Future of Generative AI: Opportunities and Ethical Concerns

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Abstract- With applications in business, healthcare, education, science, and the creative industries, generative artificial intelligence (AI) has become a game changing technology. It is fostering innovation and increasing productivity by facilitating multimodal outputs like text, images, and code, but it is also bringing up important social and ethical issues. This study examines the dual trajectory of generative AI: its potential for drug discovery, economic growth, personalized learning, and creative workflows, as well as its risks for bias, disinformation, intellectual property disputes, environmental costs, and governance gaps. The study highlights the necessity of proactive safeguards through technical protections, ethical playbooks, and regulatory frameworks, drawing on recent developments and international policy responses. To overcome these obstacles, we put forth the Ethical Generative AI Governance Framework (EGAI-GF), which incorporates sustainability, equity, and transparency throughout the AI lifecycle. The study comes to the conclusion that in order to guarantee that generative AI maximizes human potential while respecting societal values, interdisciplinary cooperation and responsible innovation are crucial.

Keywords: Multimodal Models, Governance, AI Safety, Ethical AI, and Generative AI

I. INTRODUCTION

Generative Artificial Intelligence (AI) including large language models (LLMs) and multimodal systems has moved from classification and prediction to generating novel and contextually relevant text, images, code and other media. This has opened up new possibilities across healthcare, education, creative industries and scientific research. But alongside these advancements, concerns around system reliability, environmental impact and governance are becoming more pressing (Artificial Intelligence Act, 2025; Wikipedia Contributors, 2025).

One of the biggest challenges is *hallucinations* outputs that look credible but are factually incorrect. Recent research has introduced standardized taxonomies and metrics to measure these hallucinations (Li et al., 2025) and over 30 mitigation strategies for LLM-generated errors (Huang et al., 2024). In scientific contexts these errors can become "corrosive hallucinations" that undermine research integrity which has led to calls for workflow based mitigation strategies (Liu et al., 2025).

The environmental footprint of generative AI is another big area of concern. Training and deploying large scale models requires a lot of energy and water. For example Mistral's *Large-2* model lifecycle generated 20.4 kt CO_2e and 281,000 m^3 of water with measurable per-prompt impact (Mistral AI, 2025). Broader analysis shows that models like GPT-3 emitted over 500 metric tons of CO_2 during training (Wikipedia Contributors, 2025). And the emissions of a single AI prompt can vary up to 50x depending on complexity so we need to be aware of sustainable usage practices (Roth, 2025; Teen Vogue Editorial Board, 2024).

Rules are being put in place to address these risks. The European Union's Artificial Intelligence Act (AI Act) came into force on 1 August 2024, the first ever legal framework for AI (Artificial Intelligence Act, 2025). The Act has a risk based classification system for AI systems including specific rules for general purpose AI (GPAI). Key compliance dates are February 2025 when prohibitions and AI literacy start and August 2 2025 when GPAI governance, transparency and risk assessment kicks in (Digital Strategy, 2024; European AI Act Implementation Timeline, 2024; Reuters, 2025; AP News, 2025). These frameworks along with voluntary Codes of Practice will ensure ethical deployment and public trust.

Innovation and ethical stewardship will require collaboration between technologists, policymakers and civil society. At the heart of this balance are commitments to reliability, sustainability and enforceable governance so that generative AI benefits society not risks (Artificial Intelligence Act, 2025; Liu et al., 2025).

II REVIEW OF RELATED WORKS

The rapid evolution of Generative Artificial Intelligence has provoked wide-ranging scholarly discussions, especially considering its potential applications and societal consequences. One of the most comprehensive synthesizing works comes from Patil, Kodgule, Thool, and Pawar in 2025, where they discuss the most pertinent ethical concerns in the outline of privacy concerns, algorithmic and exponent bias, misinformation proliferation, intellectual property issues, and environmental sustainability. They suggest wide-reaching transparency in design, rigorous data stewardship, regular audits, and watermarking as protective measures. The U.S. National Institute of Standards and Technology (2024) also has its Generative AI Profile which outlines publicly-funded predisposed frameworks detailing vulnerabilities like hallucinations, model inversion attacks, and copyright misuse. Its lifecycle-based risk management checklist is meant to serve practitioners as a technical and policy resource.

In the outline of Shneiderman, d'Angelo, and Jiang (2024) they argue for proactive risk management spanning the AI lifecycle beginning with data sourcing and extending to post-deployment monitoring. Their approach is human-centered, focusing on continuous evaluation, human oversight, and interface design that minimizes malicious engagement. The potential hazards and advancements which come with the usage of generative AI are analyzed by Bubeck, Liang, and Recht (2025), and they particularly focus on its revolutionary applications in scientific breakthroughs through hypothesis generation, literature review and simulation, alongside its perils of potential reproducibility crises, bias fixation, and the decline of academic credit systems.

