



# How Generative AI Redefines Learning, Work, and Innovation?

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## Gates Compares ChatGPT Impact to that of the Computers & Internet

Gates told Forbes it's "pretty fantastic" to think that AI could be *"a math tutor that's available to inner city students,"* or have *"medical advice that's available to people in Africa who, during their life, may not get to see a doctor."*

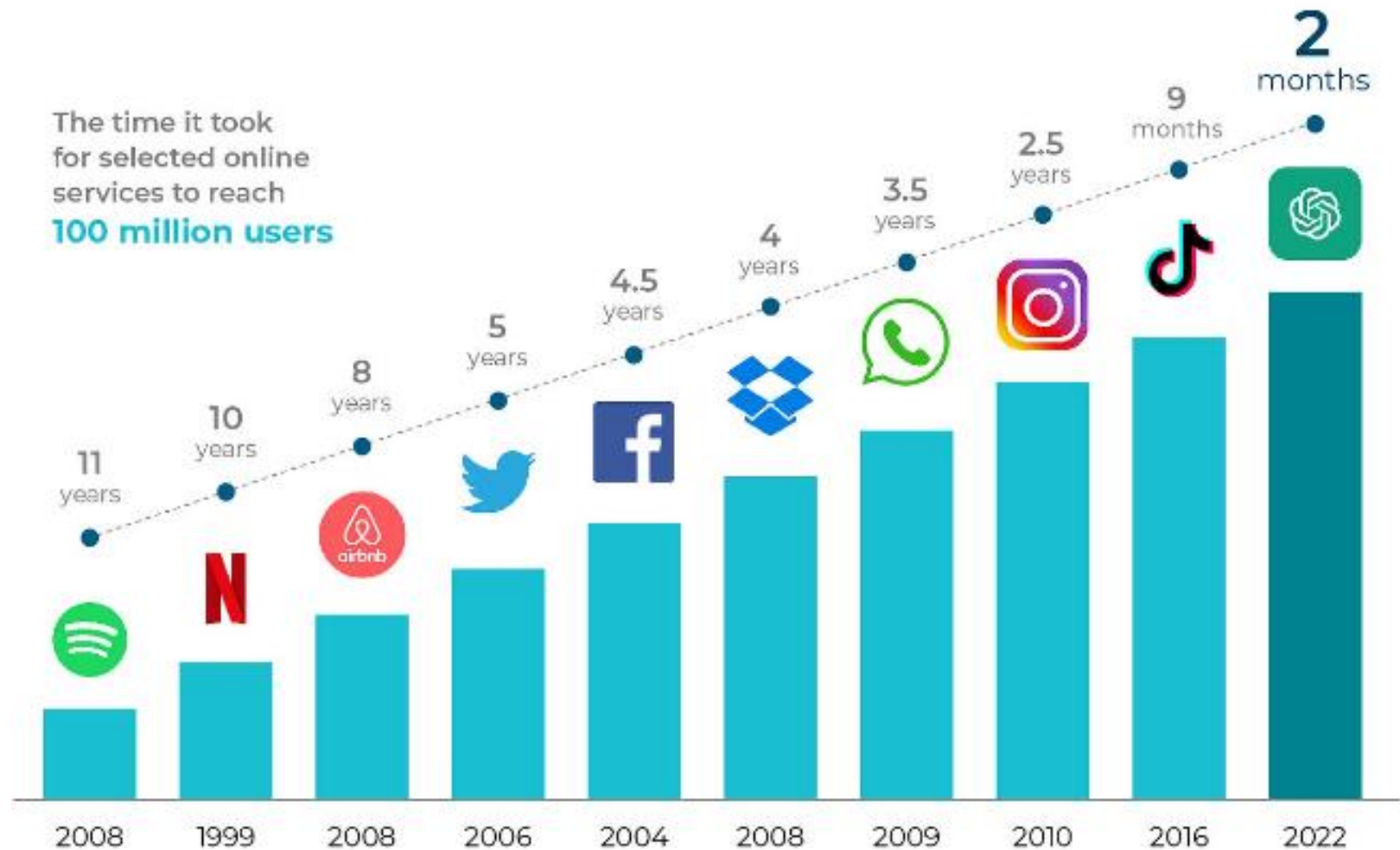
"It is true that some workers will need support and retraining as we make this transition into an AI-powered workplace. That's a role for governments and businesses, and they'll need to manage it well so that workers aren't left behind—to avoid the kind of disruption in people's lives that has happened during the decline of manufacturing jobs in the United States"

Despite being impressed by ChatGPT's poetry, Gates called it *"truly imperfect"* & *"not very intuitive."* He also said he's seen ChatGPT *"be completely wrong"* about math problems. *"AI is going to be debated but it is as holistic as the computer or Internet"*



# Chat-GPT Uptake

## Chat-GPT sprints to 100 million users



Jan 2023 → 1.6 billion!

