

# Learning Systems

*The Landscape of Artificial Intelligence  
in K-12 Education*

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By Amy Chen Kulesa, Michelle Croft, Marisa Mission, Brian Robinson,  
Mary K. Wells, Andrew J. Rotherham, and John Bailey

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# Introduction

Generative artificial intelligence (GenAI) advancements have prompted both excitement and concern about how AI could be used in education. From streamlining administrative tasks to personalized resources for students with learning differences to reimagining staffing models, AI offers a spectrum of possibilities. However, its integration requires careful consideration of both potential benefits and inherent risks.

This three-part series, developed through consultations with experts and practitioners, aims to take a holistic approach, analyzing the opportunities, risks, and considerations surrounding AI in education in the following ways:

## Foundations

### The Landscape of Artificial Intelligence in K-12 Education

*An introductory guide exploring AI developments, capabilities, potential impacts, and current usage.*

## Considerations

### Opportunities and Challenges of Artificial Intelligence-Enhanced Education

*A deep dive into the broader ecosystem, including technology platforms, policy landscapes, and stakeholder experiences.*

## Applications

### Artificial Intelligence Use Cases

*An outline of how AI could potentially be used in education, detailing opportunities and risks for each use case.*



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# Key Takeaways

## Insights From the Learning Systems Series

The education sector has an opportunity to shape its future as GenAI technology is developing. Proactive planning allows thoughtful integration of AI's potential benefits to carefully address its challenges and prepare for emerging capabilities. To help education stakeholders navigate this complex and evolving landscape, Bellwether offers the following recommendations to build strong capacity, resilient infrastructure, and thoughtful design.

## Building Strong Capacity

To safely and effectively incorporate AI, the education sector must invest in the development of knowledge, skills, and diversity of leaders and contributors. **Capacity-building effort is not just beneficial — it is critical.** While these efforts require a meaningful investment of time, talent, and resources, without them, the education sector faces barriers to progress. Even though capacity-building around AI may not rise to high urgency for individual organizations, funders and policymakers can and should incentivize the system so that there is meaningful progress over time.

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### 1. Strengthening AI literacy.

Administrators, teachers, students, and families alike need to build understanding of AI's capabilities, limitations, and implications so that communities can make informed decisions about AI and effectively choose where to (and not to) integrate AI into learning environments. AI literacy also extends into the thoughtful teaching of AI — what students should know and be able to do related to being prepared for the workforce of the 2030s.

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### 2. Enabling the development of policies and guidelines.

Comprehensive and flexible policies and guidelines are essential to wider AI adoption but have been slow to develop, notably at the federal and state levels. As of August 2024, approximately half of states have yet to provide AI guidance. State and local education leaders would benefit from collaboration opportunities, including with industry leaders, as they develop and refine their policies.

## Building Strong Capacity *(continued)*

<b>3. Bridging educators, developers, and researchers.</b>	<p>Currently, there is a gap between teams building AI tools and education practitioners. Fostering strong partnerships, especially in development and design stages, can ensure AI tools are safe, effective, and relevant for education purposes, aligned with pedagogical principles, and grounded in research about how students learn. Partnerships will increase the likelihood of well-designed solutions, thereby enabling the realization of AI's transformative potential in education.</p>
<b>4. Expanding sectorwide capabilities.</b>	<p>The rapid advancement of AI in education has surfaced a significant gap between current capabilities and needed expertise. To bridge this chasm, the sector needs to expand capacity across the entire educational ecosystem, addressing needs such as data privacy, ethical implementation, procurement, and other challenges surfaced throughout this three-part series. This expansion can take multiple forms: Existing education organizations can develop AI competencies, AI experts from other sectors can be encouraged to apply their knowledge to educational contexts, and new organizations can be established to address emerging needs. Addressing these gaps in the education sector is crucial for developing comprehensive, education-specific AI solutions that incremental improvements in existing structures may not be able to achieve.</p>
<b>5. Diversifying voices at the table.</b>	<p>Degree attainment data suggest that the current AI field is not yet reflective of the diverse students and educators across the country. Diversification of voices involved in AI-related dialogues and decisions can promote more inclusive AI solutions that benefit all students. This includes conversations with and among AI developers, solution builders, and researchers as well as authentic engagement with diverse educators, students, and families who will be most impacted by decision-making processes.</p>

# Building Resilient Infrastructure

In the excitement of thinking about how AI can be used, there is the potential to overlook the importance of a robust, secure, and nimble infrastructure. **Strong data and research not only enhance the quality of AI outputs but also serve as a crucial safeguard, particularly in protecting sensitive student data.** Investing in resilient infrastructure is essential for realizing AI's benefits while mitigating its risks, ensuring that enthusiasm for innovation is matched by a commitment to security and quality.

<b>6. Robust data infrastructure.</b>	Implementing AI widely throughout a system or organization will require a secure, high-quality data infrastructure. This includes ensuring data quality and usability, system interoperability, robust security measures, well-planned change management processes, and reliable internet connectivity.
<b>7. More quality datasets and new benchmarks.</b>	To enhance the quality of AI outputs, there is an opportunity to develop more high-quality, education-specific datasets for fine-tuning AI models for tailored uses. Additionally, establishing education benchmarks for AI tools can incentivize and align the market around quality and effectiveness.
<b>8. Continued research and learning.</b>	Ongoing research is needed to understand what works and what does not work in AI-enhanced education. By continuously evaluating the impact of AI tools and methodologies and building from existing learning science research, developers can refine their approaches and ensure that AI enhances learning outcomes for all students.

# Building Thoughtful Design

As developers create AI tools for education, it is important to prioritize purposeful design that considers the diverse needs of all students while maintaining the essential role of human interaction. **Thoughtful design goes beyond technological capabilities, focusing on clear educational objectives and research-based approaches.**

## 9. Purposeful, inclusive, and research-backed AI design.

As opposed to leading with the technology, AI tools must be designed with a clear purpose. From the early stages of product development, tools designed for widespread adoption should consider the needs of all students, inclusive of students with learning differences and multilingual learners. The lower barriers to entry to create AI tools also offer the opportunity to develop highly tailored tools that can focus on the unique needs of specific groups of students. Tools should also be grounded in learning sciences research to increase the likelihood they will improve student outcomes.

## 10. Intentional human-AI relationship.

It is important to recognize both the opportunities and limitations of AI and human cognition. While AI can be transformative, educators and students must also nurture human skills through deep learning experiences, opportunities for critical thinking, and authentic human interactions so that AI amplifies — not detracts from — meaningful learning experiences.

As stakeholders look to incorporate AI into education, they should leverage past insights for future innovation. While AI presents new opportunities in education, the valuable lessons from prior innovation attempts must not be overlooked. Innovation lies not just in the technology but notably in its change management, implementation, and long-term sustainability. This approach to AI integration in education demands significant effort and resources, but it is essential for creating an educational ecosystem that leverages AI's potential while prioritizing student needs and learning outcomes.



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# Overview

GenAI can create new content, such as text, images, videos, or code, based on patterns learned from training data and has rapidly evolved to near-human-level capabilities in numerous tasks while incorporating multimodal (e.g., audio and video) functionalities.

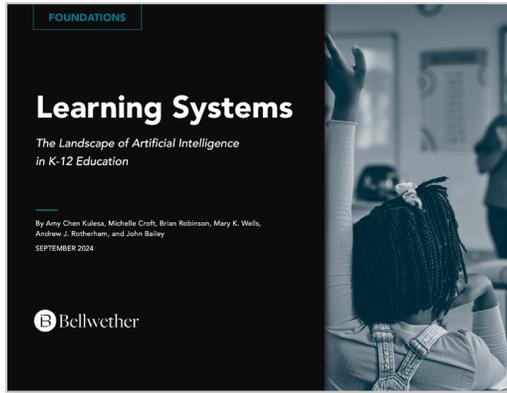
**Given this growth in capabilities, AI is poised for rapid, global market growth, including in education.**

With renewed interest in ed tech investments, there is now a proliferation of new and updated tools incorporating AI features.

Despite the market growth, the education sector has seen similarly low adoption rates, though some students are using AI. The low adoption is likely exacerbated by limited state and local guidance. **If left unattended, uneven incorporation of AI tools into the classroom leads to inequitable use of varied quality among students and educators.**

AI may meaningfully shift the skills employees need to be successful, compelling educational systems to adapt. Current trends highlight a growing disconnect between traditional education and evolving workforce demand, such that the education sector will need to adapt to ensure that students are taught the skills necessary for a changing workplace.

