Deloitte.

ISSUE 002

Generative AI

DICHOTOMIES

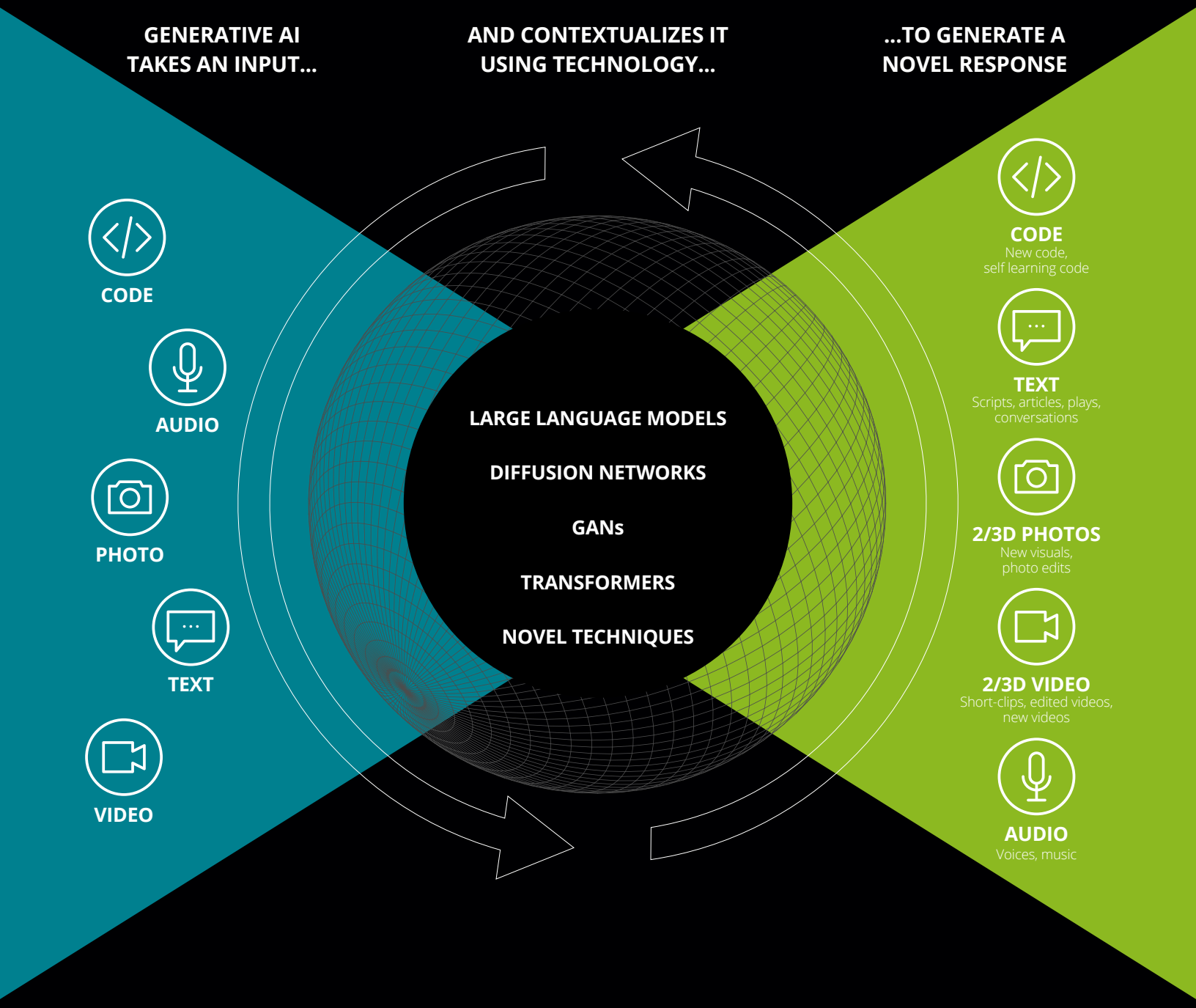
NAVIGATING TOWARDS A BETTER FUTURE

DICHOTOMIES

The Dichotomies series projects the possibilities of an emerging technology in two divergent scenarios. Through speculative fiction and actionable takeaways, we help leaders understand the implications and risks of the future.

GENERATIVE ARTIFICIAL INTELLIGENCE (AI):

GENERATIVE AI LEARNS FROM EXAMPLES TO ARTIFICIALLY GENERATE NEW AND USEFUL OUTPUTS.



