

# EXECUTIVE SUMMARY



Yale SCHOOL OF MANAGEMENT

CEO SUMMIT

## The Internet @50

What Experts Got Right and Wrong –  
Impact on Your Business

Virtual | June 11, 2024

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Yale SCHOOL OF MANAGEMENT

*Chief Executive Leadership Institute*

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**Jason Furman**, Former Council of Economic Advisers Chair

**James Clapper**, Former Director of National Intelligence

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**Ed Breen**, Executive Chair, DuPont  
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# The Internet @50 What Experts Got Right and Wrong – Impact on Your Business

## Introduction

On June 11, 2024, Jeffrey Sonnenfeld, Senior Associate Dean of the Yale School of Management, led a virtual gathering of the Yale CEO Summit, the 148<sup>th</sup> Yale CEO Summit.



Jeffrey A. Sonnenfeld, Senior Associate Dean, Yale School of Management

This Summit brought together about 200 CEOs and business leaders, current and former federal government officials, technology pioneers, academics, and thought leaders from a wide variety of disciplines.

The theme was *The Internet @ 50: What Experts Got Right and Wrong – Impact on Your Business*.

A panel of legislators, former and current government officials, and leading technology thinkers hailed the enormous benefits from technology, but focused on the risks of social media and other technologies. Senators described legislation to require greater transparency and accountability by social media platforms. Most Summit attendees support legislative and regulatory efforts and want the government to go even further in revising Section 230 of the Communications Act of 1934, which shields social media platforms from liability.

A panel focused on the Internet's 50<sup>th</sup> anniversary included legendary technology pioneers Bob Kahn, Vint Cerf, and George Conrades,

who developed the architecture and protocols that still provide the internet's technical foundation. Participants praised these pioneers and raised risks that have arisen over the past 50 years, including lack of security, identity, personal data ownership, and trust.

Subsequent panels featured CEOs from numerous industries discussing how technology in general, and AI in particular, are being adopted. Discussions focused on global finance, media, consumer products, healthcare, and heavy industry. In each industry, companies are adopting AI to improve efficiency and productivity, support employees, improve the customer experience, and transform their company and industry.

Despite warnings from some technology experts about the immaturity and dangers of AI, CEOs, entrepreneurs, and many investors are embracing AI with an enormous sense of urgency.

**"All of this is changing at such speed that I think not to lean into it aggressively would be a mistake, because it will take place. If we don't lean into it, someone else will."**

—Kay Koplovitz, Founder & Former CEO, USA Networks

The Legend in Leadership Award was presented to Marc Benioff, Chair, CEO, and Co-Founder, Salesforce.



Room grid of top CEOs.



# We're From The Government And We're Here To Help: *Establishing Regulatory Guardrails Without Stifling Technological Innovation*

## Overview

Society has realized significant positives from technology, which has sparked innovation, boosted connectivity, and produced economic growth. However, there are dark downsides to social media platforms and AI. The vast majority of participants don't believe that technology companies – which are focused on making money – can govern themselves. Therefore, regulation is needed.

All Summit participants support the Kids Online Safety Act and most believe even further government action is needed, including revising Section 230 of the Communications Act of 1934, passing data privacy legislation, and more. Some voices called on CEOs to pause in adopting artificial intelligence, but as the later sessions showed, few CEOs are likely to pause as companies in all industries are rushing to jump on the AI bandwagon.

## Context

Government and private sector leaders discussed risks associated with social media platforms and AI, and the need for regulatory guardrails.

## Key Takeaways

**There is bipartisan support for regulatory guardrails that establish protections for kids from social media.**



Senator Marsha Blackburn, US Senator from Tennessee

Senators Marsha Blackburn and Richard Blumenthal summarized the Kids Online Safety Act (KOSA), which establishes guidelines aimed at protecting children. They have worked on this legislation, which now has 69 cosponsors in the Senate, for three years. Blackburn said they have listened to parents, teachers, pediatricians, and teens themselves, many of whom have said that it's time to put regulation in place for the virtual space.



Senator Richard Blumenthal, US Senator from Connecticut

Blackburn said that the aim of social media is to keep kids online for longer, to develop richer data and make more money. And it's working. Teens are currently spending about 8.5 hours per day online and kids ages 8 to 12 spend on average about 5 hours per day on devices. But research shows that when children spend more time online, some are pushed to eating disorders and other negative results – even suicide.

The basic pillars of this legislation are: 1) more transparency of the algorithm; 2) establishing a “duty of care” so that social media companies will be held responsible and accountable for failing to stop harm to children; 3) new tools for parents and kids to be able to block the algorithms; and 4) mandatory annual audits of the social media platforms.