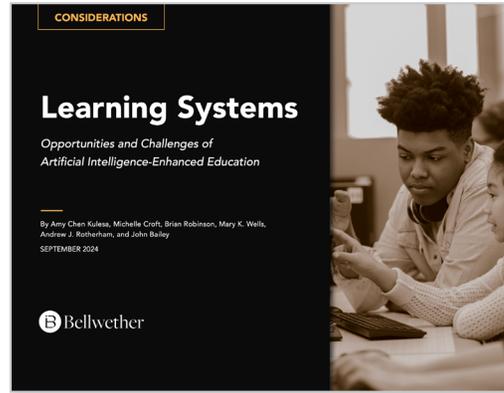
# This report is part **one** in a series that looks holistically at AI's impact on learning systems in education.



## Foundations

### The Landscape of Artificial Intelligence in K-12 Education

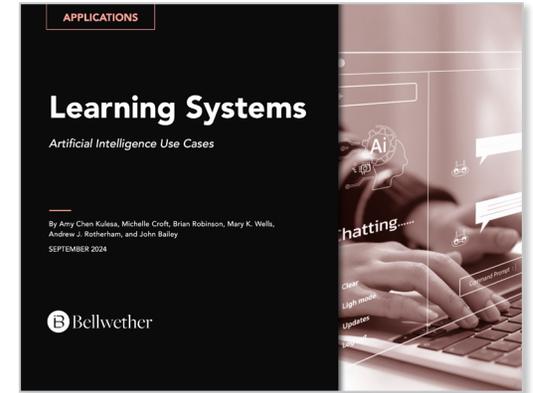
*An introductory guide exploring AI developments, capabilities, potential impacts, and current usage.*



## Considerations

### Opportunities and Challenges of Artificial Intelligence-Enhanced Education

*A deep dive into the broader ecosystem, including technology platforms, policy landscapes, and stakeholder experiences.*



## Applications

### Artificial Intelligence Use Cases

*An outline of how AI could potentially be used in education, detailing opportunities and risks for each use case.*

# What is artificial intelligence (AI)?

AI refers to the ability of machines or computer programs to perform tasks that normally require human intelligence, such as learning, problem-solving, decision-making, and perception. Two types of AI are commonly referenced:

*This report is mostly focused here.*

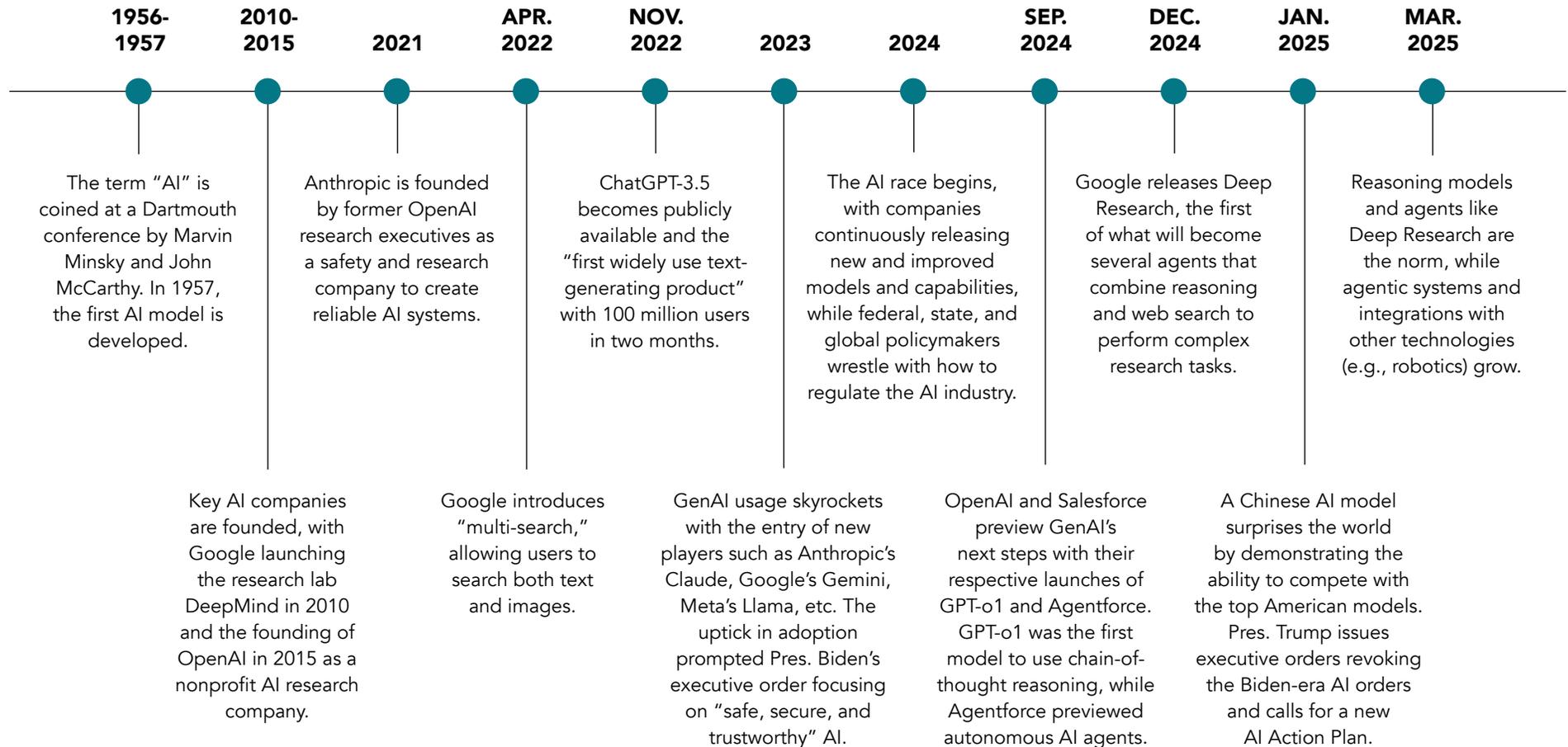
**GenAI:** A system capable of generating new text, images, or other media in response to prompts, based on data that exists.

**Large Language Models (LLMs):** A type of AI model that can perform natural language processing, which allows neural networks to both “understand” and respond in human language. LLMs form the basis of chatbots (e.g., ChatGPT, Claude, Gemini, Llama) and represent the key breakthrough that catapulted GenAI into the public eye.

**Traditional/Classical AI:** A system that focuses on performing a specific task intelligently. It responds to a set of inputs and has the capability to learn from data and make decisions or predictions based on that data. This AI has been the most prevalent for more than 60 years.

# AI has evolved significantly since 1957, with recent increased investment and rapid changes led by big tech.

## Timeline of AI Milestones and Its Rapid Acceleration



# AI's capabilities extend beyond text production and can be applied across media modalities ...

Historically, AI was less accessible to the general public due to several factors:

1. Only a small number of programmers possessed the necessary skills to develop advanced AI algorithms.
2. The lack of user-friendly platforms made it challenging for nontechnical individuals to deploy AI capabilities, restricting access to a few large corporations.
3. AI tools were unreliable due to incomplete and poor datasets.

Today, AI capabilities are vast and much more accessible to the public.

