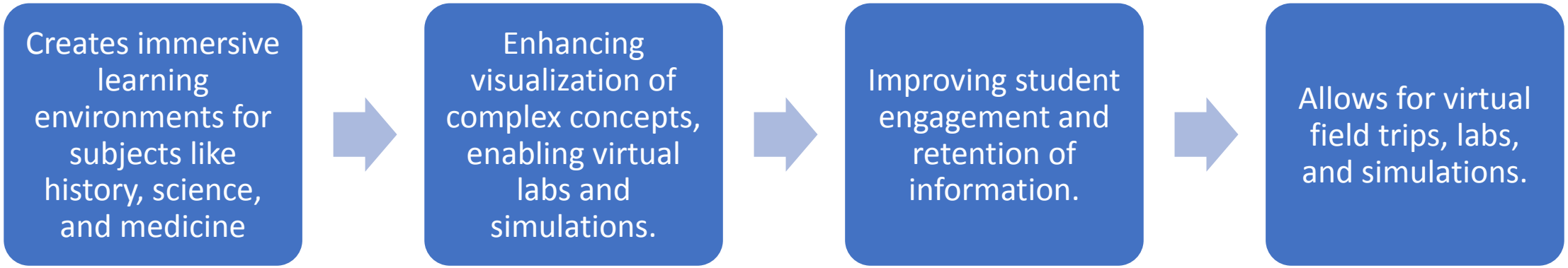
Artificial Intelligence (AI) and Machine Learning

Being used for personalized learning, adaptive learning systems, automated grading, predictive analytics for student success, and intelligent tutoring systems.

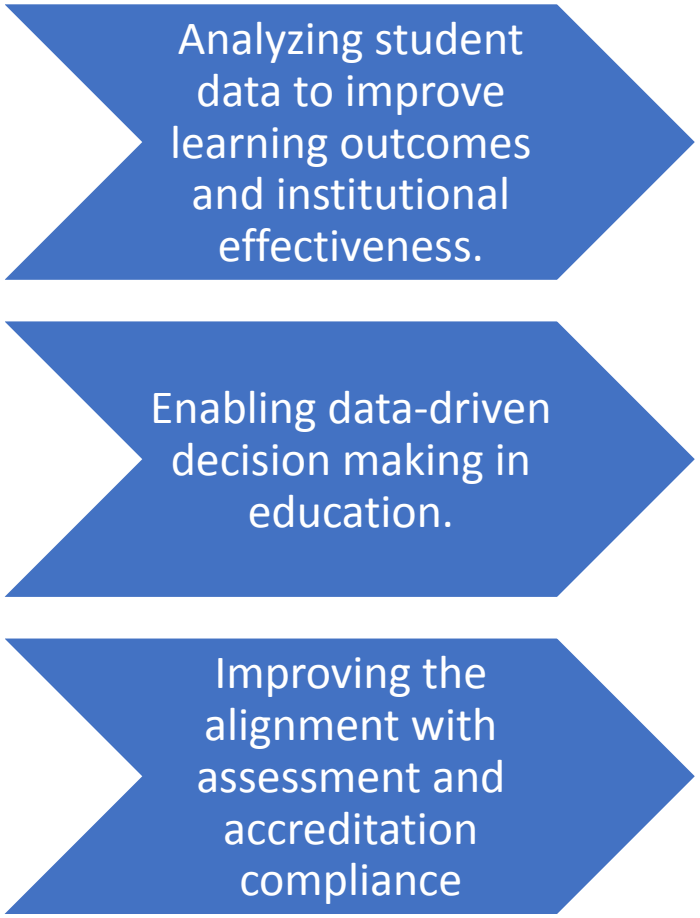
Transforming administrative tasks, student support services, and teaching methodologies.

Can be used for automated grading, intelligent tutoring systems, and predictive analytics to identify at-risk students

Virtual Reality (VR) and Augmented Reality (AR)



Big Data and Learning Analytics



Food for Thought:
Integration of Emerging Technologies

Personalized, engaging, and effective educational experiences while also preparing students for a technology-driven future workforce.