Addressing the healthcare sector, de Vere Hunt, Jin and Linos (2025), put forth a contextual framework to evaluate the applications of GenAI, underscoring precision, fairness, and scope. They pointed out the technology's promise in alleviating administrative burdens and diagnostics burdens, but argued that bias, privacy breaches, and inaccuracies pose significant risks. From this angle, focusing on the technical infrastructure, Khare and Mangu (2025) study the migration of GenAI computations to the edge, which improves latency, privacy, cost, and efficiency, but also worsens misuse decentralization, energy, and oversight.

Approaches to global governance have been outlined by the OECD (2023) which talks about foundational accountability policies like transparency, content provenance, and cross-border collaboration. The European Commission (2025) continues the dialogue in the AI Act with its provisions to general-purpose AI, requiring technical documentation, copyright protections, and risk management procedures to be streamlined for more efficient and effective processes. Sentiment in these policies shows the figurative and literal shift in generative AI technology to policy frameworks which need interdependent legal and ethical mechanisms. A quantitative perspective, the AI Index Steering Committee (2025) tracks global adoption, investment, performance benchmarks, generative AI's economic contribution, its misuse, and safety incidents. The World Economic Forum (2024) supports the need for a multistakeholder governance framework and puts forward methods for classification and reporting for risks and incidents.

Recent literature has expanded and deepened the knowledge base with contextual and dimensional thematic reviews, adding to the multi-faceted framework of GenAI's ethics. A hybrid systematic review by Arar, Polat, & Özen (2025) focuses on interrelated processes of research integrity, academic authorship, and literature review through the lens of GenAI. Central concerns are policy gaps, plagiarism, AI-induced bias, and scholarly rigor decline, prompting the need for integrated ethics frameworks at the institutional level.

As noted by Qadhi, Alduais, Chaaban, and Khraisheh, (2024). recent developments in generative AI have highlighted the need for more comprehensive transparency, fairness, and responsibility in its academic discourse, as well as its ethical consideration in academia's responsable integration

Weisz, He, Muller, and others (2024) summarize six principles of user experience concerning generative AI based on their interactions with practitioners. These principles of user transparency, user controllability, and goal alignment with user need provide a simple but effective roadmap for designing ethical applications. In the education field, Deng and Joshi (2024) focus on regulations and ethical frameworks involving data privacy, assessment and grade validity, and equal access for AI in classroom settings. The scoping review from Minds and Machines (2024) expands this conversation with ethical dimensions regarding security risks (prompt injection, jailbreaking), over-personalization, and the need for active AI literacy campaigns.

Hofman (2024) rounds out the conversation by bringing in philosophy adding six ethical theories like virtue ethics, deontology, and utilitarianism on the use of GenAI in creative industries, thus providing a rationale for responsible innovation. The overriding organizational governance issues are tackled by Gandhi, Joshi, Hartman, and Hassani (2025) with their ResAI guide proposing risk-based governance, audit accountability with ongoing performance assessment, and intersectoral collaboration for ethical compliance in enterprise-wide AI systems' deployment.

A Frontiers in Artificial Intelligence review (2025) examines the integration of GenAI in health sciences education, outlining the clinical safety risks of AI-assisted training as well as the pedagogical opportunities. Using a multicultural lens, Yusuf, Pervin, and Román-González (2024) show how adoption strategies are impacted by the wide variations in how generative AI's advantages and risks are perceived in different institutional and cultural contexts. Lastly, Farangi, Nejadghanbar, and Hu (2024) investigate the affective and experiential aspects of researchers using GenAI, demonstrating how zeal, apprehension, and ethical discomfort interact to influence usage trends and policy sentiments.

When considered collectively, this collection of work shows that generative AI has a bright future but also a lot of obstacles to overcome. Opportunities include innovation in healthcare, education reform, scientific research, and creative production. However, proactive mitigation is required for ethical issues such as bias, disinformation, intellectual property disputes, privacy risks, and governance gaps. Scholars and organizations from a variety of technical, policy, cultural, and philosophical backgrounds are coming to the same conclusion: integrating ethical safeguards at all levels from model architecture and deployment environments to user education and international policy frameworks is essential to the responsible future of generative AI.