# Understanding Generative AI & ChatGPT

***Artificial Intelligence (AI), especially Gen AI, is revolutionizing the world***

***Quantum leap in convenience, affordability, personalization and data analytics***

## What is Generative AI?

..... “is like a smart assistant (algorithms) that takes in vast information, recognizes patterns & uses that to create new content (*audio, code, images, text, sims, & videos*) that is useful.” McKinsey

GPT (Generative Pre-trained Transformer) is a type of generative AI developed by **Open AI** and ChatGPT, the best-known version of GPT, uses this technology to converse with users, drawing on patterns it learned during training to produce responses that can seem surprisingly **human**. It is NOT just repeating stored information but generating new content based on its training.

**Competitors: Google’s Gemini, Github’s Co-Pilot, Microsoft’s Bing, Amazon’s CodeWhisper**

**Korean versions: HyperCLOVA (Naver), Samsung's in-house Gen AI, DAP GenAI & A (SK Telecom)**

## Technologies Behind ChatGPT

Built on GPT-4 architecture, ChatGPT leverages advanced *neural networks* -- the brain of the operation, storing an array of information and applying it contextually.

**Power of Generative AI** - Generative AI holds the power to innovate, automate, and facilitate decision-making, thereby transforming various sectors, including the job market.



# The Impact of AI on Society/Industries

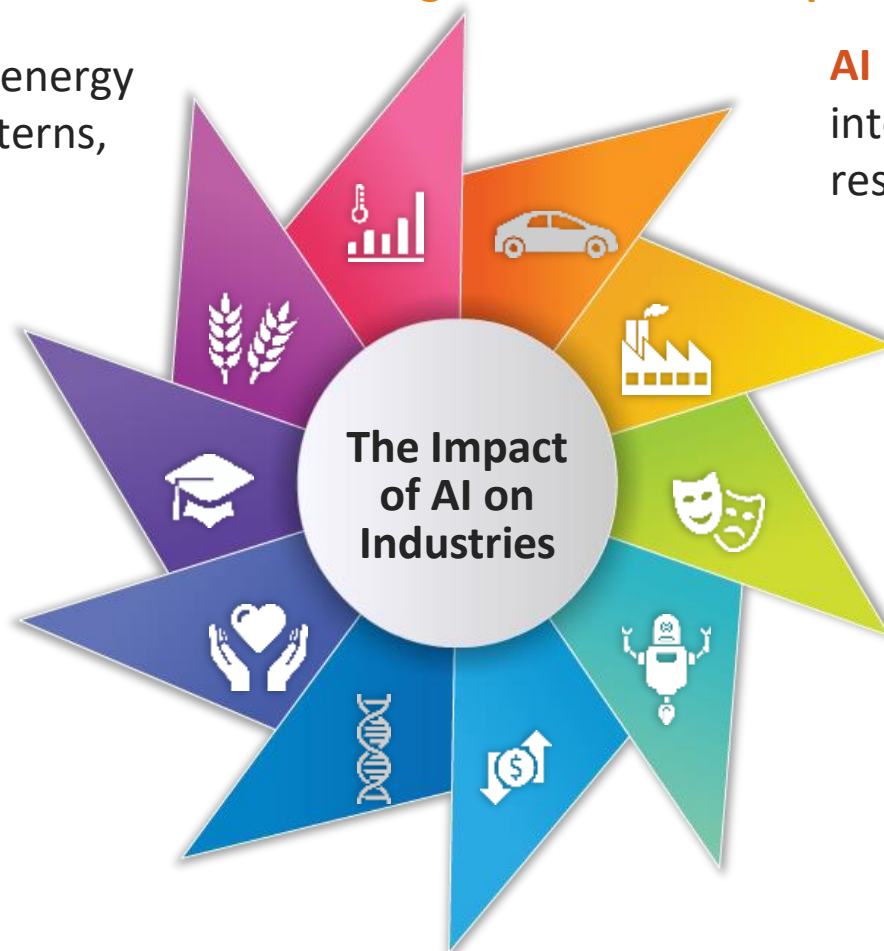
.....enhances efficiency, improves decision-making, & enables development of innovative products/services

**AI in Climate Change** From optimizing energy consumption to predicting climate patterns, AI can contribute to SD & help climate mitigation.

**AI in Agriculture** optimize crop yields, monitor soil conditions, and detect plant diseases.

**AI in Education** has the potential to transform the way we learn and teach.

**AI and Biotechnology** revolutionizing bioinformatics, genomics, & personal medicine.



**AI in Transportation** From self-driving cars to intelligent traffic management systems, AI is reshaping transport.

**AI in Manufacturing** revolutionizing manufacturing processes, increasing productivity, and improving product quality.

**AI in Entertainment** personalized content recommendations, virtual reality experiences, and immersive storytelling.

**AI and robotics** enhance manufacturing & healthcare, improve surgical accuracy, & safely explore hazardous areas.

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In **South Korea**, AI is revolutionizing sectors including **healthcare** for early cancer detection, **manufacturing** with improved automation, **agriculture** through precision farming, **entertainment** with personalized content, and **education** by enhancing learning and administrative efficiency.