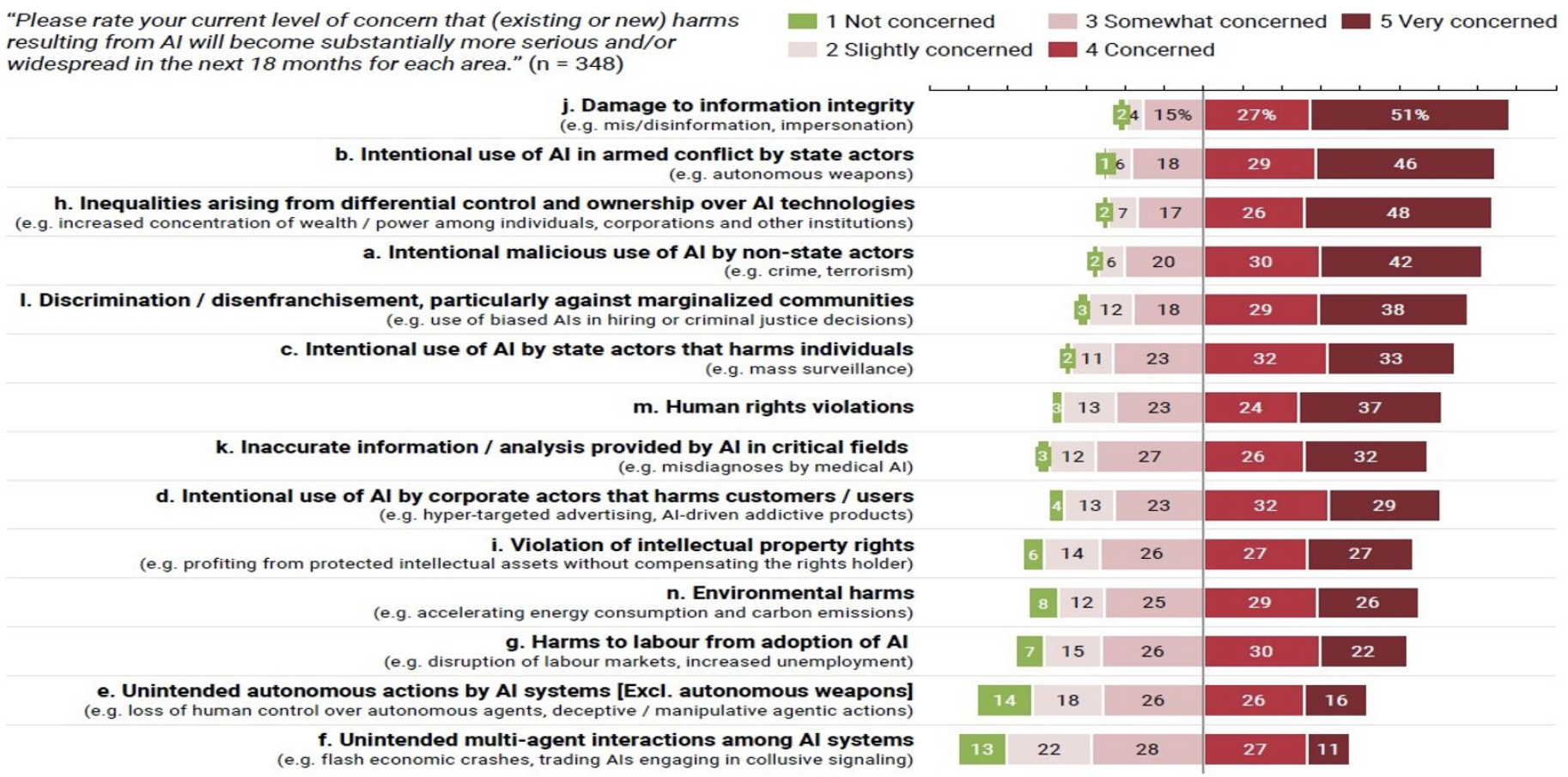
However, thoughtful implementation that considers pedagogical needs is crucial for realizing their full potential in higher education.

Complex Landscape of Higher Education

Top Countries For AI Preparedness

Rank	Country	AI Preparedness Index Score (0-1)
1	Singapore	0.80
2	Denmark	0.78
3	United States	0.77
4	Netherlands	0.77
5	Estonia	0.76
6	Finland	0.76
7	Switzerland	0.76
8	New Zealand	0.75
9	Germany	0.75
10	Sweden	0.75

Experts' Level of Concern about AI Risks Across Multiple Domains



Ethical Dilemmas in Higher Education

Academic Integrity

- The challenge of maintaining honesty in student submissions.

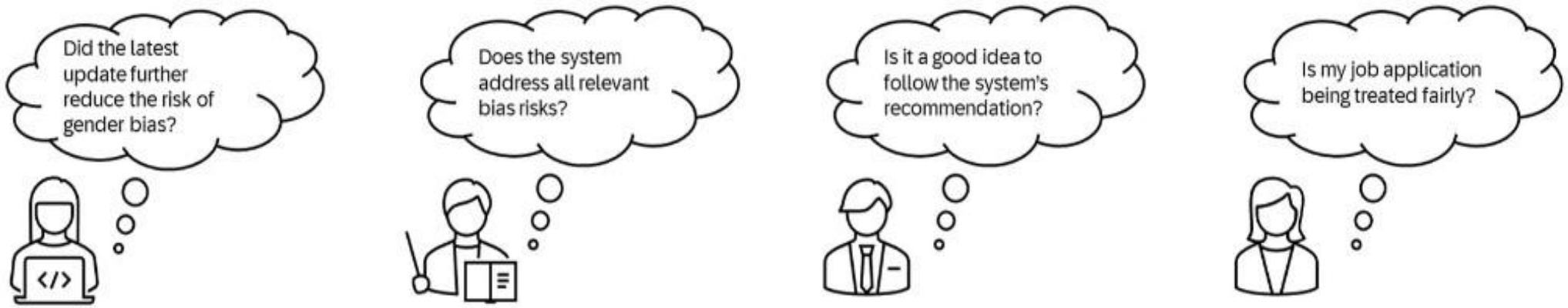
Algorithmic Bias

- The risk of unfair treatment due to biased algorithms in decision-making.

Data Privacy

- Protecting sensitive student information from unauthorized access.

What human stakeholders need to understand



[1] *or AI technology expert / theorist / data scientist / system builder / human on the loop / ...*

[2] *or assessor / regulator / regulatory body /...*

[3] *or business user / decision maker / domain-expert / human in the loop / ...*

[4] *or impacted user / data subject / end-consumer / ...*

Academic Integrity Challenges

Students increasingly use AI tools to generate essays and assignments. This trend raises concerns about originality and authenticity in academic work

Impact on Learning:

- Submitting AI-generated work undermines the learning process
- Devalues academic qualifications as students may not engage with course material meaningfully