III OPPORTUNITIES IN GENERATIVE AI

1. Business and Economic Impact

Generative AI's quick adoption shows how it has evolved from a test technology to a vital enterprise tool. With a compound annual growth rate of more than 50%, enterprise AI spending jumped from about \$2.3 billion in 2023 to \$13.8 billion in 2024 (Menlo Ventures, 2024). 71% of businesses currently employ generative AI in at least one business function, with marketing, product development, and customer operations seeing the most use, according to McKinsey's State of AI report (McKinsey & Company, 2024).

Gartner (2023) forecasts that by the end of 2024, 40% of enterprise applications will embed conversational AI capabilities, and by 2025, 30% will adopt AI-augmented development strategies. Economic projections from McKinsey suggest that generative AI could contribute between \$2.6 trillion and \$4.4 trillion annually to the global economy, with significant productivity gains in sectors such as software engineering, research and development, and supply chain optimization (Chui et al., 2023).

According to Gartner (2023), 30% of enterprise applications will use AI-augmented development techniques by 2025, and 40% of enterprise applications will incorporate conversational AI capabilities by the end of 2024. According to McKinsey's economic projections, generative AI has the potential to boost the global economy by between \$2.6 trillion and \$4.4 trillion a year, with notable productivity gains in industries like supply chain optimization, software engineering, and research and development (Chui et al., 2023).

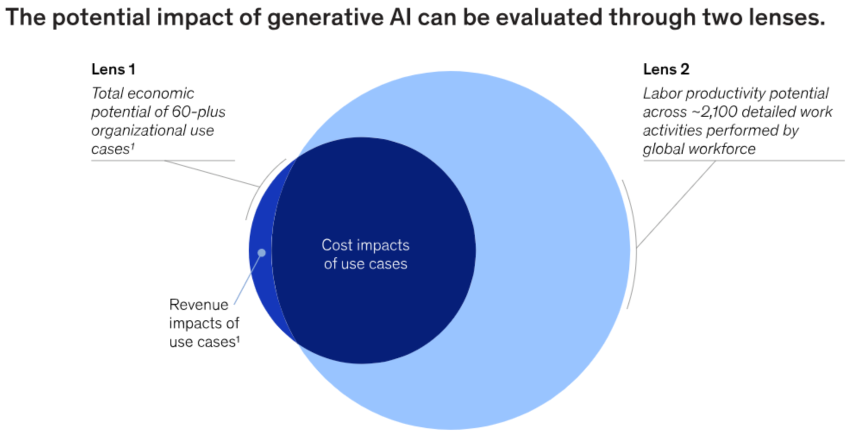

Figure 1.0 use case of generative Ai n business (McKinsey & Company, 2023)

Use Cases of Generative AI in Business & Economic Impact

- Finance & Banking: Facilitates quicker and more precise financial oversight by automating risk analysis and reporting.
- Retail: Creates product descriptions and predicts demand, promoting customization, cutting waste, and increasing sales.
- Healthcare & Pharma: Develops novel drug compounds and expedites clinical documentation, which speeds up research and development and lowers expenses.
- Technology: It speeds up development cycles and increases productivity by automating code writing and debugging.
- Marketing & Media: Increases engagement and reduces campaign expenses by producing content and ad creatives at scale.

2. Creative Industries and Work Evolution

AI is changing workflows in creative industries by automating monotonous tasks so that professionals can concentrate on more valuable work. AI will shorten development timelines and move talent toward more creative and lucrative roles in the gaming industry, according to Strauss Zelnick, CEO of Take-Two Interactive (Business Insider, 2023). In the film and advertising industries, generative AI tools have also been used to speed up storyboarding, visual effects production, and scriptwriting. This has resulted in hybrid creative pipelines where human oversight guarantees uniqueness and brand alignment (Adobe, 2024).