## Modalities and Nonexhaustive GenAI Applications

### Audio

*Text-to-voice generation*  
*Sound creation*  
*Audio editing*

### Code

*Code generation*  
*Application prototype*  
*Dataset generation*

### Image

*Stock image generator*  
*Image editor*

### 3D or Other

*3D object generation*  
*Product design and discovery*

### Text

*Content writing*  
*Chatbots or assistants*  
*Analysis and synthesis*  
*Search*

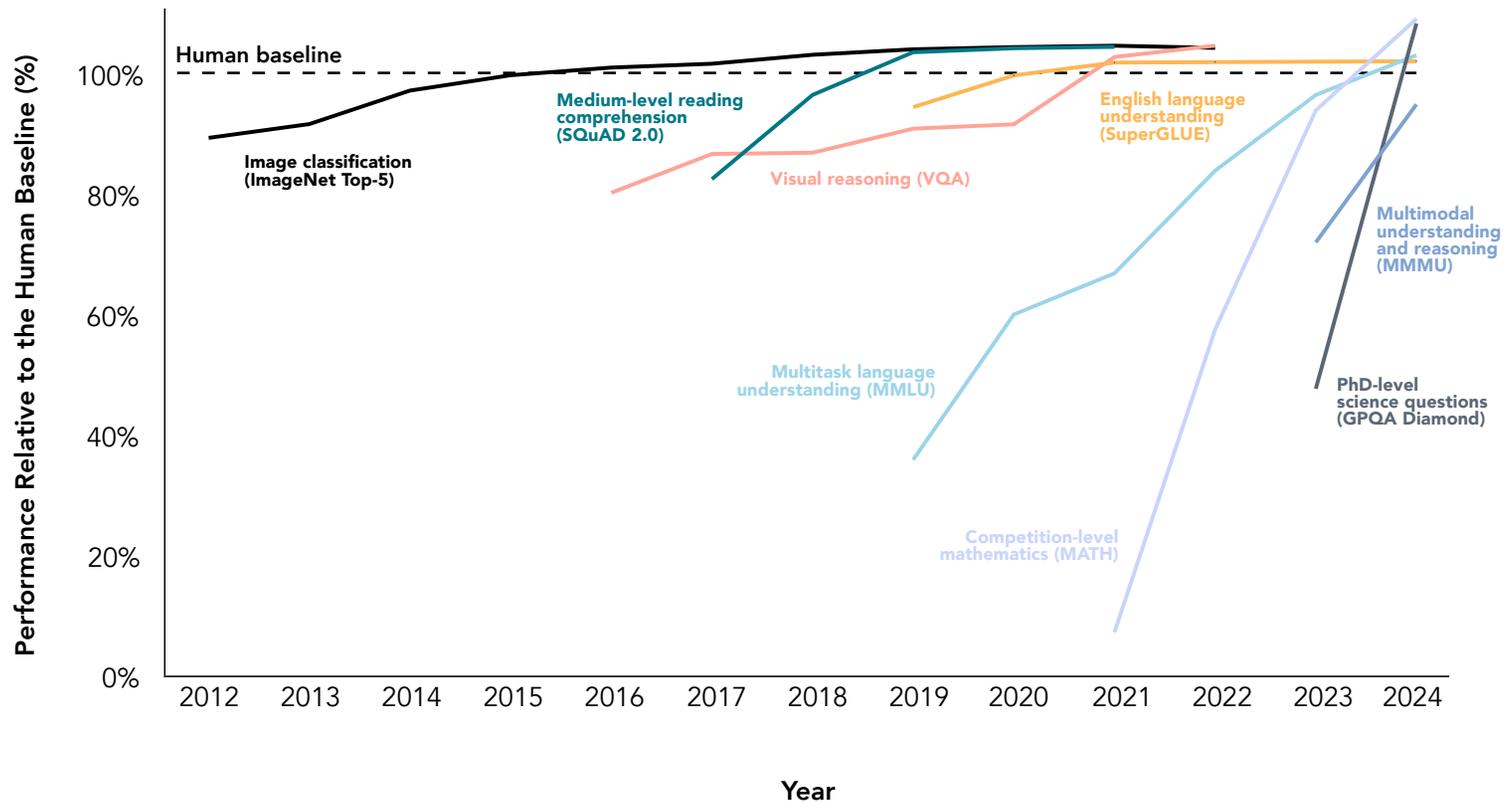
### Video

*Video creation*  
*Video editing*  
*Voice translation and adjustments*  
*Face swaps and adjustments*

AI use cases will have differing implications across functions and industries. Predictions suggest that AI can increase workforce productivity in supply chains, operations, marketing, and sales.

# ... And AI capabilities are approaching, sometimes exceeding, human performance.

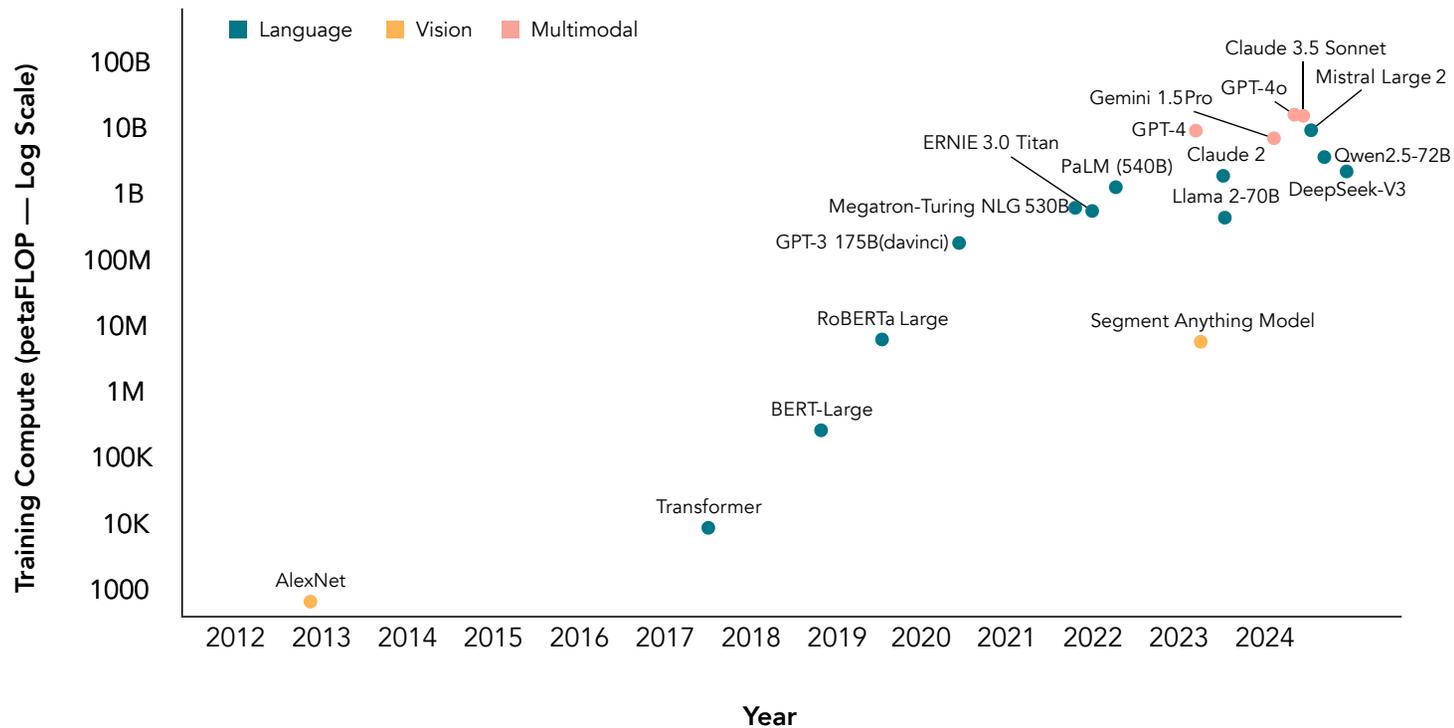
Select AI Index Technical Performance Benchmarks Versus Human Performance, 2012-2024



Roles with a high degree of human connection — such as early childhood and K-12 classroom teachers — are likely less at risk and/or slower to be impacted by AI relative to other industries such as health care, STEM, and business.

# Training advanced models requires significant resources, limiting development to a few well-funded companies.

Training Compute of Notable Machine Learning Models by Domain, 2012-2024



## Environmental Impact of AI

Early training of chatbots (e.g., GPT-3) required significant energy and natural resources, leading “to the production of 500 metric tons of greenhouse gas emissions — equivalent to about 1 million miles driven by a conventional gasoline-powered vehicle.”

Costs for training and operating models have decreased due to recent innovations in training approaches, but development of frontier models still requires hundreds of millions of dollars.

# To mitigate cost challenges, major technology companies are creating parallel Small Language Models (SLMs).

In contrast to LLMs, SLMs are smaller and more compact versions of AI models that aim to provide similar capabilities to their larger counterparts but with reduced size, lower latency, and decreased computational requirements.

## LLMs

- Generalist, more powerful functionality.
- Trained from vast amounts of data.
- Costly to train and run.
- Greater inherent risks.