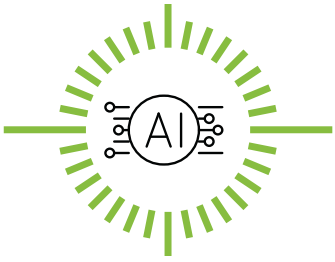
A BRIEF **HISTORY** OF GENERATIVE AI

1940

1943 | Warren McCulloch and Walter Pitts' research lays the foundation for computer based "neural networks" – a critical element of today's generative AI

1970

1973 | Harold Cohen, a painter and professor, collaborates with a program called AARON to produce art autonomously. The paintings are all done in Cohen's style



1980

1988 | AI researchers signal the shift from rules-based methods to probabilistic methods

2003 | Researchers begin work on intelligent voice assistants, which would go mainstream on smartphones in the following decade

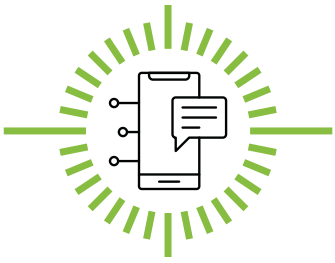
2000

2010

2012 | A Google Brain computer cluster trains itself to recognize a cat from millions of images

2014 | Ian J. Goodfellow and colleagues publish the first paper on Generative Adversarial Networks (GANs) which can determine if an image is real or fake

2017 | Google releases the first Transformer model, the foundation for many popular generative AI tools today



2018 | OpenAI releases GPT-1, a groundbreaking advance for large language models (LLMs)

2019 | Engineer Phillip Wang uses the StyleGAN model to build the website ThisPersonDoesNotExist, which generates hyper-realistic portraits

2021 | DALL-E leverages OpenAI's GPT model and Contrastive Language-Image Pre-training (CLIP) to develop a 12-billion-parameter image creation tool that utilizes just a single sentence to generate an image

2020

2022 | Stable Diffusion launches as an open-source image generation model and quickly gains traction for its differentiated ability to render images of people

2022 | ChatGPT brings generative AI to the masses, reaching 100 million active monthly users just 2 months after launch

2023 | Adobe unveils Firefly, a family of generative AI models tailor-made for creative professionals, with built-in guardrails for safety and copyright standards

2023 | OpenAI releases GPT-4, a multimodal generative AI model with one trillion parameters

2023 | Meta introduces LLaMA, a 65 billion parameter LLM

2023

2023 | Google releases public access to Bard, a generative AI chatbot built on 137 billion parameters, and embeds generative AI capabilities into its Workspace products

A BRIEF **FUTURE** OF GENERATIVE AI

NOW

Generative AI **accelerates** business as usual

IF

Businesses can find a way to mitigate risk with as-of-yet unreliable technology

CONTENT GENERATION TIMES ARE ACCELERATED

Major advances in language processing and multimodality accelerate select activities, such as copywriting, UI/UX design, and content editing. The technology is nascent and still requires major human oversight. Questions on risk and veracity require humans to double-check outputs, accelerating but not automating development.

NEW

Generative AI **automates** minor activities

IF

Questions on accountability, ownership, and security are resolved

INNOVATION & INTEGRATION ENABLE TRUE AUTOMATION

Continued innovation will reduce the need for human oversight. AI will be able to predict human reactions and generate high-fidelity, verifiable, and trustworthy content, and will integrate with other tools (e.g., email, calendars) to impact business as usual, as described in *The Implications of Generative AI for Businesses*. The value to businesses will be maximized when clear regulations are set.

NEXT

Generative AI **augments** the human workforce

IF

The public and regulators can understand the evolving role of humans in the workforce

TRUE AUGMENTATION IS THE ULTIMATE FRONTIER

Co-development of technologies such as neural interfacing and quantum computing will allow generative AI to tackle complex problems such as drug design, advanced simulations, and creative automation. As more companies go *All in on AI*, humans will regularly rely on AI as a virtual teammate rather than a tool, provided there is a change in public hearts and minds.

FUTURE PROJECTIONS

	NOW (TODAY)	NEW (18-24 MONTHS)	NEXT (5+ YEARS)
Interface	Improved AI alignment in natural language creates outputs that meet human expectations, working towards a seamless, natural-language-based computer interface AI systems are starting to support multimodal input and output	Basic generation will be part of daily life Advanced emotion alignment enables AI to become a reliable first point-of-contact for customer-facing applications Sophisticated content can be generated, marked by longer duration, increased complexity, and custom formats	Neuroadaptive capabilities lead to direct generation from brain activity Models will understand human intent from context such as recent actions, emotions, and situational awareness AI responses adapt to individual personalities
Capability	Generative AI can logically reason, generate code, and craft imagery on par or at better capability than humans Language generated is nearly flawless, with strong translation capabilities AI operates equally well across diverse industries	AI can generate complex prototypes, such as an app, based on a prompt Industrial use cases, such as generating an architecture for a bridge, will be more common AI can coordinate multiple tools to act as an agent	Generative AI can optimize strategic planning by providing choices, impacts, takeaways, and recommendations Integration with quantum computing will enable advanced simulations (e.g., next-gen digital twins) and optimization in engineering, design, logistics, and more
Enablers	Computing power enabled recent models to dwarf earlier generations in size, complexity, and cost Capabilities are powered by significant advances in model training and architecture, and an abundance of data	Further tool integrations will extend current capabilities Ingesting strategies and blueprints as training data will improve AI's planning and coordination abilities Improved training methods and self-improving code will lead AI to generate & learn "on-the-edge"	Novel architectures will incorporate continuous, on-edge, and inexpensive learning, leading to higher-quality outputs Context limitations could reduce to near-zero as AI integrates with most products and has thorough context of user intent and trajectory