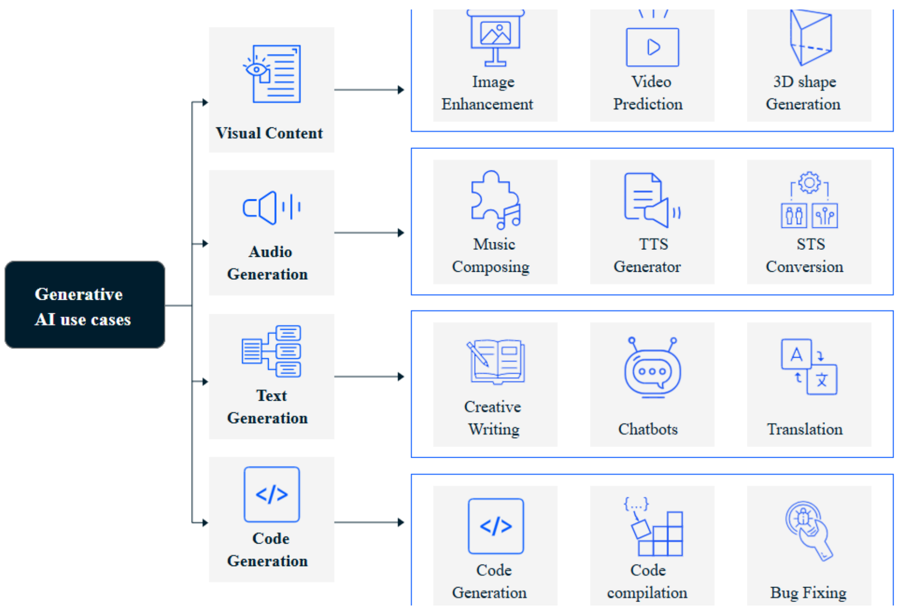

Figure 2.0 image of Creative Industries and Work Evolution. (LeewayHertz)

Example use cases include:
The creation and consumption of creative content are changing as a result of generative AI:
• Fashion Design: AI helps designers experiment more quickly and produce customized fashion collections by producing new clothing styles, patterns, and color combinations.
• Music and Film: While filmmakers use generative AI for storyboarding, scriptwriting, and visual effects, composers use it to produce background scores, sound effects, and even entire tracks.
• Visual Arts & Media: To increase creative possibilities, artists collaborate to produce paintings, digital illustrations, and advertising visuals using AI tools.
• Animation & Gaming: Generative AI creates game dialogues, characters, and environments while cutting production costs and time.
Additionally, generative AI is changing the nature of work in the future:
• Decision Support: Before making business decisions, managers can examine various outcomes with the aid of AI-powered simulations and scenario generation.
• Productivity Enhancement: Employees can focus on more strategic roles by automating repetitive tasks like content drafting, meeting summaries, and report writing.
• Personalized Training: Enhances skill development by developing simulations and adaptive learning materials based on the needs of each employee.
• Collaboration & Innovation: Helps groups generate concepts, develop prototypes, and quicken innovation cycles.
• Job Transformation: New opportunities arise in AI management, prompt engineering, creative AI design, and ethical oversight, even though some repetitive roles may disappear.

3. Innovation in Science and Medicine

AI's ability to explore enormous chemical and biological design spaces is revolutionizing the field of generative healthcare innovation. Insilico Medicine's generative chemistry platform, GENTRL, demonstrated accelerated lead discovery by finding novel drug-like compounds in 21 days as opposed to years in conventional pipelines (Zhavoronkov et al., 2019). The time it takes to move from hypothesis to candidate molecule has been significantly shortened by the use of similar techniques in protein folding (AlphaFold) and vaccine development (Senior et al., 2020).

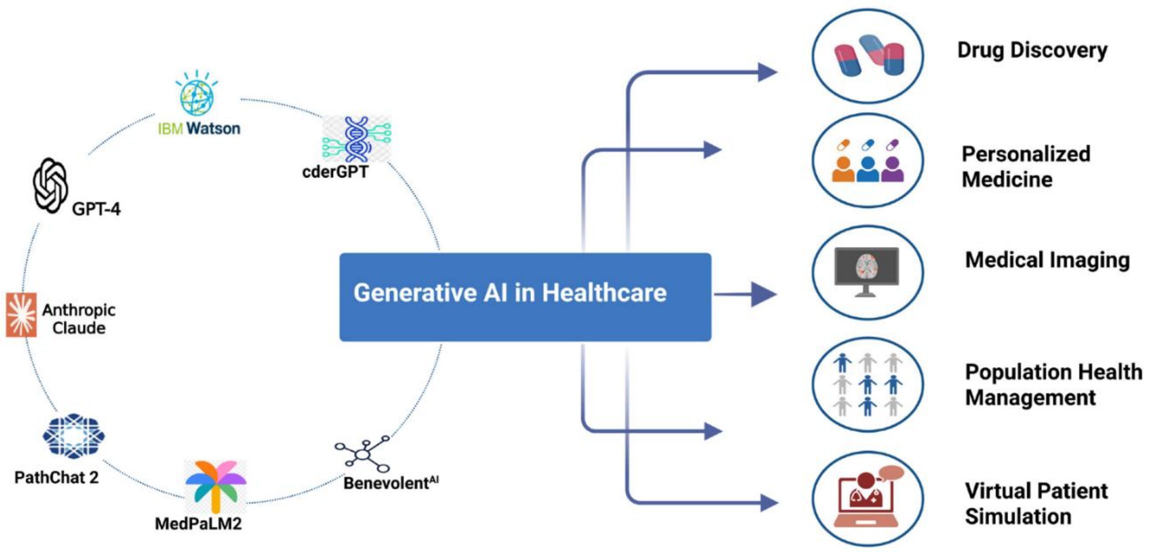

Figure 3.0
Use cases of generative AI in science and medicine . (Masud 2023).