*Examples include: GPT-4o, Claude 3.5 Sonnet, Gemini, and Llama 3.1 405B.*

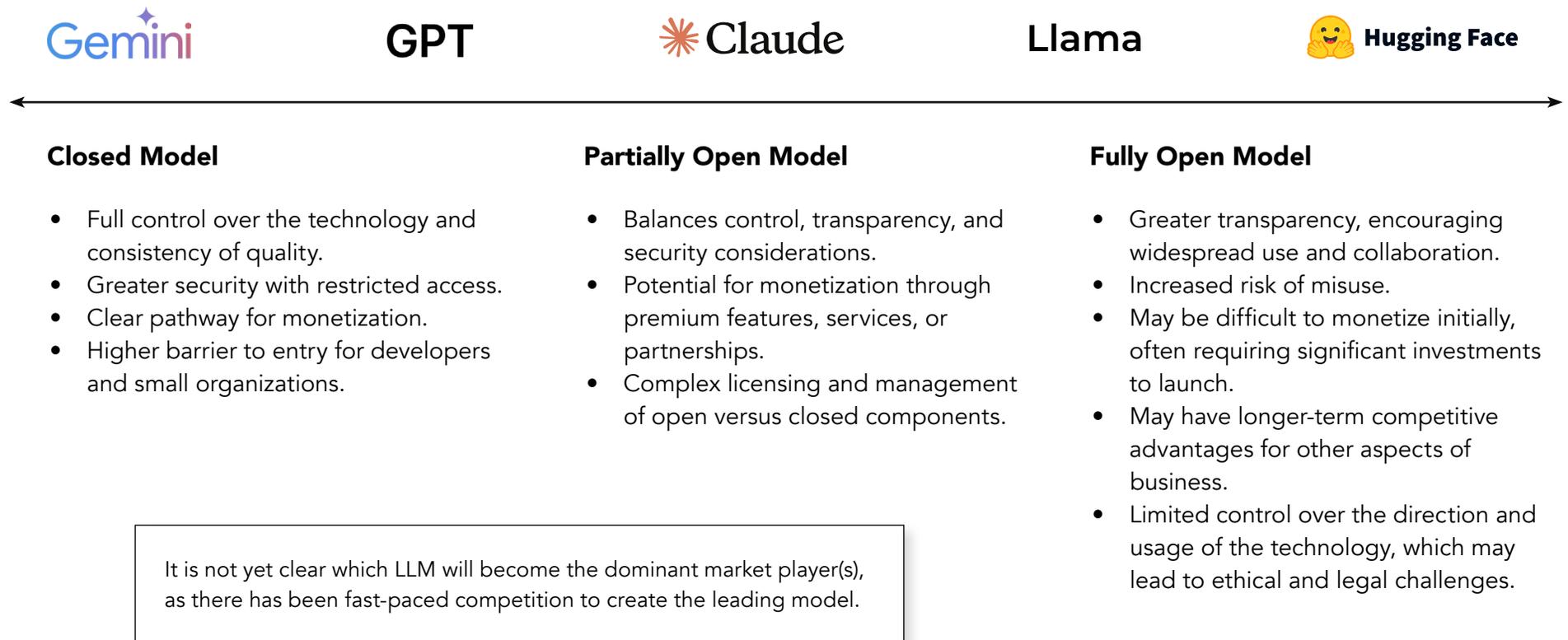
## SLMs

- Specialized, more narrow functionality.
- Trained from a specific set of information.
- Cheaper, can run on local devices.
- Greater ability to limit misuse and errors.

*Examples include: GPT-4o mini, Claude 3 Haiku, Gemma, and Llama 3.1 8B.*

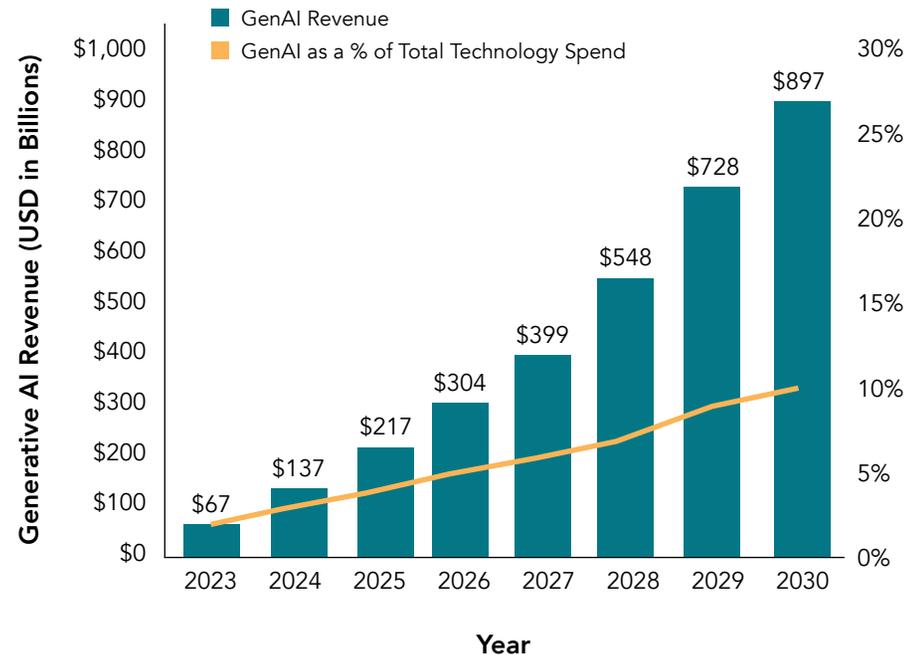
# Of the LLM models and platforms, there is a range of openness, resulting in trade-offs for the broader ecosystem.

## Range of Model Openness

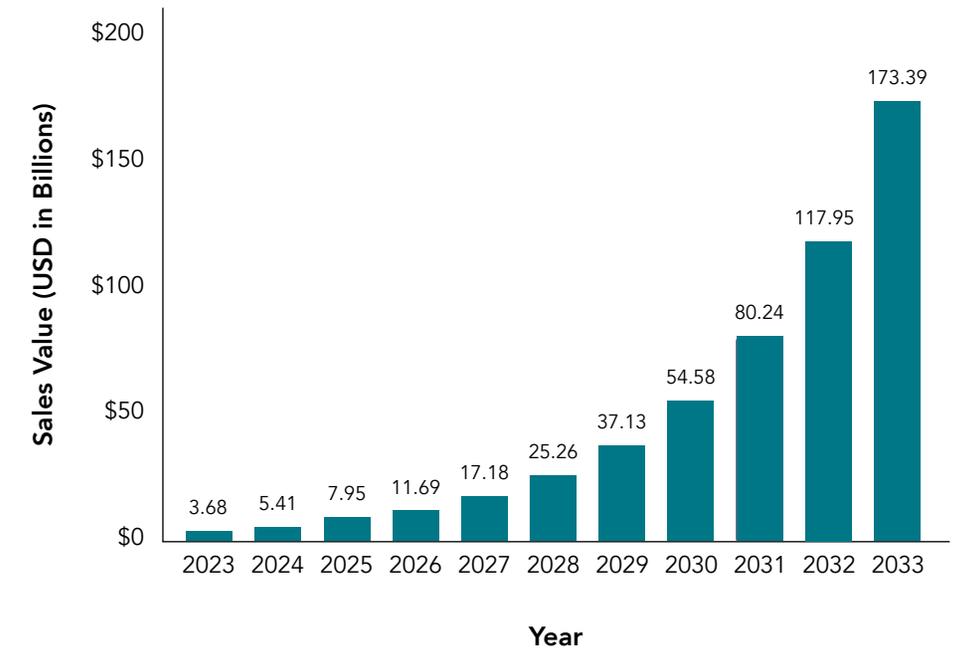


# Globally, the GenAI market is poised for rapid growth in the coming years, including in education ...

**Expected Growth of GenAI Revenue, 2023-2030**



**Expected Annual Growth of Global AI Education Market, 2023-2033**



Bloomberg Intelligence predicts that the GenAI market will experience explosive growth; **projections reach a market size of \$1.3 trillion by 2032** (42% compound annual growth rate [CAGR]) from just \$40 billion in 2022. Consumer-facing generative AI programs like Google’s Bard and OpenAI’s ChatGPT are contributing to this growth.

Estimated projections of the current size of the AI Education market range. A widely reported estimate is that the market was worth **\$3.68 billion globally** in 2023 and “can be expected to grow to \$173.39 billion by 2033, a CAGR of 47%.” This projected growth underscores the need to understand efficacy and safety of AI tools.