# Global Use Cases of ChatGPT: A Vector for Transformation and Innovation

**Public Services and Citizen Engagement** - ChatGPT facilitates communication **between governments and citizens**. For example, **in South Korea**, it is integrated into the 24/7 e-government platform to quickly address citizen inquiries, boost efficiency and accessibility.

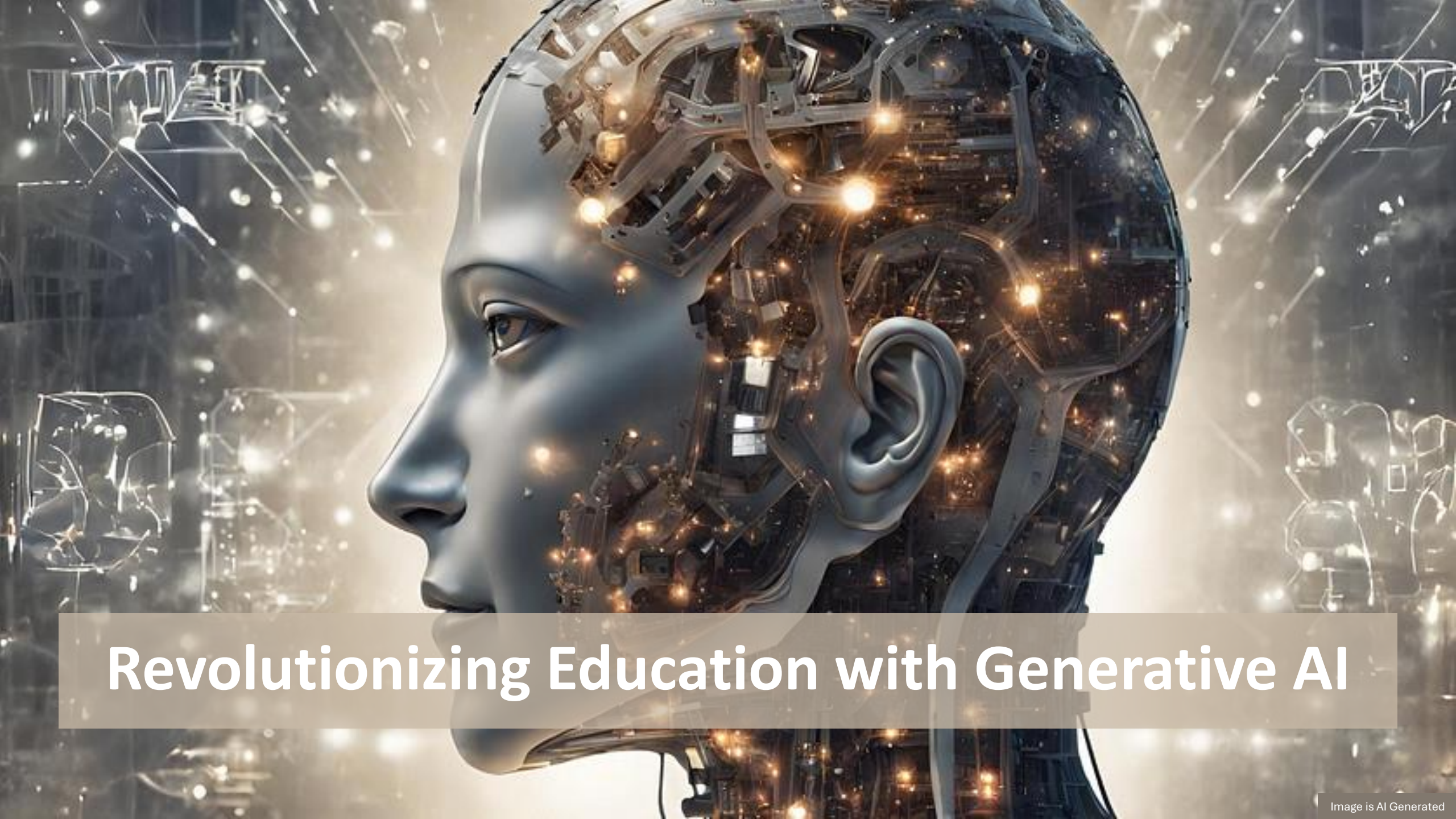
**Health and Awareness** - AI improves real-time diagnostics, drug discovery, preventative advice & patient care. In **Canada and Australia**, it assists healthcare organizations by providing instant health advice and mental health support, thus improving patient care & reducing staff workload.

**Education and Learning** - *Example: South Korean* educational institutions deploy ChatGPT as virtual teaching assistants to support students, especially in language learning, providing personalized tutoring and aiding in language proficiency.

**Agriculture and Resource Management** - Helps farmers with real-time crop management, fertilizer use, and pest control. In the **Netherlands and Israel**, it enhances precision farming, improving yields and sustainability.