Applications of Generative AI in Science and Medicine

- Drug discovery: creating novel compounds and forecasting how they will interact with one another.
- Medical Imaging: Improving early disease detection and MRI, CT, and X-ray scans.
- Personalized Medicine: Modeling the reactions of individual patients to treatment
- Biomedical Research: Accelerating vaccine development and modeling protein folding.

- Medical Education & Patient Care: Producing case studies, synthetic data, and streamlining medical explanations

4. Academics and Education
By developing adaptive lesson plans, language tutoring resources, and automated assessment feedback, generative AI in education makes it possible for students to have highly customized learning experiences. GPT-4 is integrated into systems such as Khanmigo, which act as an AI tutor for students and a planning aid for educators (Khan Academy, 2023). However, because these tools can produce essays, problem sets, and research summaries that are identical to student work, they also present risks to academic integrity (Cotton et al., 2023).

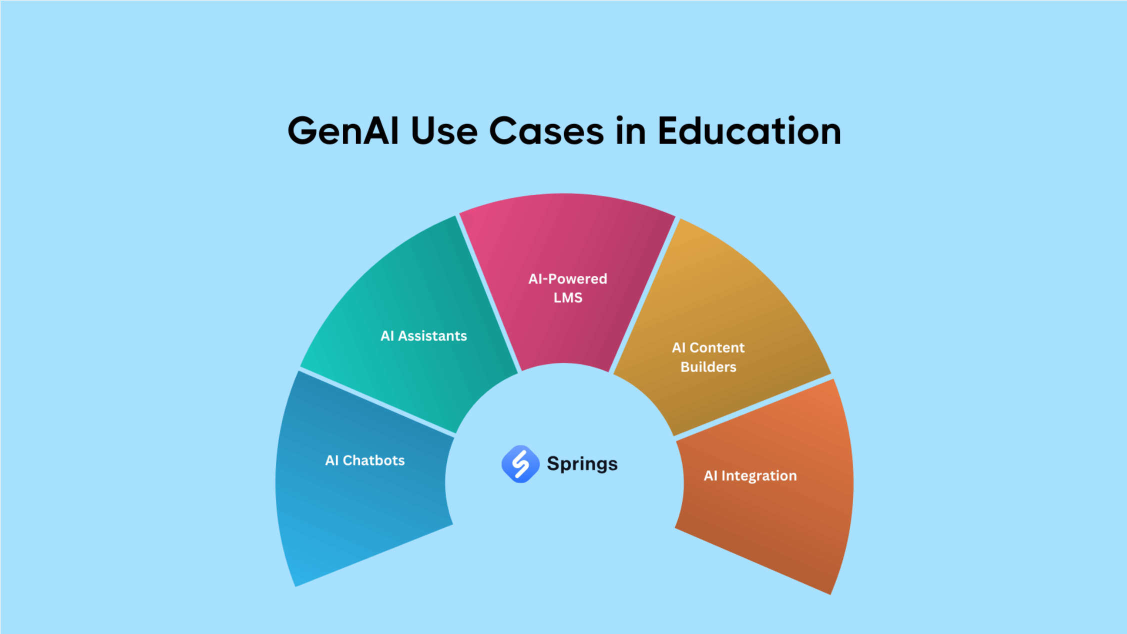

Figure 4.0
Use cases of generative AI in education. (Uspenskyi 2025).

Applications of Generative Artificial Intelligence in Education

- Adaptive tests, notes, and explanations are made for each student's level through personalized learning.
- Content Creation: Assists educators in creating lesson plans, PowerPoint presentations, and simulations.
- Research Assistance: Produces drafts, summarizes articles, and aids in the development of ideas.
- Accessibility & Tutoring: Offers AI-powered tutoring, speech-to-text, and translation services to a range of learners.

5. Multimodal and Effective Models
Generic AI is becoming more applicable in the fields of finance, healthcare, and logistics thanks to developments in model architectures like Retrieval-Augmented Generation (RAG), multimodal systems (like GPT-4V and Gemini), and domain-specific fine-tuning. Pruning, quantization, and edge model optimization are effective AI deployment techniques that are allowing on-device generative AI for mobile and Internet of Things applications without depending on cloud inference (Upadhyay & Jain, 2023).