ALLURE

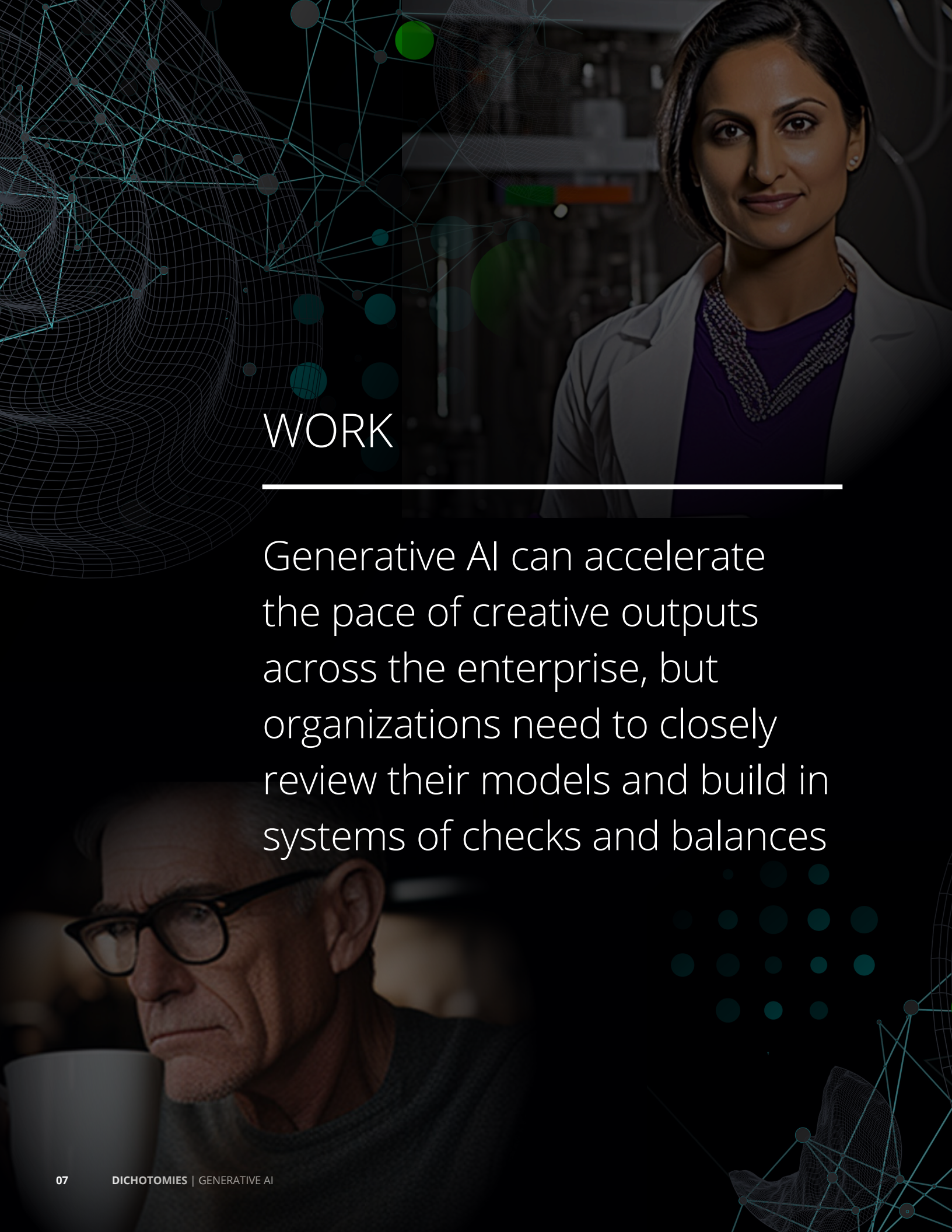
Widespread adoption of generative AI will augment human creativity, leading to an era of enhanced productivity, rapid scientific breakthroughs, and more leisure time for all.

CONCERN

Rampant misuse of generative AI will lead to inaccurate or harmful outputs, perpetuate historical biases, and break down trust in information.

Projecting future possibilities across three domains:

WORK | EDUCATION | SOCIETY



WORK

Generative AI can accelerate the pace of creative outputs across the enterprise, but organizations need to closely review their models and build in systems of checks and balances

ALLURE
Aarti

Aarti's car drives itself with ease into a sharp loop off the highway. She drums her fingers incessantly on top of the steering wheel — a bad habit she picked up from her father. As the car parks at her office, Aarti's ears perk up to the voice of Anderson Cooper, rendered by generative AI at her request. Her Monday podcast, tailored to her interests in biotech news, plays a snippet on the latest healthcare scandal. She cringes as she leaves the car.

Aarti strides into her lab and greets the tired faces of her researchers. For the past few weeks, they've been assigned to a drug development project that could ease the symptoms of dementia, and their board wants results as soon as possible. Aarti and her colleague Roger study the latest outputs of their proprietary generative AI program: a dozen viable, high-fidelity protein structures, replete with percentages to indicate likelihood of side effects.

As Aarti guides Roger on which structures to feed into their quantum molecule simulator to forecast viability, she receives a call on her tablet from the CEO of their company SaluTech.

"Ooh, Aarti's in trouble," Roger jokes.

"Shush," she replies.

A hologram of their CEO Lindsay, looking distraught, appears on Aarti's tablet. She immediately shares a video with Aarti: a press release from the WHO alerting the world to a novel zoonotic virus identified in Zurich.