# ... Which has cascading effects on the education sector with expected growth to the market and proliferation of tools.

Market size and investment are rapidly growing.

Hundreds (or more) education tools have been created.

Many products are free or low cost (for now).

AI in education market size:

- 2023: \$3.7 billion
- 2033: \$173.4 billion (47% CAGR)

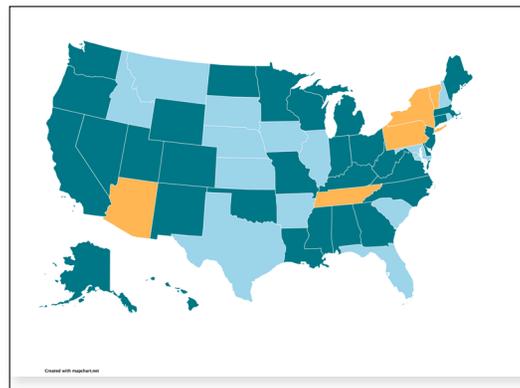
Grassroots efforts have begun to aggregate lists of tools:

- [AI Educator Tools](#)
- [Edtech Insiders](#)



“Although private investment in education has dropped steeply since 2021, the recent slew of AI-focused startups and renewed interest among investors is a portend of possible turnaround.”

—Robert Berkman, Simba Information



# Current AI tools and applications span many aspects of schooling.

**1. Personalized Learning, Tutoring, and Advising**

**2. Educator Sustainability and Effectiveness**

**3. Assessments**

**More From Bellwether**

For information about each use case, see [Applications: Artificial Intelligence Use Cases](#) in the Learning Systems series.

**4. Information and Intervention**

**5. Administrative and Operational Efficiency**

**6. New School Models**

# However, the way the underlying AI models are constructed contributes to concerns about their use.

## Building Models

- **Data Bias:** AI models can inherit biases from training data; AI models trained in data inherit existing bias across racial, cultural, gender, language, political, and even pedagogical differences.
- **Over/Under-Fitting:** AI models may be too specialized or too generalized to address new, unknown situations.
- **Reproducibility Issues:** Hard to replicate AI model results.
- **Environmental Impact:** High energy costs are needed for training models.

## Bad Actors

- **Misinformation (Intentional and Unintentional):** AI models can be used to generate convincing but fake content, including images, audio, and video “deepfakes.”
- **Spam/Bots:** Bad actors can use AI tools to develop a greater volume of malicious content or code that may also be higher quality.

## Nature of Output

- **Opacity:** Most AI models are “black boxes” and provide no insight into how outputs are generated; even model developers do not fully understand why models act the way they do.
- **Accuracy:** AI models can provide inaccurate or misleading output, which are sometimes called “hallucinations.” The chance for errors increases when there is limited high-quality data on a topic.

## Ownership of Work

- **Cheating:** AI models can facilitate academic dishonesty.
- **Copyright and Intellectual Property (IP) Violations:** There is undefined legal ground for when an AI model trained on copyrighted material or IP may violate laws or lead to confusion.
- **Worker Value-Add:** As more work is supported — or done — by AI tools, it may change how companies compensate or employ workers.

## Bias — A Significant Concern in Education That Is Difficult to Address

Efforts to offset existing biases are building in a set of new counter-biases and it is difficult to predict how they will play out, given the opacity and complexity of AI models.

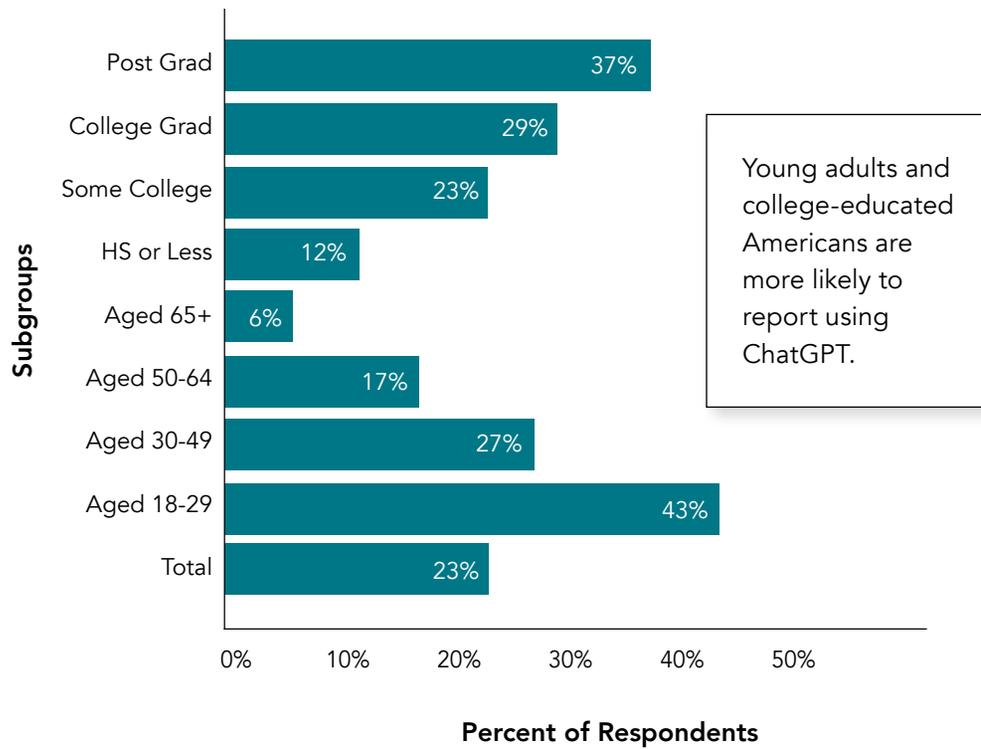
However, bias has long been present in education, with or without AI.

“The use of AI in decision-making can reduce human subjectivity, but it can also do the exact opposite when AI systems are powered by biased datasets and algorithms, producing discriminatory outcomes at scale and posing immense risks to businesses and societies.”

—UNESCO

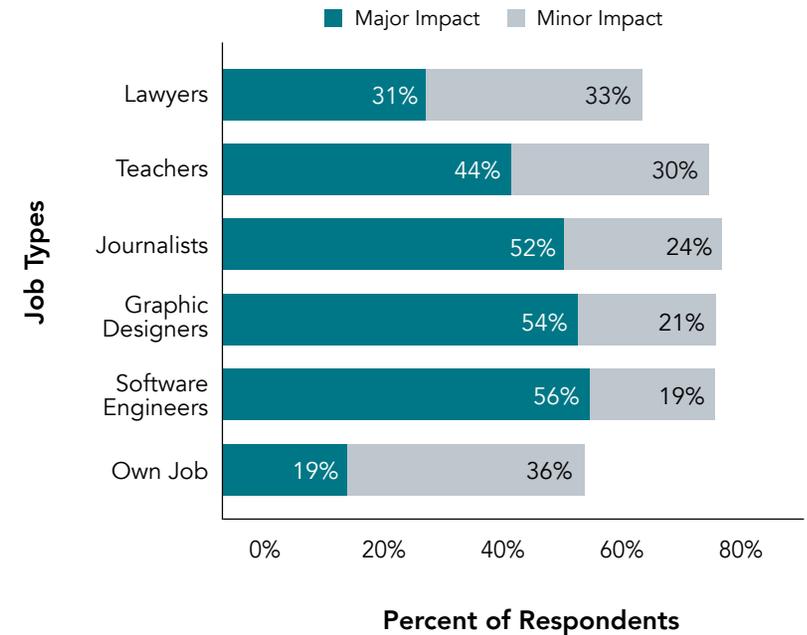
# Despite market forecasts, most Americans are slow to adopt AI tools such as ChatGPT.

Percent of U.S. Adults Who Have Heard of and Use ChatGPT



Among U.S. adults, 66% say they have heard about ChatGPT. Of those who have heard of ChatGPT, **just 23% say they have ever used it, but usage varies** widely by age and educational attainment.

Percent of Americans Who Say Chatbots Like ChatGPT Will Have a Major or Minor Impact on the Following Jobs Over the Next 20 Years



About half or more of those who have heard of ChatGPT say chatbots will have a major impact on some jobs, but **Americans are less likely to think chatbots will impact their own job.**

# AI is expected to significantly impact the way companies do business and the skills employees will need.

AI adoption is growing in the workforce, but varied survey designs make it difficult to compare findings. Surveys with different workforce-related populations generate different results.