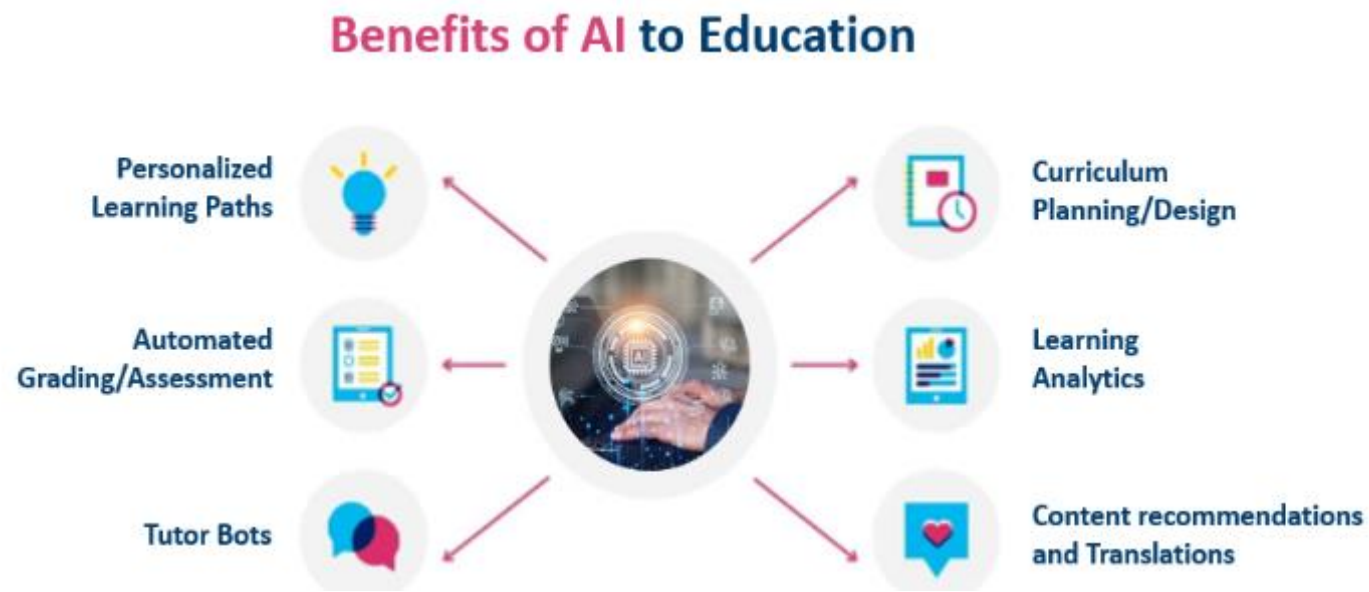
**Financial Innovation** - AI automate repetitive tasks, detect fraud, and make more accurate predictions and offer virtual advice for saving, budgeting, and investing. For instance, in **Singapore and the UK**, it's widely used to assist users with personal finance management.

**Language Preservation and Cultural Diversity** - *Example: Mexico & New Zealand* leverage ChatGPT to support indigenous language preservation projects, helping to digitize and translate historical texts and create educational resources in native languages.