Aarti's eyes widen. "Lindsay, I want to —"

"I know, that's why I called. Shelve the current project and give me five viable vaccine options to move towards clinical testing by the end of the week." Lindsay cuts the call short. Roger and the other researchers stare.

"Let's get started!" Aarti declares, and the lab springs into a frenzy. Someone shouts out that the WHO has already sequenced the virus, so others begin feeding the info into their AI to produce vaccine candidates.

While the team scrambles, Aarti sits still at her desk, drumming her fingers nervously across the marble surface. More than a decade ago, her father passed away from COVID-19 before a vaccine was available. Even with only one spike protein to address, drug development took an entire year. This newest virus could have hundreds of mutating spikes or require an entirely novel method of inoculation. Whatever it was, Aarti was bent on advancing the field. With the speed of AI simulations, she knew her team could stop the next pandemic before it affected millions of families like hers.

Aarti snaps out of her reverie and employs an AI marketing assistant to draft a press release, prompting it to talk about her past and her company's desire to create the first vaccine. Remembering the scandal she heard about on her morning podcast—about the marketing issues of the Gen AI startup Deliveri, Aarti makes sure to send the article to SaluTech's PR manager for review. She also provides permission to generate a video using her face and voice, so SaluTech's audience could connect to the emotions of her father's passing. Then, she rejoins her team — she's eager to dive into the details.

CONCERN
Xavier

"Only one today," he mutters to himself as he sits down with his morning coffee. Xavier, the marketing lead of Gen-AI startup Deliveri, is trying to cut back on his caffeine intake after dozens of alerts from his smart watch about caffeine fueling his anxiety and insomnia. He opens a laptop for his Daily Download, a personalized report generated each morning with his daily agenda and relevant industry news.

Expecting a leisurely read, he instead snaps to attention as his AI assistant Cara alerts him of being late to an urgent meeting. "How did I miss that?" he wonders. His alarm increases as he reads the article within the invite.

The Irony of Deliveri: The AI That Failed To Deliver

Shocking patient testimonials reveal how the London-based startup perpetuated stereotypes and prejudices towards expectant mothers in the Black community.

The technology, which leverages generative AI to create virtual training scenarios for physicians, promised reduced costs, improved bedside manner, and more. Yet, Black mothers claim that physicians trained by Deliveri have stereotyped them and provided inappropriate dosing for pain management. Says one mother, "It's like they've trained their AI on medical thinking from the 2010s."

Xavier can't believe the contents of the article. Before he can even process, Cara alerts him that the company's founder, Ajay, is waiting in his virtual meeting. Xavier knew better than to make his boss wait.

Ajay is yelling at the team as Xavier joins. "What do you mean you can't retrain the program? Isn't that what I pay you engineers to do?"

"Well..." Laurence, the head engineer, hesitates to find the right words for Ajay's temperament. "You asked us to use AI-as-a-service to cut costs, and the bias is baked into the vendor's AI training data. It's going to take time to rectify."

"Ugh! Xavier, let's see if you can prove more useful today. Use BrandBoost for a marketing campaign that shows how inclusive we are. Send it out before lunch."

Before Xavier can object, Ajay ends the meeting.

Ajay had laid off over half the staff and increased reliance on generative AI vendors, which meant Xavier was the entire marketing department. Xavier rakes his hands through his hair as if to bring some ideas out of his head to life. He opens BrandBoost, an AI program used to build multi-modal marketing campaigns. With the fear of Ajay's deadline looming, he rushes to enter various prompts to produce press releases and video advertisements and uploads them without review.

As the afternoon passes, Xavier asks Cara to assess engagement with the posts he previously distributed. "Not positive," she declares. Xavier's eyes widen at the flurry of comments pointing out the ads only include White mothers and infants, not the Black mothers who've been impacted by Deliveri.

"Book an urgent meeting with Ajay in the next available time slot," Xavier instructs Cara.

He looks at his coffee mug from this morning, pondering how much more caffeine he'll need to get through what he knows will be a horrible evening.

TAKEAWAYS

HUMAN AND MACHINE, BETTER TOGETHER

As generative AI becomes more accessible, reliable, and robust, more workers can expect to partner with these tools in their daily work, as detailed in Deloitte's recent *Benefits and Limitations of Generative AI* report. Lower-order tasks such as preliminary research or drafting, content generation, and summarization can be delegated to machines, while humans focus on higher-order tasks. For instance, Aarti relies on AI to generate options for protein structures but applies her own expertise to determine the best options. Going forward, organizations should be looking to hire people with uniquely human skills like ingenuity, adaptiveness, and problem-solving, while the machines do what they do best.