	<b>AI @ Wharton</b> <i>November 2024</i>	<b>Jobs for the Future</b> <i>December 2024</i>	<b>McKinsey &amp; Company</b> <i>March 2025</i>
<b>Survey Population</b>	Senior Business Leaders	2,754 Respondents Across Demographic Groups in the U.S.	1,491 Participants in 101 Nations in Varying Industries
<b>2023</b>	<b>37%</b> used GenAI at least once a week.	<b>8%</b> used GenAI tools in their job.	<b>33%</b> of organizations have adopted AI.
<b>2024</b>	<b>72%</b> used GenAI at least once a week.	<b>35%</b> used GenAI tools in their job.	<b>71%</b> of organizations have adopted AI.

## Workforce Impact

AI is already impacting hiring and work in noticeable ways:

- One survey found that 37% of HR leaders would rather “hire” an AI model than a recent graduate, and 97% of HR leaders believe new hires should have a “strong foundational understanding” of AI, data analytics, and IT.
- In Jobs for the Future’s survey, 57% of workers “reported feeling some or a great deal of impact” — both positive and negative — from AI on their jobs.

# Measuring how AI is used at work is also difficult given a lack of standardization and/or robust survey populations.

## Anthropic's Economic Index

Anthropic's Economic Index mapped more than four million Claude.ai conversations to occupational tasks in the federal O\*NET framework. The most common tasks were in:

1. Computer and Mathematics
2. Arts and Media Writing
3. Education and Library
4. Office and Administrative
5. Sciences
6. Business and Finance

**Limitations:** The "occupations" assigned in the analysis may or may not reflect users' *actual* occupations (if even employed), and Anthropic cannot determine to what extent users actually applied the AI outputs.

## Harvard Business Review

Harvard Business Review published a piece that analyzed online forums to understand "How People Are Really Using GenAI in 2025," including for:

1. Personal and Professional Support
2. Learning and Education
3. Technical Assistance and Troubleshooting
4. Content Creation and Editing
5. Creativity and Recreation
6. Research, Analysis, and Decision-Making

**Limitations:** Online posts may or may not be representative of the national population and can have significant bias.

## Pennsylvania and OpenAI

Pennsylvania and OpenAI ran a pilot program for state employees to opt-in to using ChatGPT. Participants often reported using AI for:

1. Writing and Drafting Assistance
2. Research, Idea Exploration, and Learning New Topics
3. Summarizing
4. Coding, Excel, etc.
5. Problem-Solving
6. Image Generation

**Limitations:** The focus on government employees makes it unclear how results might extrapolate to the broader workforce.

## Impact on Education

Measuring how people are using AI in their careers is critical to ensuring K-12 and postsecondary education are properly preparing students; however, this blurry picture of AI usage in the workforce makes it difficult to predict how education should be adjusting.

## Nonetheless, both educators and students see the need for school systems to adapt to meet the evolving needs of the workforce.

To enable educators to prepare students for the job market of the future, the K-12 public education system may need to shift how it supports students and teachers. Students are aware of AI and changing workforce trends and believe AI should change schooling in the future. Teachers are aware of AI, and some are using it and believe AI is important for preparing their students for the future.

<b>Students</b>	<b>75%</b> of K-12 students say they are somewhat or very familiar with ChatGPT, with 49% using it at least once a week or more.	<b>53%</b> of teens use AI to get information, and 51% use it to brainstorm ideas.	<b>73%</b> of teens in the U.S. expect GenAI to be a part of everyday life in the future, and 71% believe that GenAI will be used in their everyday professional work in the future.
<b>Teachers</b>	<b>79%</b> of teachers say they are somewhat or very familiar with ChatGPT, with 46% using it at least once a week or more.	<b>51%</b> of teachers using AI products and tools report using them to support students with learning differences.	<b>65%</b> of teachers believe they need to teach their students to use and develop AI so they will be in a better position for the future and to compete globally.

# However, variations in survey topics, framing, and timing complicate a full understanding of AI usage and perception.\*

		Walton Family Foundation July 2023	Pew November 2023	RAND Corporation April 2024	Walton Family Foundation June 2024	RAND Corporation September 2025
Usage	Students	<b>42%</b> of students say they use ChatGPT for schoolwork.	<b>19%</b> of students who have heard of ChatGPT say they have used it for schoolwork.		<b>72%</b> of students say they use ChatGPT for schoolwork.	<b>54%</b> of students reported using AI tools to help with their schoolwork.
	Teachers	<b>63%</b> of teachers say they have used ChatGPT for their job.		<b>33%</b> of teachers reported using AI tools and products in their teaching at least once.	<b>73%</b> of teachers say they have used ChatGPT for their job.	<b>53%</b> of teachers reported using AI for instructional planning or teaching during the 2024-25 school year.
Perception	Students	<b>30%</b> of students think ChatGPT has had no impact at all on their learning.	<b>69%</b> of students believe it is acceptable to use ChatGPT to research new topics.		<b>21%</b> of K-12 students think AI chatbots have had no impact at all on their learning.	<b>55%</b> of high school students agree that AI use harms student critical thinking skills.
	Teachers	<b>84%</b> of teachers who have used ChatGPT say it positively impacted their classrooms.		<b>73%</b> of teachers who use AI expect to use AI products and tools more in the next school year than they currently do.	<b>48%</b> of teachers say AI chatbots have positively impacted their classrooms.	

# Some districts began embracing AI heading into the 2023-24 school year (SY), though many stances remain unclear.

Early adopter districts illustrate a range of ways that AI can be incorporated into education. Examples include:

## Creating New AI Courses and Standards

- **Baltimore County Public Schools** (Maryland) planned to launch an AI program at three high schools in SY23-24 focusing on on-the-job learning.
- **Several Florida school districts, including Tampa**, planned to launch AI and data science programs in SY23-24, in partnership with the University of Florida, as part of a broader initiative by the university to integrate AI into the state's K-12 curriculum.

## Improving Communications and Operational Efficiency

- **The School District of Philadelphia** (Pennsylvania) launched a chatbot in 2023 to answer families' questions and track the status of concerns until they are resolved.
- **Los Angeles Unified School District** announced "Ed," a chatbot intended to provide families real-time access to student data, including grades, test results, and attendance. The project was paused due to vendor challenges.