AI Policies are Low, Use is High, and Adversaries are Taking Advantage

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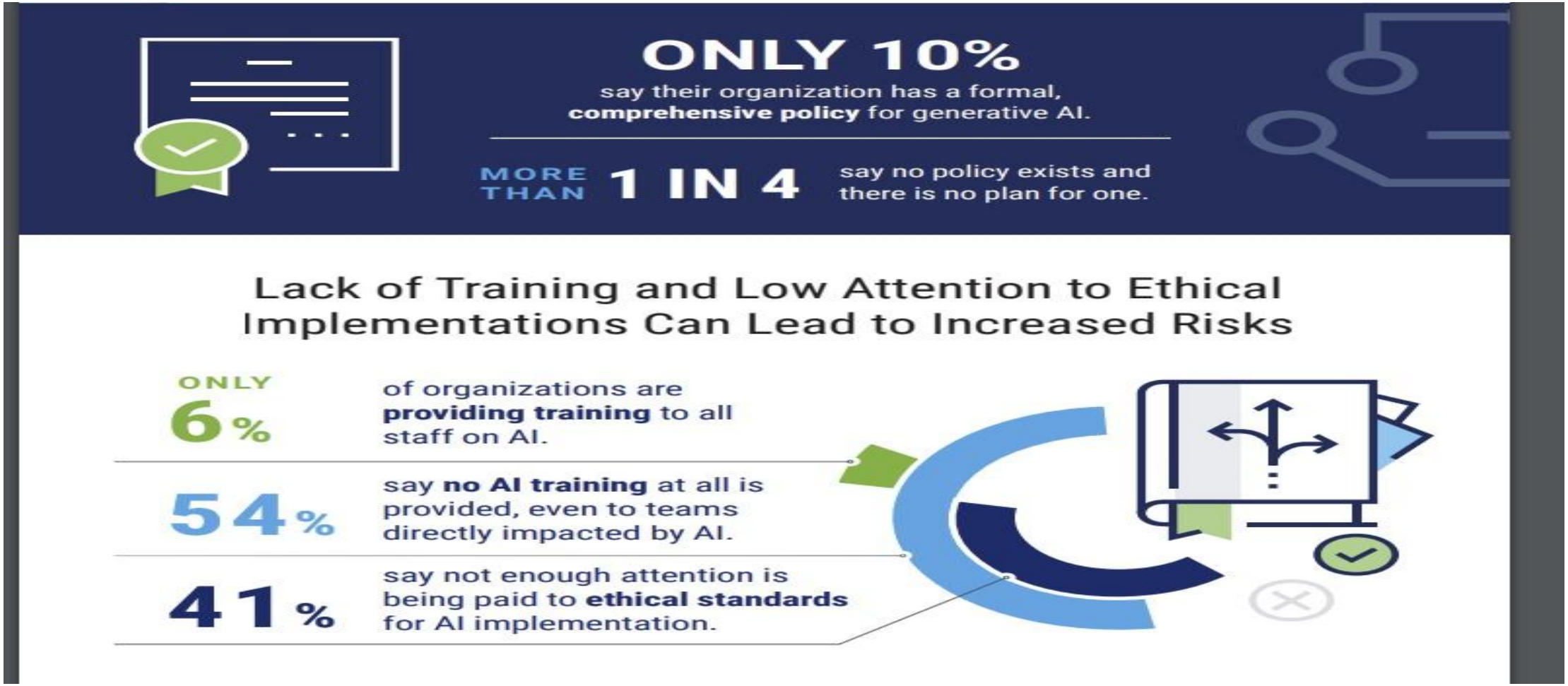

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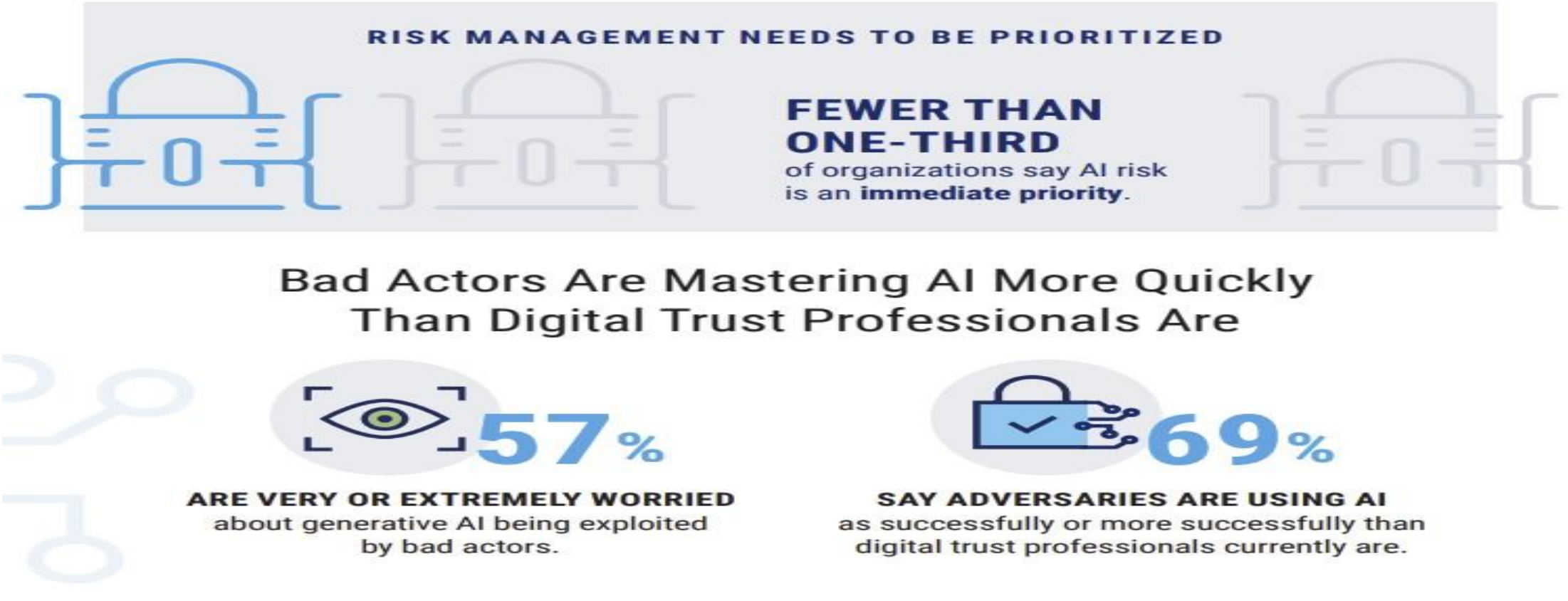