# Revolutionizing Education with Generative AI

# AI in Education: Transforming Learning



**Personalized Learning:** AI tailors content and learning paths for individual needs through adaptive platforms.

**Administrative Automation:** AI handles scheduling, grading, and communications, enhancing operational efficiency.

**Instant Feedback:** AI offers real-time assessments to facilitate quick learning adjustments.

**24/7 Tutoring:** AI tutoring systems provide anytime support, expanding access to personalized help.

**Data Insights:** AI predicts learning outcomes and identifies focus areas, enabling targeted teaching strategies.

**Translation Services:** AI makes educational materials accessible across languages, supporting global learning.

**Recommendations:** AI suggests resources and courses based on student performance, personalizing education.

**Content Management:** AI aids in the creation and curation of relevant, updated educational content.

# The Impact of Generative AI on the Future of Work

## Impact of Generative AI on employment

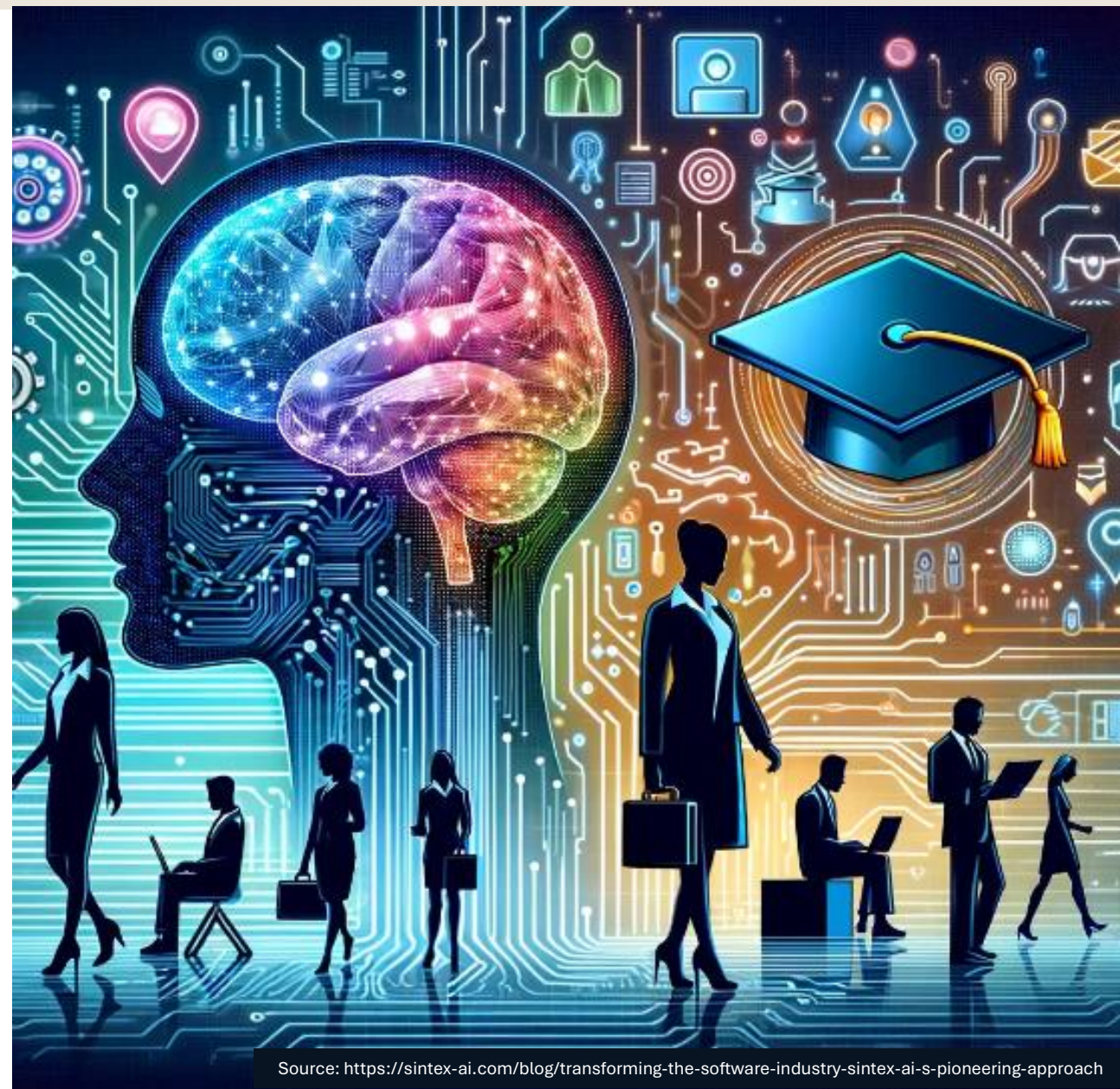
- Can automate routine tasks, potentially leading to job displacement. However, it is also expected to create new jobs that did not exist before in most industries.

## Changing Job Landscape

- **Skill Demand Shift**
  - As Gen AI automates routine/repetitive tasks, there's a demand for complex abilities (problem-solving, creativity, evaluation, judgement & emotional intelligence) that humans are better at.
- **Emergence of New Roles**
  - Gen AI is leading to emergence of new roles. (e.g. AI ethicists, responsible for ensuring ethical use of AI).