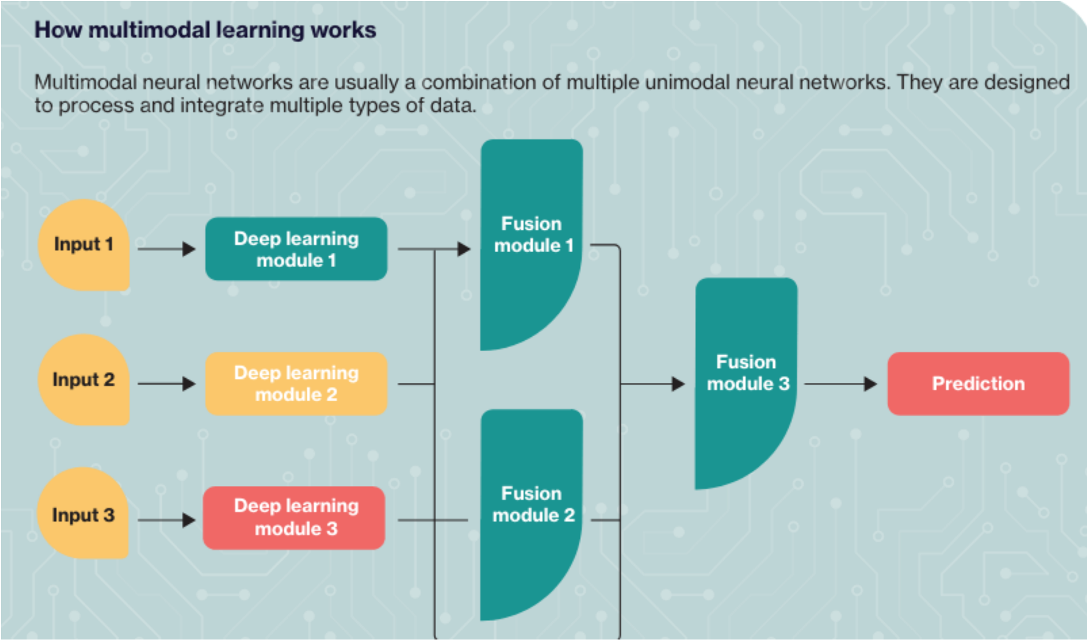

Figure 5.0
Multimodal generative AI fusion architecture (Neurons-Lab, n.d.)

The following are some examples of use cases:

- Healthcare diagnostics: integrating patient data with medical imaging (MRI, X-ray) to provide quicker, more precise diagnoses.
- Education & Training: Developing interactive lessons that combine spoken feedback, visual diagrams, and text explanations.
- Content creation is the process of turning a single text prompt into rich multimedia content, such as voiceovers, images, and videos
- Multimodal AI chatbots for customer service that can comprehend text, voice, and visual inquiries to improve user experience.
- Autonomous Systems: Enhancing navigation and decision-making through the use of multimodal inputs (radar, camera, and text instructions).

Table 1
Key Opportunities and Use Cases of Generative AI Across Sectors

Area	Key Use Cases / Examples
Creative Industries & Work Evolution	Fashion design prototyping, AI-generated music, virtual art, creative content for advertising.
Innovation in Science & Medicine	Drug discovery, protein structure prediction, synthetic data for research, personalized treatment simulations.
Academics & Education	Automated grading, personalized learning content, intelligent tutoring systems, curriculum design support.
Multimodal & Effective Models	AI combining text, images, audio & video → improved chatbots, immersive AR/VR learning, better accessibility tools.
Business & Economic Impact	Retail (product descriptions, demand forecasts), Finance (fraud detection, reports), Healthcare (clinical documentation), Marketing (AI-generated ads), Manufacturing (design automation).

IV. ETHICAL CONCERNS IN GENERATIVE AI

The moral, societal, and legal issues that emerge from the development, application, and use of generative AI are referred to as ethical concerns. These issues are brought on by the technology's capacity to create convincing and realistic text, images, audio, and video content on its own. This content has the power to affect people, groups, and entire societies. Fairness, accountability, transparency, privacy, intellectual property rights, and harm prevention are frequently at the center of them (Jobin, Ienca, & Vayena, 2019; Floridi & Cowls, 2019).