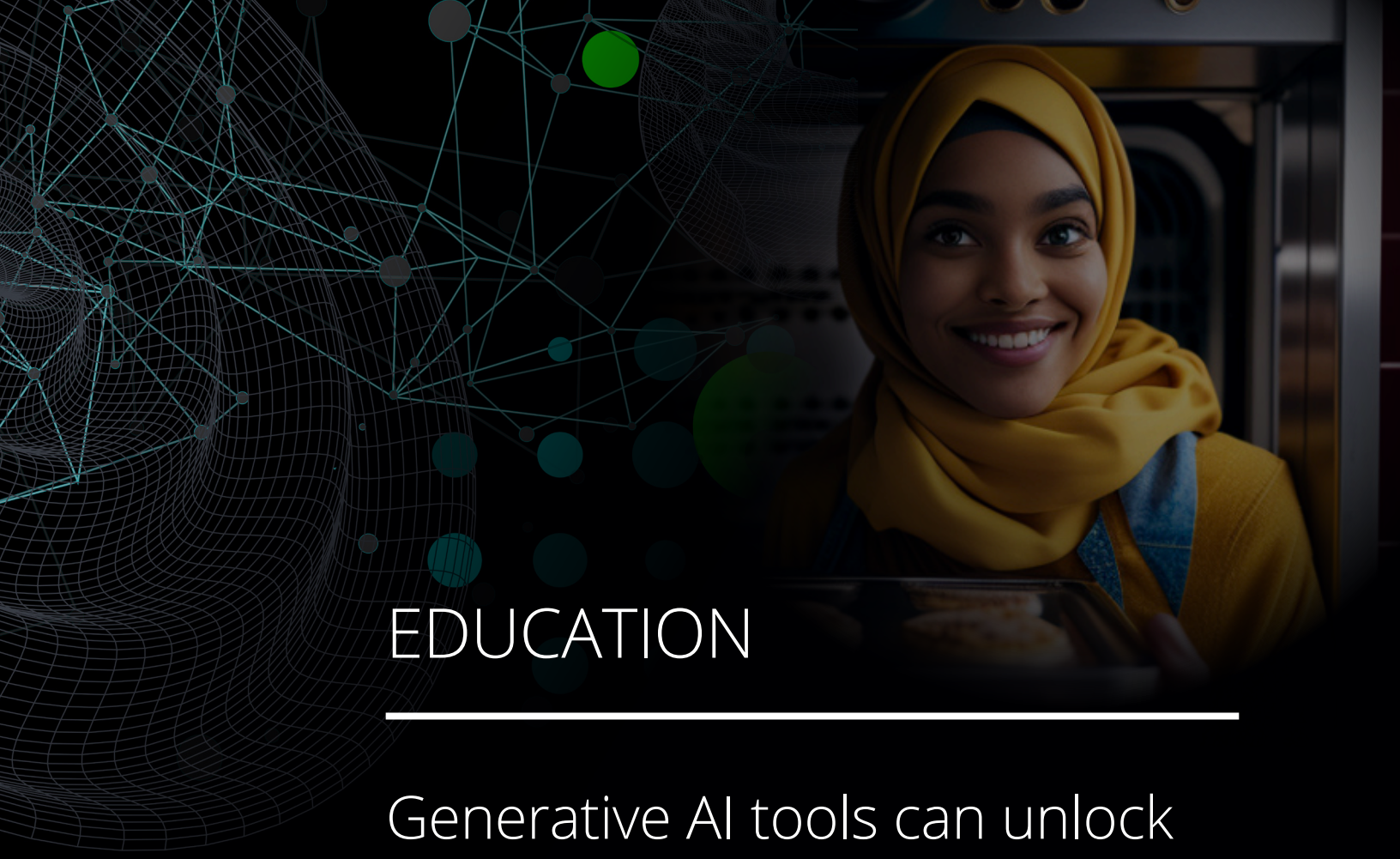
FROM BLACK BOX TO GLASS BOX

Widespread adoption of AI across industries could turn algorithms into high-level decision-makers. While this may greatly lower costs and increase productivity, trust will be the differentiating factor between successful adoption and disastrous outcomes. As detailed in Deloitte's *Tech Trends 2023*, deploying frameworks to make AI more responsible and transparent, as we would expect a human colleague to be, can ensure that organizations maximize value and mitigate risk. Otherwise, Xavier's trouble with an opaque and unreliable AI could become all too common.

MOVE FAST, BUT DON'T BREAK THINGS

Generative AI technology could eventually lead to breakthroughs for seemingly intractable problems, like dementia or the next global pandemic. The computational power of AI can exponentially speed the completion of tasks that are typically inefficient or time-consuming for humans, like trial-and-error experimentation. Yet, as Xavier finds out, the speed of generative AI often needs to be tempered by human reviewers, as detailed in Deloitte's *Proactive Risk Management in Generative AI*. Organizations can develop a generative AI strategy by pinpointing the areas with the highest potential for efficiency gains, and where checks and balances may be required.

INDUSTRY	SELECTED USE CASE	EMBRACING THE ALLURE	MITIGATING THE CONCERN
Life Sciences	Drug discovery	Boost research and development (R&D) processes, resulting in innovative outcomes and accelerated time to market.	Quality control and human involvement is needed to oversee the development and testing process and ensure fit for purpose.
Healthcare	Simulation generation	Improve onboarding and training processes using a wide array of scenarios (combining AR/VR + AI) in controlled environments.	Transparency into algorithms is required to actively root out any discriminatory training data.
Media	Press releases	Enable hyper-personalization and automation of PR content, resulting in more customer engagement while reducing cost.	Establish guardrails to mitigate potentially discriminatory or inappropriate content produced by AI.