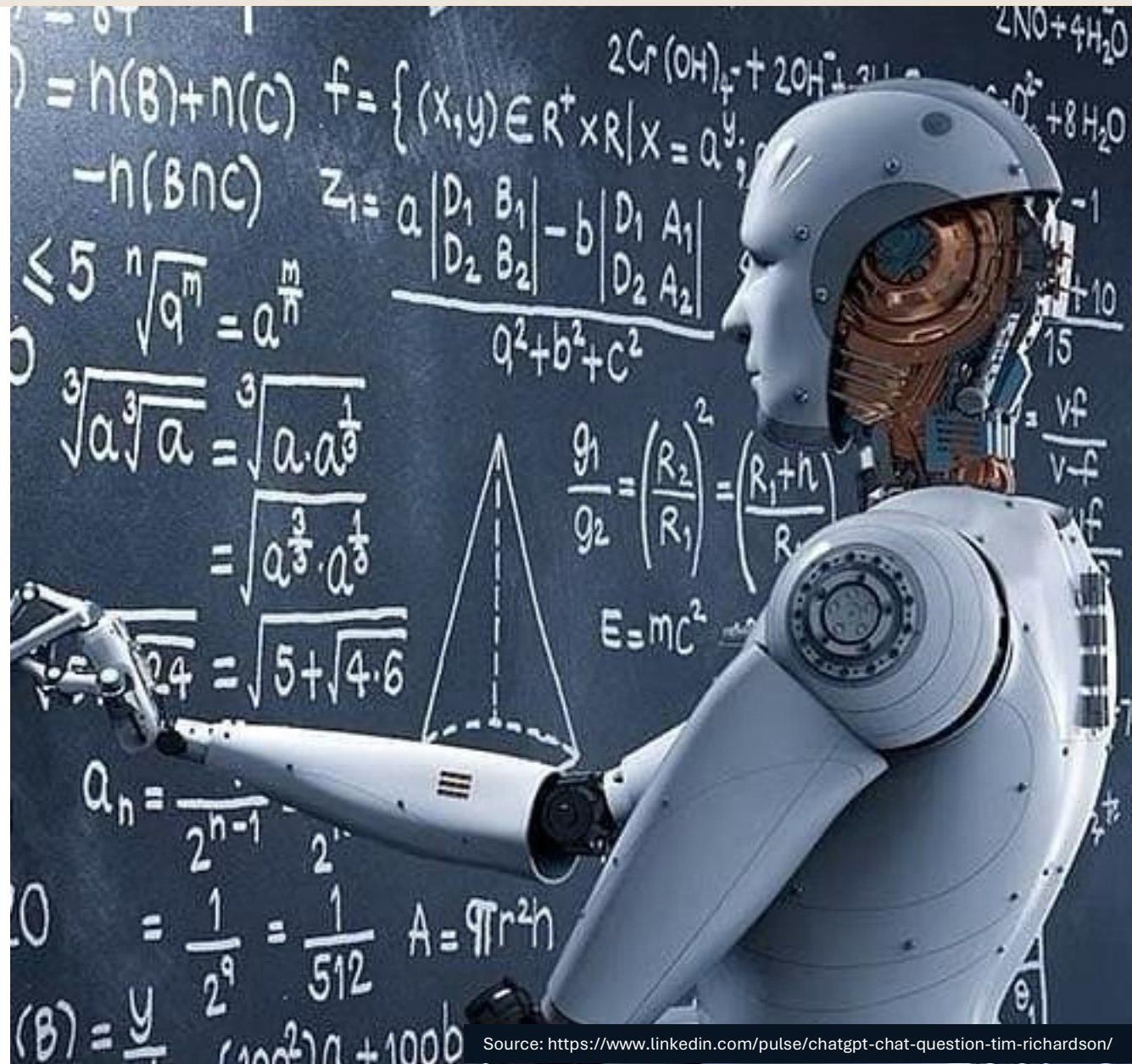
## Prepare for the Future

- Shelf-life of skills is 5. Years (WEF)
- Emphasize Lifelong Learning
- 60-Year Curriculum
- Invest in AI self education and for your teams.



# Unleashing Innovation with Generative AI

- **Productivity Beyond Automation:** Traditional gains come from process automation; generative AI help people think & create more innovatively, going beyond simple task automation.
- **Intellectual Amplification:** Generative AI, can summarize, distill, and compare vast amounts of information, increasing availability of intellectual "*raw material*" for new ideas.
- **Overcoming Technological Limitations:** Generative AI transcends older tech boundaries, enabling a focus on achieving goals, not just what's technically feasible.
- Gen AI promises to be a **catalyst for human creativity**, not a replacement. Helps people use AI-insights to come up with new and better ways of doing things, enhancing human creativity.



# Practical Example of Innovation with Generative AI

**Industry:** Pharmaceutical Research & Development

**Scenario:** Accelerating Drug Discovery

## Before AI:

- **Manual Analysis:** Time-consuming review of chemical compound databases.
- **Slow Hypothesis Generation:** Limited speed in developing new drug hypotheses.

## AI Implementation:

- **Data Processing:** AI sifts through vast databases to pinpoint potential new therapy candidates.
- **Rapid Hypothesis Creation:** AI swiftly formulates potential effective compounds using data-driven insights.

## Outcomes:

- **Innovative Proposals:** AI identifies novel compounds, expanding research beyond traditional limits.
- **Faster Market Entry:** Drug discovery phase cut from years to months.

## Benefits:

- **Cost Efficiency:** Reduces drug development costs by speeding up preliminary stages.
- **Boosted Productivity:** Scientists focus on refining AI-derived hypotheses and crucial experiments.

## Conclusion:

- Generative AI revolutionizes pharmaceutical R&D, boosting innovation and productivity, and significantly hastening the introduction of new treatments.



# Transforming Organizational Structures with Generative AI

**Org Structure:** AI disrupts traditional setups, promoting integrated, cross-functional teams.

**Team Dynamics:** AI enhances collaboration across barriers, focusing roles on outcomes and specialized knowledge.

**Job Roles:** Shift from technical skills to roles needing creative problem-solving, like in cybersecurity.

**Skill Diversification:** AI addresses routine problems, leaving humans to focus on identifying new challenges and solutions.