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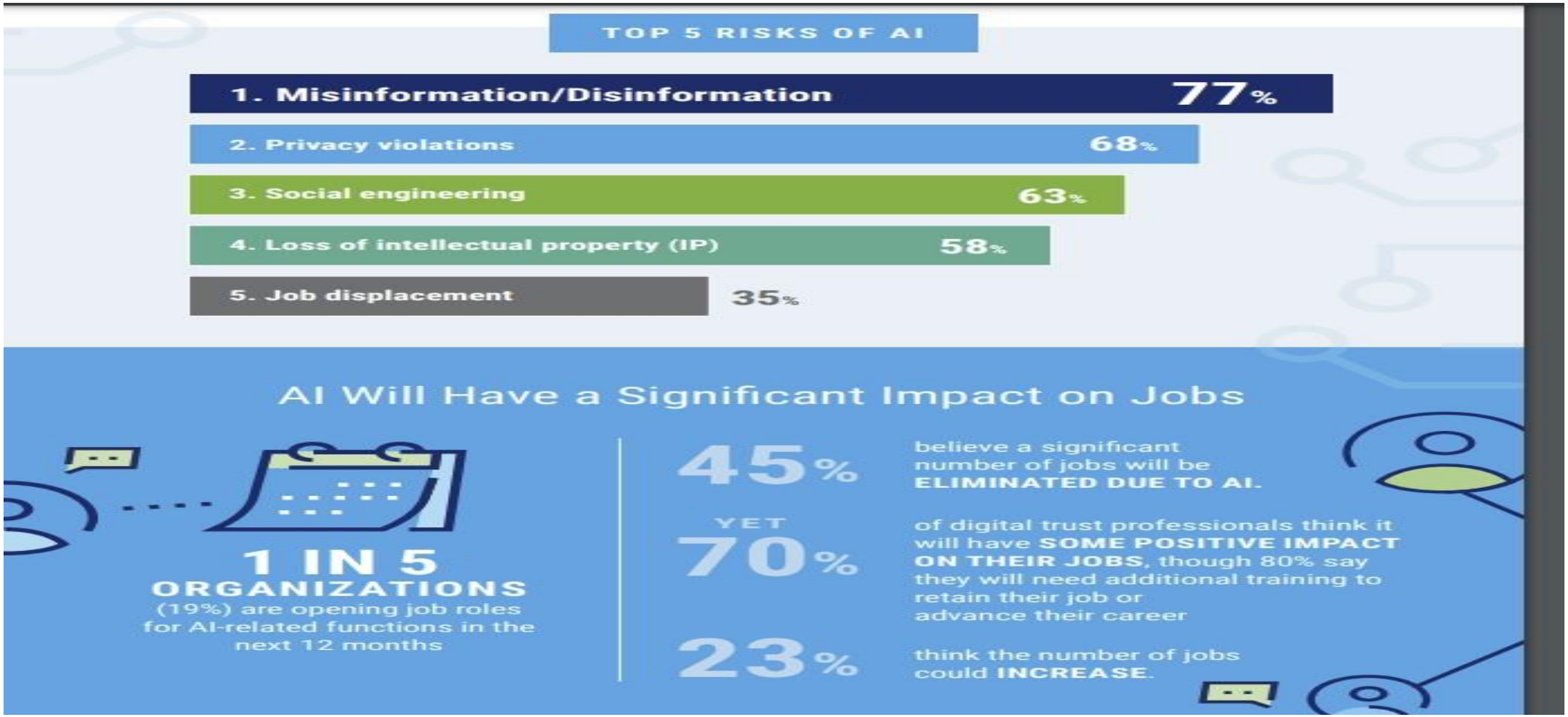