EDUCATION

Generative AI tools can unlock a new era of adaptive learning and emphasize skills in creative thinking and design, provided they protect against historical biases

ALLURE
Imani

"Add eggs and vanilla extract to the dry ingredients and whip till smooth. Next, sprinkle brown sugar on top to caramelize (BUT do not go overboard – yes, I'm talking to you Imani)." Imani giggles to herself as she pauses the audio of her mother's famous cookie recipe. Back in her freshman year at Bergin College, she'd learned how to use AI to mimic her mom's voice with just a short audio clip and a block of text, and she played this recipe whenever she baked, which she often did when she procrastinated. Despite her mom's warning, Imani applies a heaping of brown sugar and pops her mixture into the oven.

Back at her desk, Imani resumes the final learning module for her senior year capstone in Applied AI. Professor Morris's modules are practically a lullaby, and her ADHD doesn't make matters any easier. Fortunately, Imani can feed the module into a generative AI education assistant and watch an avatar of her personal hero, Admiral Grace Hopper, deliver the lecture as a conversation, which better fits her learning style.

Once she finishes the module, Imani feels quite accomplished, ticking off completed tasks on her holographic tablet. Her smile fades when she realizes she's forgotten the literature review due tonight. She opens the generative AI research tool her professor suggested and puts it to work, asking it to scrape together publicly available papers and synthesize the first draft of a summary. She quickly sets the constraints for citations in MLA and the format of a bulleted memo, and then turns her attention back to the main capstone assignment.

Before she dictates any code requirements to her tablet, Imani plays the audio of her last visit to office hours. "Generative AI outputs are everywhere — it's like the TikTok of your age," Professor Morris had said when she mentioned her capstone idea.

"Huh?" Imani didn't know what to make of the reference.

"Think outside the box. What's a specific problem that we haven't addressed with generative AI yet? Something only you can tackle."

Imani was initially discouraged, but she appreciated that she had to go above and beyond what was expected of her. Her ADHD meant people often didn't believe in her capabilities, and she reveled in proving them wrong. She just needed the right idea.

The oven chimes to indicate the cookies are done, and the idea strikes Imani. She has such fond memories of baking with her mom, but their family restaurant was lately struggling to compete against establishments with more funding. What if she could develop a generative AI program tailored to small restaurants? It could fuse existing recipes with global cuisines to come up with innovative weekly specials, produce a new website with a few clicks, and even build a basic app for ordering. If her generative AI capstone could show off her coding and creativity at the same time, she would be a hit with all the companies attending AI recruiting week.

Imani jumps up to grab the cookies and calls her mom.

"Baking again?" the knowing voice on the other line asks.

"A lot more than cookies," Imani responds.

CONCERN
Elu

MOM

Osiyo Elu - Can you pick up your brothers from practice tonight? I have a double shift 😟

"Sounds good," Types Elu, who uses the pronoun they, and directs an AI assistant to update their calendar with enough time to ride the 7 train to Queens.

"Less time than I thought for that assignment," Elu mutters while sinking into a library seat. It's the first full week of classes at Bergin College, and Elu's already eager to score an A in Avatar Generation 101 — they'll need it to major in Metaverse Design. Yet, between their part-time job and helping raise their siblings, there doesn't seem to be enough time in the day. They wished they could don a VR headset and play games to relax, but instead they open up the avatar generation platform and smile at the professor's assignment: "Create a group of avatars that reflect your family." Elu's sure it'll be a breeze.

As a first-generation student, Elu hears their mother's voice in their head all the time. "Be proud of your heritage. Never give up." She had repeated it like a mantra when Elu complained about the college application process, especially how other students could use generative AI to write essays that reflected their background but the essay generator never portrayed Cherokee culture or two-spirit people accurately. To satisfy Mom, Elu enters prompts about Cherokee people into the AI, following the professor's guidelines on workarounds since Cherokee isn't a default option. Their eyes widen with disbelief as inaccurate and offensive avatars are generated. Their heartrate quickens and they wipe the sweat from their palms and text a classmate for advice.

ETHAN

Yeah, I finished the homework. Few of us from my high school shared prompts... Want me to send them to ya?

Elu rubs their forehead, weighing the options. The idea of sharing prompts seems wrong. And Ethan and his classmates are white, so their prompts might not even generate Cherokee features. Elu wants to be accurate, but also needs an A. Feeling lost, Elu remembers the orientation leader advising freshmen to ask their professors when in doubt. Shoving their laptop in their bag, Elu hustles out of the library to catch Professor Pardo's office hours.

While the professor scrolls through his holographic tablet, looking distracted, Elu tries to explain their concern.

"In the past, I've not seen offensive content generated if prompts are written well," Pardo states.

"I tried the workarounds. Do you have any other suggestions?" Elu pleads.

"Perhaps focus on ways to represent your family without race, like abstract versions or symbols. Think outside the box," he replies, continuing to scroll on his tablet.

Elu storms out, fuming, while Professor Pardo barely notices their exit. Walking aimlessly towards the library, Elu sighs as their smart watch pings with a reminder to pick up their siblings. They turn towards the nearest subway stop as doubts creep into their mind. Maybe becoming a first-generation metaverse designer, and the first Cherokee one they'd personally seen, was too much to dream. If their classmates are going to have such an easy time in comparison, it feels futile to even try competing. As the 7 train rattles towards Queens, Elu hangs tight to the pole and rehearses how they'll break the news to Mom.