**Structure Innovation:** Encourages flatter structures and diverse skill collaborations, reinventing collaboration incentives

**Example:** Multinational corporation integrates AI assistant to coordinate data & tasks across marketing, sales, and customer service. This integration allows company to streamline operations & reduce redundancies, prompting a reevaluation of its hierarchical, department-focused structure into a more interconnected and fluid configuration.

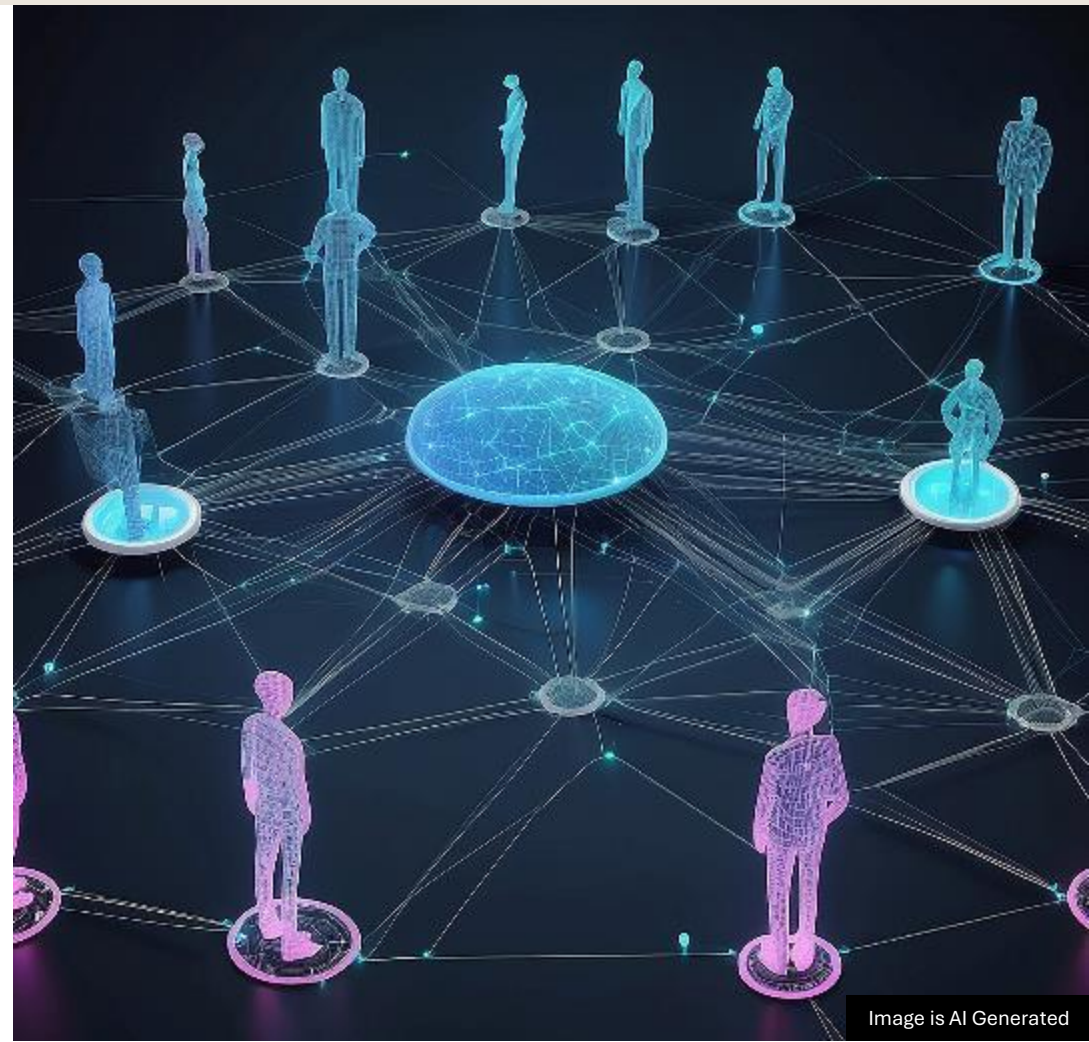


Image is AI Generated

## From Innovation to Impact: Enhancing Strategic Decision-Making with Generative AI

Generative AI not only propels organizations towards innovative thinking but also crystallizes this into impactful decision-making, ensuring strategic actions are data-driven, consistent, and aligned with core business goals.

# Role of Humans in an AI World



## Human-Machine Collaboration

- Future will not be about machines replacing humans but rather about collaboration

## Unique role of Humans

- **Design & Development:** create, program, & fine-tune AI systems to meet specific needs.
- **Complementing AI:** Human creativity & innovation drive new discoveries/ applications. Creative problem-solving, out of the box thinking
- **Critical Decision-Making:** In complex situations, human judgment is crucial
- **Ethical Oversight:** People ensure AI's ethical use, address biases and & moral stewardship
- **Emotional Intelligence & Empathy:** uniquely human skills foster understanding, collaboration, and leadership that AI cannot replicate.
- **Interdisciplinary Collaboration:** Cross sectoral expertise helps integrate AI into broader societal context.