1. Social Impact, Fairness, and Bias

Algorithmic bias, hallucinations (fabricated outputs), the creation of harmful content, and environmental costs associated with large-scale model training, including high energy consumption and rare metal extraction, are among the prevalent risks highlighted by AI ethics taxonomies (Bender et al., 2021). If generative AI isn't trained on inclusive, locally relevant datasets, there are worries that it might perpetuate racism and sexism in Australia (Hutcheon, 2023).

2. Authorship and Copyright

The Generative AI Copyright Disclosure Act (U.S., 2024) aims to address intellectual property use transparency by proposing the public disclosure of copyrighted materials used in model training (U.S. Congress, 2024). When AI-generated works are produced after training on human-generated content, researchers caution that authorship and ownership boundaries may become hazy (Caria & Gervasi, 2023).

3. Subliminal and Manipulation Risks

Research warns of "AI-to-AI" covert influence, in which a "teacher" model circumvents safety filters to subtly introduce biases into a "student" model through encoded signals (Vincent, 2023). There are calls for design-focused safeguards because large-scale deployment also increases the possibility of mass generation of manipulative or propagandistic content (Weidinger et al., 2022).

4. Transparency, Safety, and Regulatory Governance

Researchers in safety suggest tactics like the "deep ignorance" approach, in which AI systems purposefully avoid learning about potentially dangerous capabilities while retaining their overall usefulness (Metz, 2023).

Regarding governance, frameworks such as the G7 Hiroshima AI Process advocate for strict red-teaming prior to public release, risk-based oversight, and transparency requirements (G7, 2023).

5. Ethical Playbooks for Practitioners

“To help developers design and implement responsibly, the Generative AI Ethics Playbook (OpenAI & Partnership on AI, 2024) provides resources such as transparency checklists, real-world case studies, and harm mitigation techniques.

6. Use Case: Manipulation of Deepfake Elections

Artificial intelligence (AI) produced deepfake videos of political figures that showed phony speeches and endorsements went viral on social media during India's general elections in 2024 (BBC News, 2024). This actual case highlights several moral issues:

• Bias & Harm: Videos unfairly influenced public opinion by targeting particular political groups.
• Copyright Concerns: Unauthorized use of public figures' images without permission.
• Manipulation: The extensive dissemination of misleading information.
• Transparency Gaps: Nondisclosure of AI involvement.

Table 2: Ethical Concerns in Generative AI and Suggested Mitigation Strategies

Bias & Fairness	Models may reflect and amplify societal prejudices present in training data.	AI image generator depicting doctors mostly as men and nurses as women.	Use diverse, representative datasets; bias audits; fairness-aware training algorithms.
Copyright & Authorship	Use of copyrighted works without permission in training; unclear ownership of AI-generated outputs.	Artists discovering their work used to train AI art models without consent.	Transparent data sourcing; public dataset registries; copyright disclosure laws (e.g., U.S. 2024 Act).
Manipulation & Misinformation	Use of AI to create deceptive or harmful narratives at scale.	Deepfake videos influencing political campaigns.	Content provenance tracking; digital watermarks; fact-checking partnerships.

Subliminal Risks (AI-to-AI Bias Transfer)	Covert bias embedding between AI systems, bypassing human review.	Hidden prompts causing "student" models to repeat biased outputs from "teacher" models.	Independent model audits; cross-model safety tests; anomaly detection tools.
Transparency & Governance Gaps	Lack of clarity in model decision-making processes and oversight mechanisms.	No disclosure that chatbot-generated health advice was from AI.	Risk-based regulation (e.g., G7 Hiroshima AI Process); explainability tools; public transparency reports.
Environmental Impact	High energy consumption and rare metal extraction from training large models.	GPT-3 training estimated at hundreds of MWh of electricity.	Optimize training efficiency; use renewable energy; carbon offset programs.

V. DISCUSSIONS AND PROSPECTS FOR THE FUTURE

The results highlight the need for a comprehensive, multifaceted approach encompassing technology, ethics, governance, and inclusive collaboration in order to fully realize the potential of generative AI while reducing its risks.

Technical Protections:
It will be essential to use advanced safety engineering. Without impairing a model's overall performance, methods like deep ignorance selectively filtering dangerous data can stop the spread of harmful content (Zhou et al., 2024). Additional tools that can help guarantee accountability and traceability in AI-generated outputs include independent AI auditing, automated domain-specific filtering, and digital watermarking (Kirchenbauer et al., 2023).

Frameworks for Ethics:
Practitioners can take proactive measures for responsible development with the help of comprehensive ethical playbooks (like IEEE's Ethically Aligned Design) and AI alignment strategies. Transparency records, including *model cards* (Mitchell et al., 2019), can provide clear insights into a system's limitations, intended uses, and potential risks, fostering public trust.