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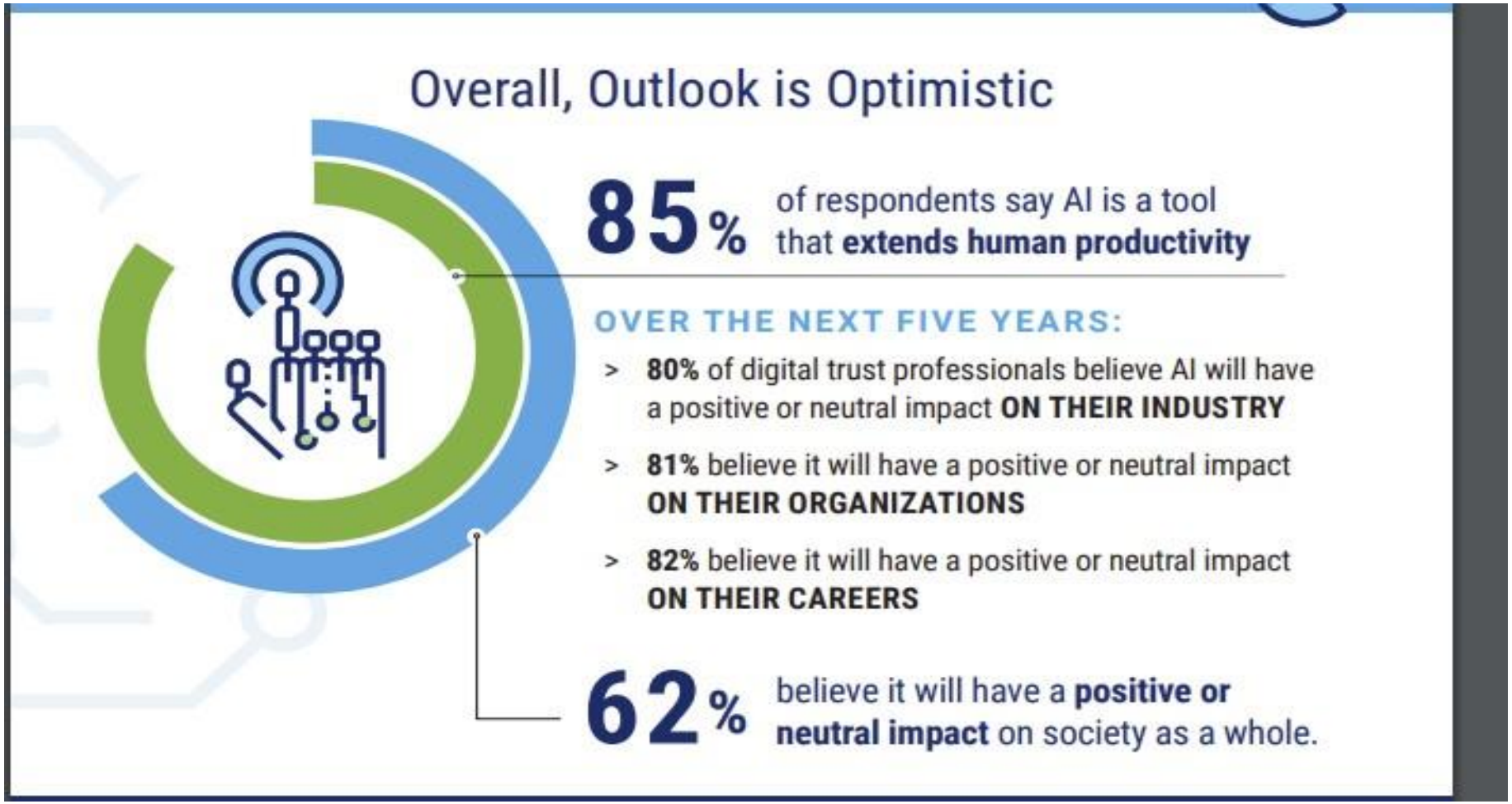


Consequences of AI on Learning

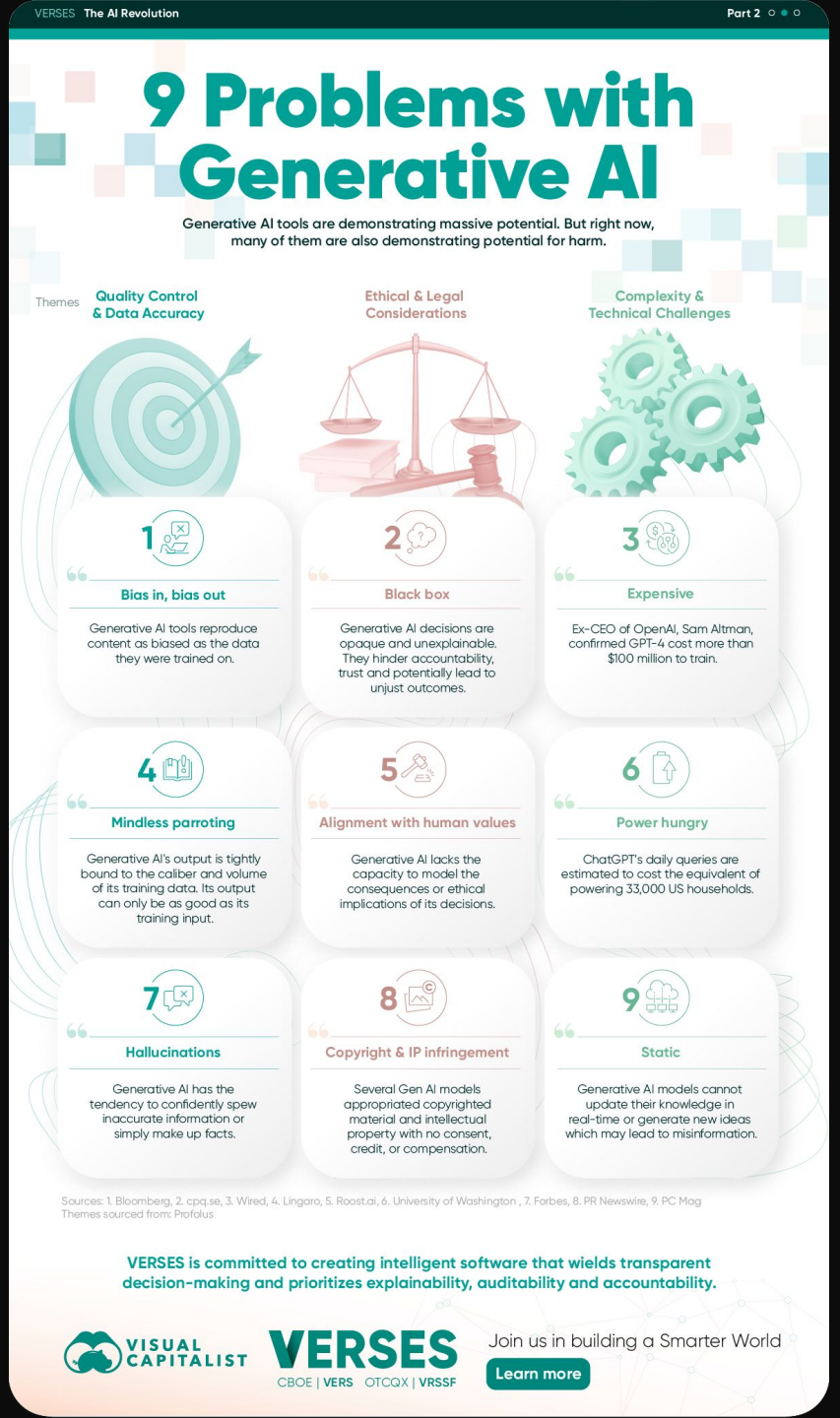
Diminished Engagement:	• Students may prioritize quick solutions over deep understanding, leading to superficial learning
Erosion of Critical Thinking Skills:	• Dependence on AI tools can hinder the development of essential skills such as analysis, evaluation, and synthesis
Long-term Implications:	• Graduates may enter the workforce lacking necessary competencies for problem-solving and critical thinking