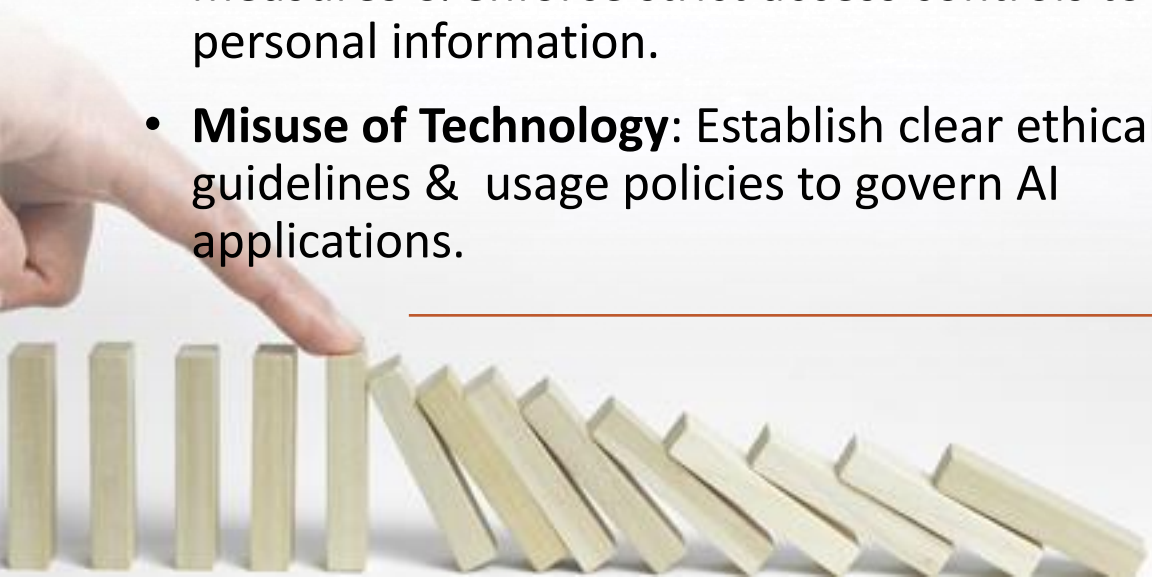
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Humans must adapt and **learn continuously** to work alongside evolving AI technologies

In an automated world, preserving human values such as empathy, creativity, and ethical judgment will be more important than ever. Most organizations are investing in training on **Power Skills**.

# AI: Risks and Mitigation

- **Hallucinations:** Generative AI can sometimes produce "*hallucinations*" or false outputs based on its training data, leading to potentially significant business risks. Incorporate human oversight to fact-check & validate of AI-generated content.
- **Bias in AI Outputs:** Mitigate by diversifying training data & implementing regular audits to identify & correct biases.
- **Privacy Concerns:** Strengthen data protection measures & enforce strict access controls to secure personal information.
- **Misuse of Technology:** Establish clear ethical guidelines & usage policies to govern AI applications.
- **Dependence on AI:** Promote digital literacy to understand AI's limitations & encourage critical thinking alongside technology use.
- **Job Displacement:** Support workforce re-skilling & education programs to prepare for evolving job requirements.
- **Security Vulnerabilities:** Implement robust cybersecurity protocols to protect AI systems from hacking and misuse.
- **Lack of Transparency:** Advocate for explainable AI to increase understanding of how AI decisions are made.



- **Ethical Implications of AI**
- **Role of Regulations in AI**

# The Future of AI: A Balanced View

- Generative AI is not just a passing trend; it's the future of work and industries.
- Embrace Change with **Prudence**
- Our perspective on AI should be grounded NOT in fear, but in understanding & managing its impact; harnessing potentials while being aware of challenges.
- View AI as a collaborator rather than a competitor is key to leveraging its benefits.
- Synergy between human ingenuity and AI capabilities can lead to remarkable advancements.



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**Conclusion:** AI is a powerful tool with potentials to transform our world positively. Fear should not dominate our perspective. Instead, we should pivot to educating ourselves, adapting to changes, and shaping AI development *responsibly*.

## How to Get Started?

- **Start now:** Early adopters of generative AI will have the advantage of better data management and building the skills necessary for successful use of the technology.
- **Learn as much as you can:** Enroll in introductory AI courses focusing on fundamentals and ChatGPT's capabilities. Explore ChatGPT through practical exercises and online platforms offering AI tools
- **Internal Projects:** Collaborate on AI projects within your organization, applying new skills to real-world challenges.
- **Choose your models and understand costs:** Select AI models based on task suitability and risk profile: Identify the models that best align with your organization's goals to optimize value and minimize risks.
- **Prioritize traceability:** Know the quality and risks of data used for training AI models to manage potential internal external exposures.
- **Continuous Learning:** Keep updated with the latest AI advancements and ChatGPT updates to enhance skills over time.



# Questions & Answers