Regulatory Measures:
To strengthen intellectual property rights, laws like the proposed Generative AI Copyright Disclosure Act in the US seek to require the disclosure of copyrighted materials used in AI training. Globally, risk-based supervision and transparency-by-design principles are promoted by G7 voluntary codes and provisions of the EU AI Act, which may act as models for international governance.

Practices for Inclusive Data:
AI models must be trained on locally sourced, demographically balanced datasets that represent socioeconomic, linguistic, and cultural diversity in order to combat systemic bias. In places like South Asia and Africa, where underrepresentation in datasets runs the risk of reinforcing negative stereotypes, this strategy is especially crucial.

Multidisciplinary Discussion:
Technologists, ethicists, legislators, social scientists, and impacted communities must work together consistently for effective governance. Frequent multi-stakeholder forums could hasten the development of common safety standards while guaranteeing that regulations continue to be flexible enough to accommodate swift advancements in technology.

Continuous Monitoring:
Post-deployment supervision in conjunction with pre-release red-teaming stress-testing models for safety vulnerabilities can assist in identifying patterns of misuse and facilitating prompt interventions. Maintaining compliance and promptly addressing new threats will require ongoing auditing and version updates.

Prospects for the Future:
Over the course of the next ten years, generative AI should become extensively integrated into a variety of industries, including healthcare and education. However, risks like misinformation, bias amplification, and intellectual property violations could increase along with benefits if safeguards are not coordinated. Global collaboration, flexible governance, and a common dedication to moral innovation will be necessary for a balanced course.

Ethical Generative AI Governance Framework (EGAI-GF)

We suggest an Ethical Generative AI Governance Framework (EGAI-GF) that combines technical, ethical, and regulatory protections into a unified governance roadmap in order to bolster the uniqueness of this research. By addressing risks at three levels, the framework guarantees the responsible application of generative AI:

1. Technical safeguards, such as explainability records, watermarking, fairness-aware algorithms, bias audits, and sustainable AI engineering.
2. Ethical Playbooks: standards for academic/creative attribution, human-in-the-loop oversight, inclusive design, and codes of conduct.
3. Regulatory and Governance Mechanisms: risk-based regulation, coalitions for global governance, legal protections, and ongoing oversight.

Three phases make up the operationalization of the framework throughout the AI lifecycle: pre-deployment (transparency checks, dataset audits), deployment (watermarking, explainability dashboards), and post-deployment (auditing, red-teaming, adaptive regulations). This roadmap makes sure that generative AI upholds social values rather than weakens them while striking a balance between innovation and accountability.

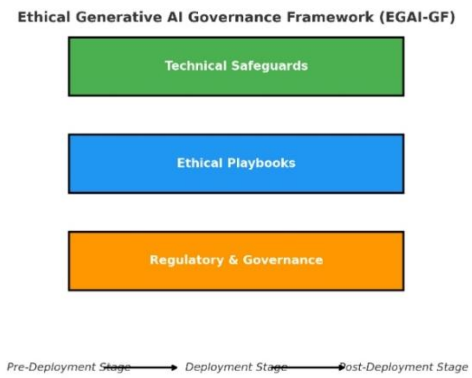

Figure 6.0: Ethical Generative AI Governance Framework (EGAI-GF)
Source: Authors' Conceptualization (2025)

VI. CONCLUSION

A disruptive force that has the potential to change industries, advance scientific research, alter education, and foster greater creative expression is generative artificial intelligence. Its potential to produce multimodal outputs makes it a key component of future innovation, but the risks to society, ethics, and the law are increased by its quick adoption. To preserve its advantages, problems like prejudice, false information, intellectual property conflicts, environmental expenses, and governance deficiencies must be resolved.

This study highlights that in order to achieve sustainable progress, a comprehensive governance model that incorporates technical safeguards, moral guidelines, and legally binding regulations must replace ad hoc solutions. A road map for integrating accountability, equity, and transparency throughout the AI lifecycle is provided by the proposed Ethical Generative AI Governance Framework (EGAI-GF).

The framework encourages responsible innovation while upholding public confidence by operationalizing safeguards during the pre-, deployment, and post-deployment phases.

In the end, proactive cooperation between technologists, legislators, and civil society will dictate the direction of generative AI. Generic AI has the potential to be more than just a technological development if it is governed by the values of accountability, equity, and inclusivity. It can also be a force that develops human potential, upholds democratic ideals, and helps to create a future in which creativity and accountability coexist.

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