Algorithmic Bias in Decision-Making

Lack of Transparency:	• Many AI algorithms operate as "black boxes," making it difficult to understand how decisions are made
Need for Accountability:	• Institutions must ensure that AI systems are not only effective but also transparent in their operations
Strategies for Improvement:	• Implementing audits and assessments of AI systems to identify biases and ensure fairness

Data Privacy Concerns

Extensive Data Collection:	• AI tools often require significant amounts of personal data for effective functioning.
Risks to Sensitive Student Information:	• Unauthorized access or mishandling can lead to breaches of privacy
Potential Violations and Consequences:	• Breaches can damage trust between students and institutions, leading to reluctance in sharing personal information.

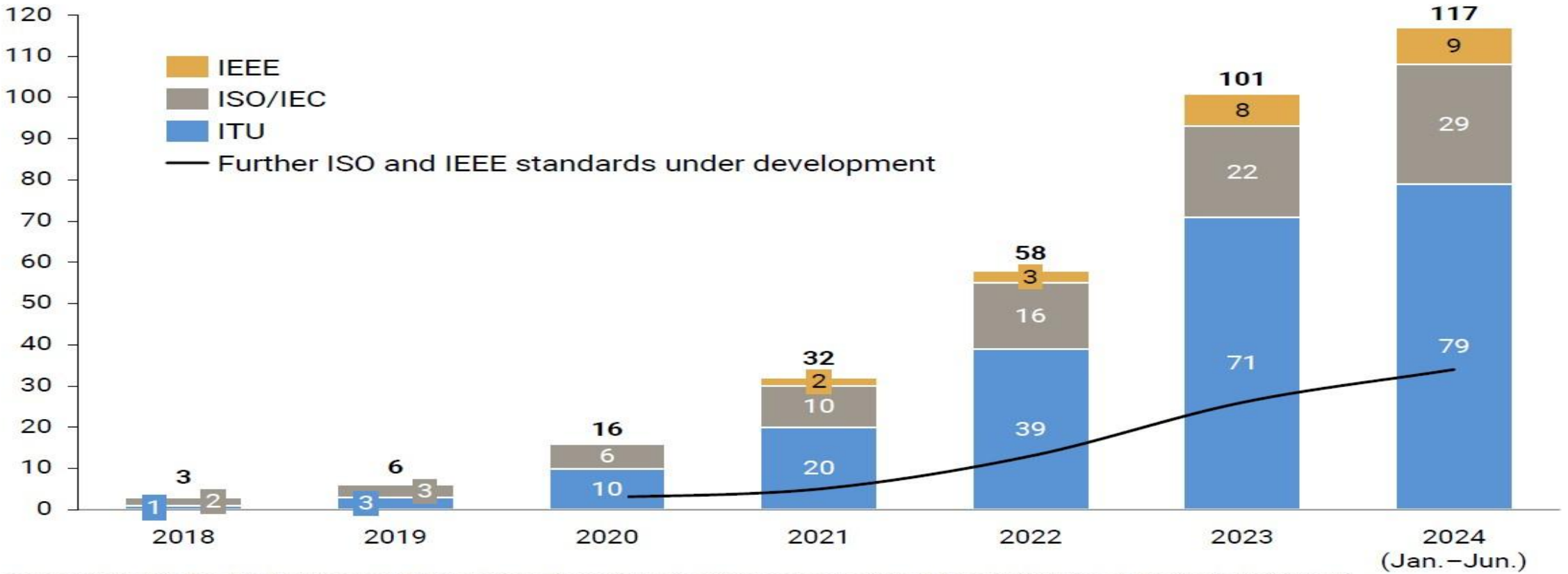


Why should institutions respond to Ethical Responses?

Institutional Responses to Ethical Challenges

What can institutions do?	1. Upskilling Faculty:	2. Stakeholder Consultation:	3. AI-resistant Assessment Rubrics:
• Institutions must develop clear guidelines governing the ethical use of generative AI.	• Training programs on ethical implications of AI use in education. • Workshops on integrating technology responsibly into curricula.	• Regular engagement with faculty, students, and industry experts to stay updated on technology trends. • Creating forums for discussion on ethical dilemmas arising from technology use.	• Designing assessments that encourage original thought and critical engagement while minimizing reliance on AI tools.