## Supporting Learning and Emotional Well-Being

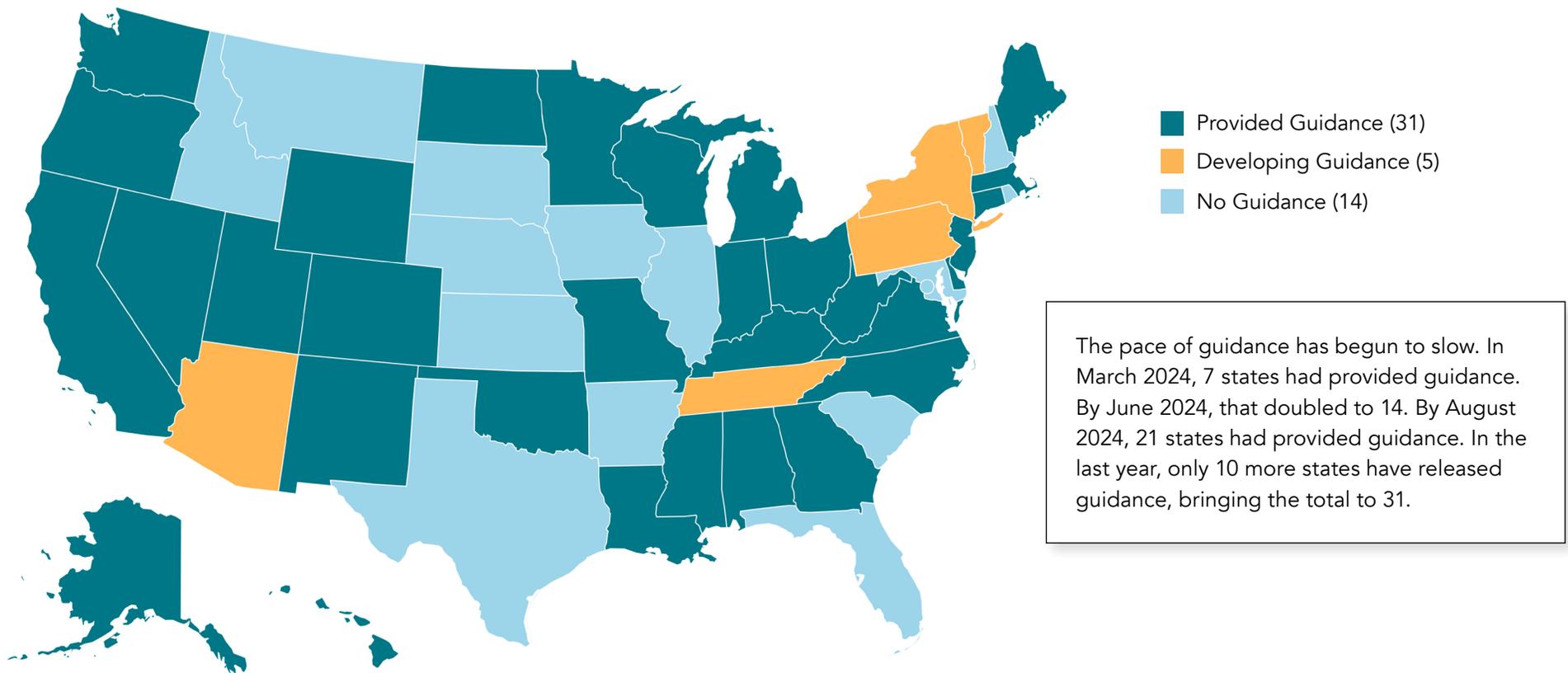
- **Mesa Public Schools** (Arizona) and **Austin Independent School District** (Texas) piloted an AI-enabled "early warning" system that monitors student academic performance and sends alerts if kids are in danger of failing a course.
- **Newark Public Schools** (New Jersey) piloted Khan Academy's AI-powered tutorbot, Khanmigo, to provide students personalized support across core subjects.

## Supporting Teacher Development

- **Spokane Public Schools** (Washington), **St. Vrain Valley School District** (Colorado), and **Keller Independent School District** (Texas) piloted AI Coach by Edthena, a platform for instructional coaching.
- **Prince George's County Public Schools** (Maryland) trained teachers on how to incorporate AI into their lessons as part of a three-year agreement with aiEDU, beginning in summer 2023.

# Nearly half of state education agencies have issued guidance for using GenAI tools in the classroom.

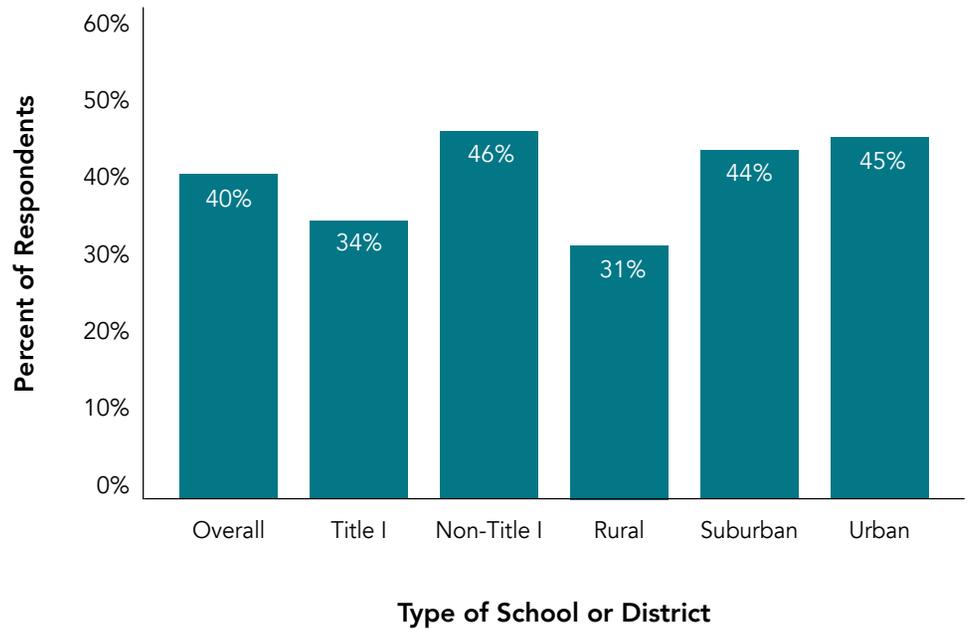
The Center on Reinventing Public Education (CRPE) and TeachAI are regularly tracking whether state departments of education are issuing guidance on the use of GenAI.



# At the local level, despite many more schools establishing AI policies, the majority still lack policies or guidance.

- Carnegie Learning found that while the share of schools/districts that had AI policies doubled from 2024 (20% to 40%), the majority of schools/districts lacked any policies or guidance. Additionally, Title I and rural schools/districts were less likely to have policies or guidance than non-Title I, suburban, and urban districts.
- RAND found that only 18% of principals surveyed reported having a district or school AI policy. Similarly to Carnegie, just 13% of principals from high-poverty schools had an AI policy.
- A December 2024 survey from the National Center for Education Statistics showed only 31% of public schools reported having a written AI policy.

**Percent of Schools or Districts With an AI Policy**



In an EdWeek survey, lack of a district policy was the third most common challenge (28%) preventing educators from adopting or using AI.

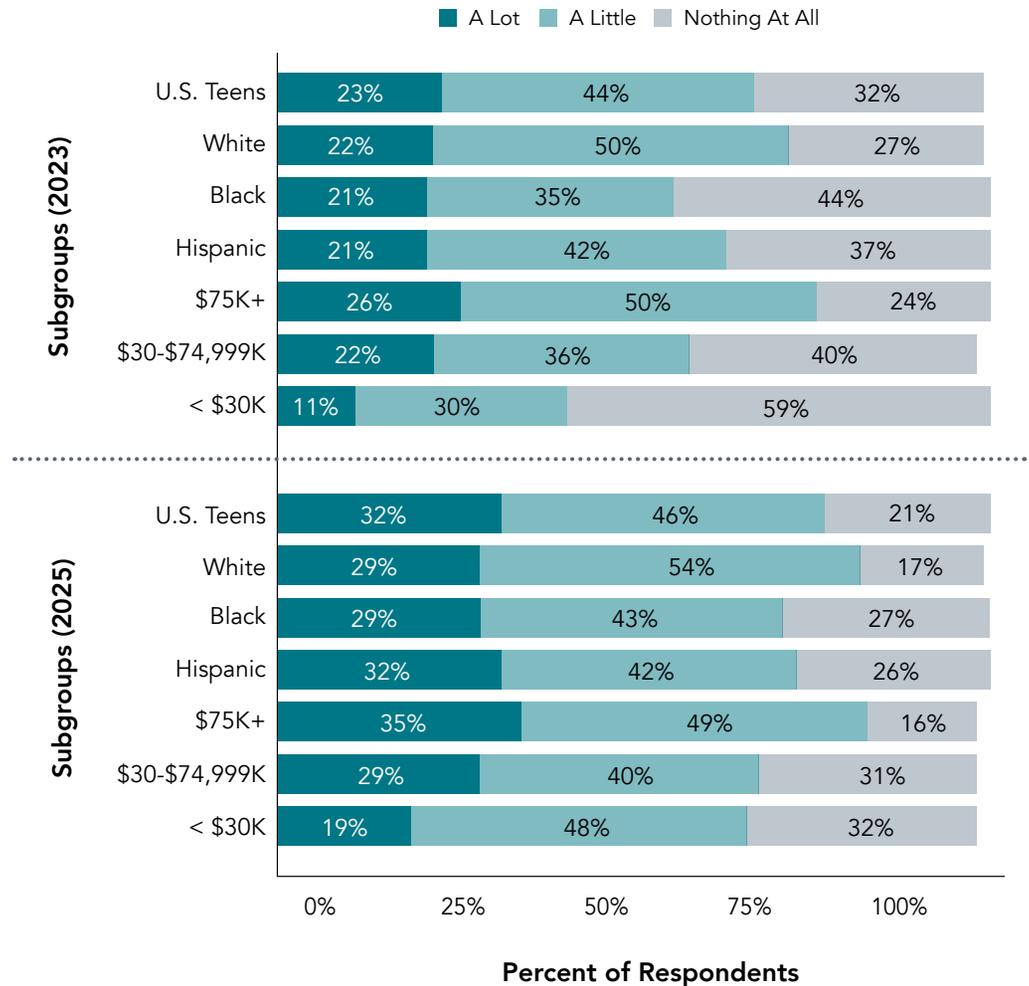
# Teens are increasingly aware of AI and using it for a number of tasks.