TAKEAWAYS

BRINGING EVERYONE ALONG

Generative AI is likely to close some technological divides and expand others. While neurodivergent students like Imani can benefit from adaptive learning, those with less access to AI can face new risks. For instance, older generations may be more likely to be attacked by deepfakes and data breaches, and minorities racially and ethnically diverse people like Elu may not be able to attain the same benefits from AI as others. Organizations should prioritize developing resources that promote generative AI literacy and accessible UX design, in order to unlock its potential across industries for a more equitable playing field.

RETHINKING INTELLIGENCE

The integration of AI in education will likely necessitate a shift in the way we evaluate student performance—and even the concept of intelligence. Students like Imani and Elu have already begun adopting generative AI to create everything from art to essays for school assignments. As such tools become more widespread, schools should grade students based on their ability to design, rather than their ability to execute. In turn, organizations will likely redesign workplace performance reviews to incentivize creativity over execution or efficiency, delivering a better customer experience.

BREAKING THE BIAS BARRIERS

Generative AI systems often contain bias in their training data that leads to discriminatory outputs. To prevent further marginalizing students like Elu, it is vital to prioritize DEI during the creation of generative models, in both data collection and team structure. As detailed in our Trustworthy AI™ framework, organizations can also design new processes to break down bias, such as conducting regular algorithm audits or embedding ethics experts on coding teams. When mistakes do occur, it's equally important for those building or applying generative AI tools to take accountability and correct any unintended consequences.

INDUSTRY	SELECTED USE CASE	EMBRACING THE ALLURE	MITIGATING THE CONCERN
Hospitality	Web development	Assist software engineers in writing more efficient code and providing solutions to complex problems. Facilitate personalized, safe user experiences through chatbots, optimized search engines, and cybersecurity testing.	Employ skilled technical reviewers to oversee output, since code could be prone to inaccuracies or user experience issues.
Education	Curriculum design	Create personalized and adaptive educational content, catering to individual student needs and learning styles.	Ensure training data is diverse and inclusive, and regularly evaluate the generated content for bias. Supplement traditional teaching methods rather than replacing them, to ensure students practice creativity and critical thinking.

SOCIETY

Generative AI can bring our imaginations to life with unprecedented speed and convenience, but it can also enhance the ability of bad actors to spread misinformation

ALLURE
Rafael

"Do you want to build a snowman? Come on, let's go and play!" Candice belts out the lines as her mother Maria stops the car outside the home design store.

"Papi – I should be a singer when I grow up!" Candice insists as she slides out of the car.

"Of course, hija! I bet Cairo has great choirs. Maybe our new home can have a piano." Rafael smiles at Candice, hoping to keep her in good spirits despite this sudden shopping trip on her birthday.

Yesterday, Rafael received an unexpected promotion to senior engineer, requiring him and his family to relocate to Egypt within the year. Since graduating with his PhD in Nuclear Engineering, he'd dreamed of commercializing fusion-produced power, and this opportunity would be a huge step forward. Still, he couldn't shake his nerves about 9-year-old Candice adjusting to a new country. He hoped that visualizing it could get her excited.

Rafael speaks to a design consultant who turns his preferences into prompts for their generative AI assistant. Donning VR headsets in an immersive media room, Rafael and his family visualize different neighborhoods in Cairo, and then enter the home generated by their prompt: Mid-century modern style with two floors, home office, and kid's room with a piano. Rafael immediately takes an interest in the kitchen and asks the generative AI to place the stove in a different area, and generate the smell of his favorite meal, his grandmother's ajiaco recipe, to really feel at home.

Meanwhile, Maria smells the soup as she speeds upstairs to work on her perfect home office, prompting the generative AI with requests about window placement, monitor screens, and a whiteboard. Candice too, hesitantly heads up the stairs to her room. Knowing she's a child, the generative AI begins with providing options for fun wall colors, and Candice settles on a periwinkle blue. The design consultant taps her on the shoulder and asks if she'd like any murals on her wall.

"Put Elsa in Egypt," Candice thinks out loud, and instantly a mural is generated of a Disney-inspired princess in pharaoh's clothes. Rafael's nerves are calmed by the sound of Candice's delight as he removes his VR headset to watch her.

After a long evening, the family gathers around their smart coffee table with a cupcake for Candice.

"Do you want Elsa to sing you Happy Birthday?" Maria asks. Since they've purchased a license, they can prompt the character to generate any child-friendly song with just a few taps.

"I want her to sing about the pyramids!" Candice replies, eyeing her cupcake.

Rafael chuckles. "Let me see if she can work the pyramids into the Happy Birthday song." As he pulls up the screen on the coffee table, the first image is his tailored daily newsletter, generated based on his interests. He gasps at an image of his college roommate Tyler in a headline about plagiarism. He shoots a glance at Maria and swipes away, opening the Disney application.

"Okay," Rafael nudges Candice, "you ready to sing?"