Number of Standards related to AI



Sources: IEEE, ISO/IEC, ITU, World Standards Cooperation (based on June 2023 mapping, extended through inclusion of standards related to AI).

Global Regulatory Frameworks

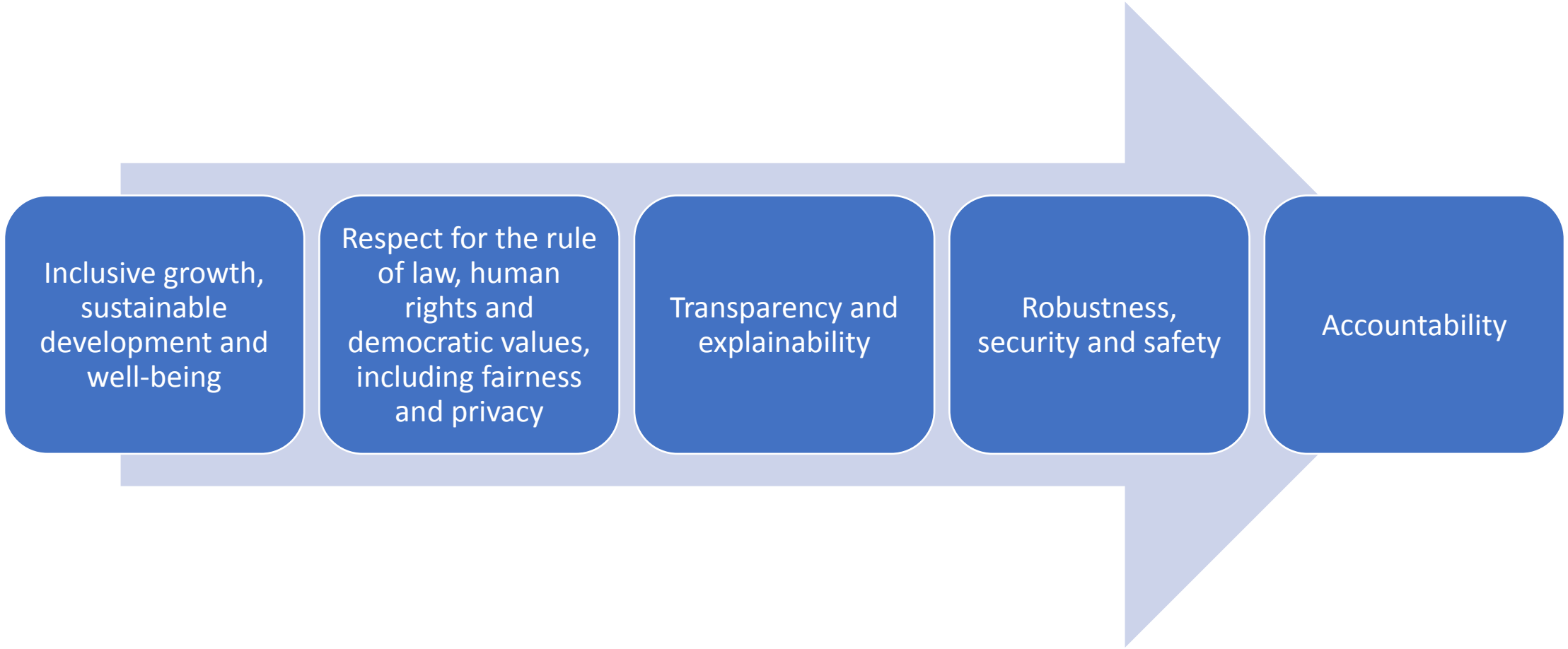
International Organizations Involved:

- European Union, UNESCO, OECD have developed frameworks addressing ethical concerns related to AI in education (Mahrishi et al., 2024).

Policy Frameworks Developed:

- Guidelines for institutions include best practices for ethical technology use.
- Emphasis on transparency, accountability, and inclusivity in policy formulation.

OECD-Recommendation of the Council on Artificial Intelligence



Status of AI- specific legislation

On September 12, 2023, the US Senate held public hearings regarding AI, which laid out potential forthcoming AI regulations.

Possible legislation could include requiring licensing and creating a new federal regulatory agency. Additionally, US lawmakers held closed-door listening sessions with AI developers, technology leaders and civil society groups on September 13, 2023 in a continued push to understand and address AI.

Several Federal Proposed Laws Related to AI

The SAFE Innovation AI Framework, which is a bipartisan set of guidelines for AI developers, companies and policymakers. This is not a law, but rather a set of principles to encourage federal law-making on AI

The REAL Political Advertisements Act, which aims to regulate generative AI in political advertisements

The Stop Spying Bosses Act, which aims to regulate employers surveilling employees with machine learning and AI techniques

Several Federal Proposed Laws Related to AI

The Draft No FAKES Act, which would protect voice and visual likenesses of individuals from unauthorized recreations from Generative AI

The AI Research Innovation and Accountability Act, which calls for greater transparency, accountability and security in AI, while establishing a framework for AI innovation. It would create an enforceable testing and evaluation standard for high-risk AI systems and require companies that use high-risk AI systems to produce transparency reports. It also empowers the National Institute of Standards and Technology to issue sector-specific recommendations to regulate them

State Legislatures

On May 17, 2024, Colorado enacted the first comprehensive US AI legislation, the Colorado AI Act.

The Act creates duties for developers and for those that deploy AI. The Act focuses on automated decision-making systems and defines a covered high-risk AI system as one that "when deployed, makes, or is a substantial factor in making a consequential decision."

There is a specific focus on bias and discrimination, and developer and deployers must use reasonable care to avoid discrimination via AI systems that make, or are a substantial factor in making a consequential decision.