The majority of teens are aware of AI; however, their extent of awareness is related to race and income level. White students and students from higher-income households have greater awareness of AI compared to their peers.

In a separate survey by Common Sense Media, teens who do use AI use it for a variety of purposes, such as:

- Help with homework (53%).
- Combating boredom (42%).
- Translating something from one language to another (41%).
- Brainstorming ideas (38%).
- Writing a document or email (35%).
- Creating a new image or video (33%).
- Summarizing or synthesizing information (33%).

**U.S. Teen Awareness of ChatGPT, 2023 and 2025**



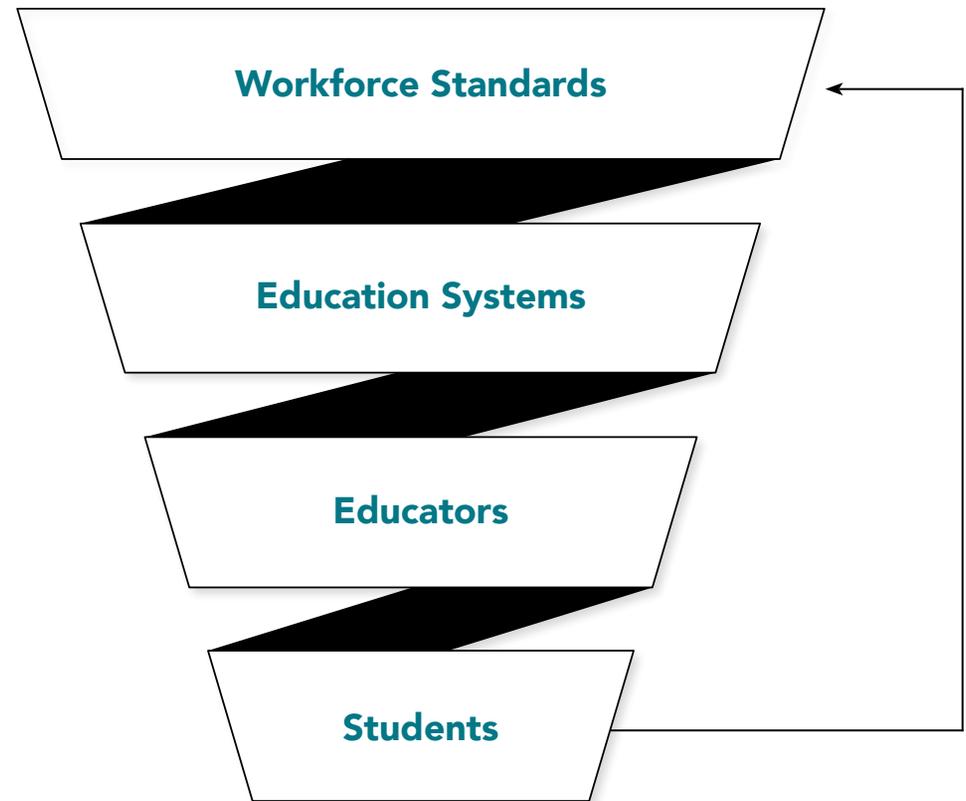
# Changing workforce standards driven by AI are expected to have downstream and cyclical effects on education.

AI is changing what **skill sets, knowledge, and capabilities** will be needed in the future workforce.

Federal, state, and local education systems will need to **reconsider structures**, relational dynamics, and models for teaching and learning.

**What is taught and how educators teach** their students will need to adapt to evolving technology, employer needs, and new education standards.

As systems begin to shift, it will change **what and how students learn** to be ready for future careers.





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# Conclusion

Given the pace of technological advancement, there is an opportunity for leaders across the education sector to proactively plan for an AI-integrated future. This foresight must extend beyond current AI tools, anticipating and preparing for emerging capabilities that may impact education in the coming years.

While the integration of AI in education presents certain risks, leaders should also consider the significant risks of failing to adopt a proactive approach, including exacerbating existing inequities. If AI becomes a key skill in the workforce, schools must be preparing students for future careers.

This is a unique point in time with the opportunity to shape the education system thoughtfully, mitigating potential pitfalls while harnessing AI's potential. **It is important to view AI neither as a passing fad nor a panacea, but as a potentially powerful tool that can support steady, long-term improvements toward a more equitable and efficient education system.**

Navigating the complex landscape of AI in education requires a holistic approach that addresses both its vast potential and inherent challenges. Stakeholders must carefully consider a wide array of factors spanning educational practices, technological applications, policy frameworks, and systemic changes. Capacity-building and change management will be significant challenges to overcome. ✨

For a deeper exploration of these aspects, refer to part two of the Learning Systems series — [Considerations: Opportunities and Challenges of Artificial Intelligence-Enhanced Education](#).



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# Interviews

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DREAM PCS

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MagicSchool AI

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Paloma

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Ellen Pack, Merve Lopus,  
Samantha Ketcham, and  
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Common Sense Media

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University of Pennsylvania

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Cognitive Resonance

**Bobby Moore and Luis Pérez**  
CAST

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Center on Reinventing Public Education

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ASU School of Ed

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NewSchools

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Chiefs for Change

**Dan Effland**  
Summit PCS

**Dan Meyer**  
Amplify and Mathworlds

**David Fields**  
Northeastern University

**Dylan Kane**  
Five Twelve Thirteen Substack

**Erin Mote**  
InnovateEDU

**Jack Shaw**  
Comprendo.dev

**Jennie Magiera and Kristal Ayres**  
Google, Education Impact

**Jeremy Roschelle**  
Digital Promise

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Seckinger High School

**Josh Clark**  
Landmark School

**Kim Smith**  
LearnerStudio

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Code.org

**Rebecca Finlay**  
Partnership on AI

**Rob Waldron**  
Curriculum Associates

**Stacy Kane**  
Washington Leadership Academy

**Sue Krause**  
Cognia

**Yusuf Ahmad**  
Playlab.ai

## About the Authors



### AMY CHEN KULESA

Amy Chen Kulesa is a senior associate partner at Bellwether and leads the organization's work on AI. She can be reached at [amy.chenkulesa@bellwether.org](mailto:amy.chenkulesa@bellwether.org).



### MICHELLE CROFT

Michelle Croft is an associate partner at Bellwether. She can be reached at [michelle.croft@bellwether.org](mailto:michelle.croft@bellwether.org).



### MARISA MISSION

Marisa Mission is a senior analyst at Bellwether. She can be reached at [marisa.mission@bellwether.org](mailto:marisa.mission@bellwether.org).



### BRIAN ROBINSON

Brian Robinson is an associate partner at Bellwether. He can be reached at [brian.robinson@bellwether.org](mailto:brian.robinson@bellwether.org).



### MARY K. WELLS

Mary K. Wells is a co-founder and senior partner at Bellwether and leads the organization's work on nontraditional and out-of-school learning. She can be reached at [mary@bellwether.org](mailto:mary@bellwether.org).



### ANDREW J. ROTHERHAM

Andrew J. Rotherham is a co-founder and senior partner at Bellwether. He can be reached at [andy@bellwether.org](mailto:andy@bellwether.org).



### JOHN BAILEY

John Bailey is a nonresident senior fellow at American Enterprise Institute. He can be reached at [john@vestigopartners.com](mailto:john@vestigopartners.com).

## About Bellwether

Bellwether is a national nonprofit that works to transform education to ensure young people — especially those furthest from opportunity — achieve outcomes that lead to fulfilling lives and flourishing communities. Founded in 2010, we help mission-driven partners accelerate their impact, inform and influence policy and program design, and bring leaders together to drive change on education's most pressing challenges. For more, visit [bellwether.org](https://bellwether.org).

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The contributions of these individuals and entities significantly enhanced our work; however, any errors in fact or analysis remain the responsibility of the authors.

### DISCLOSURE

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Separate from the creation of this three-part AI analysis, Bellwether has worked with CRPE and receives funding from the Walton Family Foundation. In addition, a co-founder and partner is an adviser to RAND.



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