CONCERN TYLER

"Something is missing," Tyler mutters to himself as he stares at the website he's designed for his client's new salon. He quickly uploads his initial draft to his favorite generative AI design platform and uses prompts that he's honed to produce alternate designs. He picks the option that best represents his style: Sharp angles and gradients that produce a shimmering yet minimalist look. He sends the design mock-up over to his client and leans back, feeling satisfied. Thanks to his work going viral on a popular design blog, Tyler had turned his beloved design hobby into a full-time job and the speed of generative AI enabled him to take on hundreds of small clients in the past few years.

Suddenly remembering the date, Tyler clicks over to the page of a design competition he had entered that could land him a huge contract.

Check back at 11:00 AM on the 15th of June to see if your design has been chosen to represent everyone's favorite burger joint!

Tyler sighs as he glances at the clock. 10:58 AM. He feels optimistic: He'd impressed the fast-food company's executives by prompting the AI to add his distinct style to their iconic brand. The page begins to refresh and Tyler clenches his fist with excitement. A familiar design spreads across the screen, and a smile spreads across Tyler's cheeks. He scrolls down the page to screenshot the prize announcement so he can send it to his good friend Rafael. But his joy quickly fades as he reads:

Congratulations to our winners PS Design!

Tyler scrambles to call his contact Kim who organized the brand competition. When she picks up, Tyler frantically explains that there must be a mistake — the design on the page is unmistakably his.

"We went with PS Design because of their size and reputation. They use the same AI model you prefer, so perhaps it drew on your work? In either case, I'm afraid our decision is final."

Before Tyler can reply, she hangs up, leaving him fuming. He paces around his office, considering his options, but eventually returns to his laptop and comes across an article about the government not passing AI legislation due to lobbyists. A few commenters claim they've run an information check and found that the story was fabricated using AI, but others echo the article's sentiments and post more examples. Tyler feels his heart pounding as he scrolls through pages and pages about independent artists being plagiarized with no recourse, until he finds a forum that encourages creators to fight back.

Using reams of historical evidence that seem convincing, the forum users present an argument that captivates Tyler. He follows the steps they suggest to generate a deepfake video of PS Design's CEO admitting to financial fraud and posts it anonymously on his favorite design blog. He shuts his laptop and rushes away, feeling unsure.

The next morning, Tyler wakes up and can't stop regretting his decision. He hopes to quietly delete the deepfake, but his jaw drops when he sees that it's received millions of views and several hundred comments. Knowing this isn't right, Tyler reveals himself as the original poster. Messages from reporters start flooding his inbox, and Tyler sighs as he looks at the clock again — it's about to be an even longer day than yesterday.

TAKEAWAYS

CREATIVE OWNERSHIP BECOMES COMPLICATED:

As generative AI tools become more accessible and robust, the lines of creative ownership will likely blur. As noted in the Concern, a competing firm could mimic Tyler's artistic style without legal recourse. Amidst rapidly evolving and uneven regulatory environments, organizations should take proactive measures to clarify their content ownership. Corporations with lucrative intellectual property are likely to lead the way with licensing frameworks, so they can be compensated for any content used by a generative AI, as indicated in Rafael's story. Without such frameworks, the risk of exploitation may run rampant.

RESPONSIBLE DESIGN COMES FIRST:

Generative AI provides users with access to an unprecedented range of experiences and ideas. Even a young child like Candice can use her imagination to better understand life in a foreign country or design a room that fits her interests. Yet, when the power of invention is used to spread misinformation, the impacts on society and politics can be severe. For generative AI to facilitate connectedness and foster equity, organizations need a responsible approach that emphasizes responsible design, cybersecurity guardrails, and clear objectives.

DIGITAL SCRUTINY REPLACES TRUST:

As discussed in *Tech Trends 2023*, the "digital trust gap" is widening, and generative AI is likely to further complicate the process of validating a single reality online. Different segments of society could further drive themselves into idea bubbles that influence politics, financial markets, and consumer behavior. As Tyler's story demonstrates, the ability to evaluate sources and regulate misinformation may become vital. Organizations have already lost billions in market value as a result of losing stakeholder trust in the digital age – wise leaders should incorporate concerns of trust and authenticity into their implementations of generative tools.

INDUSTRY	SELECTED USE CASE	EMBRACING THE ALLURE	MITIGATING THE CONCERN
Entertainment	Licensed content generation	Proactively create licensing agreements and in-house services so creators can benefit from usage of AI that employs IP (e.g., characters, music, images).	Protect individuals and corporations from unlicensed IP usage and work with major generative AI providers to understand data intake processes.
Design	Expedited brainstorming	Reduce the time spent by designers on repetitive tasks or time-consuming first drafts, allowing them to focus more on creative aspects and greatly increase their volume of output.	Enhance, rather than replace, human creativity. Preserve human input, diversity, and divergent perspectives in the design process to enable innovation and limit biases.
Industrials	Rapid prototyping	Facilitate rapid production of new tools or products, as design iterations will be generated quickly and accurately, while optimizing for performance and cost.	Establish clear processes and feedback loops to ensure AI outputs are addressing organizational aims and meeting user demands, all the while ensuring humans retain control.

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The Novel and Exponential Technologies (NExT) team is a group of futurists and researchers who sense—and make sense of—emerging technologies that have the potential for widespread business impact. With our pragmatic approach to futurism, we help organizations shape strategic business agendas and set an intentional course toward tomorrow.

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