The Act will go into effect in 2026

State Legislatures

The California Consumer Privacy Act, which contains provisions on the use of automated decision-making tools.

Additionally, the California Privacy Protection Agency released draft rules on these provisions governing consumer notice, access and opt-out rights with respect to automated decision-making technology, which the rules define broadly.

The regulations are still being finalized but will likely cover expanded uses of AI.

The draft rules, which are not expected to be formalized until sometime in 2024, would require significant disclosure about businesses' implementation and use of ADMT.

State Legislatures

More than 40 state AI bills were introduced in 2023, with Connecticut[17] and Texas[18] actually adopting statutes.

Both of those enacted statutes establish state working groups to assess state agencies' use of AI systems to ensure they do not result in unlawful discrimination

University of Michigan's UM-GPT

The University of Michigan launched UM-GPT, providing free access to AI tools for students, staff, and faculty.

This initiative promotes equity and accessibility in AI use across the campus community.

They also developed custom chatbots like Maizey to provide tailored support, and a GPT Toolkit to empower educators in developing AI-assisted teaching tools

University of California Berkeley's Responsible AI Working Group

University of California Berkeley's Responsible AI Working Group:
UC Berkeley established a Responsible AI Working Group to advocate for tailored AI solutions that meet specific institutional needs.

This group focuses on leveraging the multi-campus structure of universities for effective and equitable AI implementation while managing costs

University of Delaware's Generative Study Tools

The University of Delaware has focused on developing generative study tools that leverage lecture capture content.

Their approach emphasizes ethical considerations, including obtaining consent, mitigating bias, and prioritizing human well-being in AI implementation

University of Wisconsin-Madison's Trustworthy AI Guidelines

UW-Madison encourages its community to choose AI tools and services that exhibit the NIST's characteristics of trustworthy AI.

This approach aims to protect users and promote responsible AI usage

Purdue University's Flexible Approach

Purdue University continues to support the autonomy and choice of faculty and instructors to utilize instructional technology that best suits their teaching and learning environments.

As such, there is no official university policy restricting or governing the use of Artificial Intelligence, Large Language Models or similar generative technologies.

However, as a result of considerable interest and requests from instructors, Innovative Learning has compiled several resources and suggestions for exploring the effect of these tools on your teaching practice.

Microsoft's AETHER Committee

While not a university, Microsoft's approach is relevant to higher education.

They established the AETHER Committee to evaluate normative questions related to AI, providing a model for how universities might approach ethical considerations in AI


Future With AI

Artificial Intelligence Framework

ECU Framework for the Productive and Ethical Use of Artificial Intelligence

AI Competency Framework for Students

Competency aspects	Progression levels		
	Understand	Apply	Create
• Human-centred mindset	• Human agency	• Human accountability	• Citizenship in the era of AI
• Ethics of AI	• Embodied ethics	• Safe and responsible use	• Ethics by design
• AI techniques and applications	• AI foundations	• Application skills	• Creating AI tools
• AI system design	• Problem scoping	• Architecture design	• Iteration and feedback loops

AI Competency Framework for Teachers

Aspects	Progression		
	Acquire	Deepen	Create
1. Human-centred mindset	Human agency	Human accountability	Social responsibility
2. Ethics of AI	Ethical principles	Safe and responsible use	Co-creating ethical rules
3. AI foundations and applications	Basic AI techniques and applications	Application skills	Creating with AI
4. AI pedagogy	AI-assisted teaching	AI–pedagogy integration	AI-enhanced pedagogical transformation
5. AI for professional development	AI enabling lifelong professional learning	AI to enhance organizational learning	AI to support professional transformation

AI and Education: 7 Seven Principles for AI in Education

Future of Work

2025: Technology requires constant re/upskilling by workers.

2026: Job tasks are partially automated.

2029: New technologies create new types of occupations and industries.

2030: More and more occupations are augmented by AI, helping people work more efficiently and productively.

2033: Major ecological disasters occur.

2035: Economic inequality increases dramatically.

2037: People work alongside robot colleagues. More and more jobs are entirely replaced by technology.

2042: Third world war breaks out.

2044: Surveillance societies become the norm worldwide.

2046: Automation leads to shorter workweeks, increased leisure time, and a renaissance of human craftwork.

2050: Labor markets worldwide are faced with mass unemployment.

2051: Governments introduce universal basic income.

2052: Humanity depends on technology for everything.

2053: Breakthroughs in longevity research drastically extend the lifespan of the technocratic elite.

2063: Technocratic elites start colonizing other planets.

2065: All human qualities are surpassed by intelligent technology.

2074: Human civilization is irreversibly changed by an uncontrollable superintelligence beyond our comprehension (technological singularity).

Source: Nicky Dries, Joost Luycks, and Philip Rogiers

AI and the Future of Skills

Source: Elliott, S. (2021[3]), *"Building an assessment of artificial intelligence capabilities"*, in AI and the Future of Skills, Volume 1 https://doi.org/10.1787/01421d08-en.

References

- AI Watch: Global regulatory tracker. (2024). https://www.whitecase.com/insight-our-thinking/ai-watch-global-regulatory-tracker-united-states
- Berkley CLTC. (2024). https://cltc.berkeley.edu/ai-decision-points/
- Teaching@Purdue. (2024). https://www.purdue.edu/innovativelearning/teaching/module-category/generative-ai/

References

- Libbon, B. (2024). AI Strategies and Considerations in Higher Education. https://learning.uic.edu/news-stories/ai-strategies-and-considerations-in-higher-education/
- UW–Madison Information Technology. (2024). https://it.wisc.edu/statement-on-use-of-generative-ai/