These senators believe the legislation is near the finish line in the Senate and are hopeful it will receive the necessary support in the House and will move forward to become law. Members of the House, as well as leading thinkers, expressed support for KOSA, noting that it is long overdue.

Even legislators who represent districts with a significant big tech presence and who see the many benefits of social media – enhancing expression, connectivity, and economic growth – still see KOSA as a “common-sense approach” that helps protect kids. A point raised by one legislator was that the big tech companies, which have historically opposed any form of regulation, are masterful at getting around regulations. Therefore, to give teeth to any technology-focused regulation, the government must hire capable technologists who are able to enforce the regulation.

Most CEO Summit participants support this regulation.



Speaker Emerita Nancy Pelosi, 52<sup>nd</sup> Speaker of the US House of Representatives



Ro Khanna, US Representative from California (Silicon Valley)

Real-time polling question of CEO Summit participants	Agree	Disagree
I am in favor of stronger government regulation of social media platforms	85%	15%
I am in favor of the Kids Online Safety Act (KOSA)	100%	0%

**Many leaders—from the public and private sectors, and from both parties—want regulation to go even further.**

While all CEO Summit participants support KOSA and most are in favor of stronger government regulation of social media platforms, several participants said that the legislative process is far too slow and hasn't gone far enough.

One participant, who commended Senators Blackburn and Blumenthal for their leadership of KOSA, said he has been warning

Congress about the harms of social media for eight years, and another participant noted that even after 40 congressional hearings on social media, there are still zero laws. Several participants noted the fierce opposition from big tech and the repeated statements by big tech leaders about self-initiated voluntary measures.

**“We need to stop waiting on the better angels of tech CEOs to show up. Enough already.”**

While seeing KOSA as a first step, several participants expressed the need for further laws and actions, which extend beyond just protecting kids. Among the ideas mentioned were:

- **End Section 230 protections.** Section 230 of the Communications Act of 1934 provides immunity to online platforms from civil liability based on third-party content on the platform. Multiple Summit participants argued that the context and the technology have changed dramatically since Section 230 became law as part of the Communications Decency Act of 1996. Even several participants who supported Section 230 at the time of its passage believe that times have changed, and that it is necessary to revisit and amend Section 230, especially for algorithmically elevated content.

Real-time polling question of CEO Summit participants	Agree	Disagree
Tech company protections under Section 230 are obsolete	96%	4%

**“The original justification for Section 230 is long gone; the dangers and risks of social media, enhanced by AI, require that 230 be amended to protect the public.”**

- **Age gate social media.** One participant suggested an age of 16.
- **Watermark all AI-edited content.** In particular this should apply to political content.
- **Address privacy.** Legislators said that an additional privacy bill is needed while others argued that people need to be able to own and control their data.
- **Improving the products.** As one participant said, “Rather than just put up guardrails and regulations, before we spend all of our time on that, try to improve the products.”
- **Consider an alternative internet.** Some see the need for a completely alternative internet, that is freshly designed and enables people to own and control their data. Others don’t support this idea.

### In addition to regulation, more must be done to build trust in technology.

Former IBM CEO Ginny Rometty said that with any technology – whether the internet, generative AI, quantum computing, or anything

else – the key is operationalizing trust. She said that to build trust it is necessary to address not only the upside of technology, but also the downside.

She believes that in recent years, addressing both the upsides and downsides of social media and other technologies has not been done. There have been positives, but the downsides have not been addressed, resulting in a “big chasm of trust.”

Rometty suggested focusing on the following ideas: determining who owns the data; making sure that any technology is transparent, explainable, and free of bias; and having clear governance along with frequent, transparent audits.



Virginia Rometty, Former Chair, President & CEO, IBM

### Some tech experts warn: There is no rush to embrace artificial intelligence.

While legislation and regulation involve the government providing guardrails, a leading technology investor and other thinkers suggest another type of guardrail: that companies take a pause in their rapid adoption of AI.

Famed tech investor Roger McNamee said, “My big admonition to all CEOs on this call is to pause. There is no rush to embrace artificial intelligence. In fact, one might reasonably conclude, if you did the analysis, that the technology is not actually ready for prime time and applying it into productivity use cases in corporations may lead to perverse outcomes, similar to what we’ve seen with other internet technologies.”

Frank McCourt agreed, stating, “Let’s slow down a little bit with generative AI.” He added, “The current internet is broken, and let’s fix it before we make it more powerful with generative AI.”

However, the following sessions, which focused on use of technology and AI in different industries, showed that most companies are racing ahead with AI so they don’t get left behind, not taking a pause.



Roger McNamee, Founder, Elevation Partners



Frank McCourt, Executive Chairman, McCourt Global; Founder, Project Liberty



# What We Wish We Knew When We Created The Internet: *Wisdom of the Pioneers*

## Overview

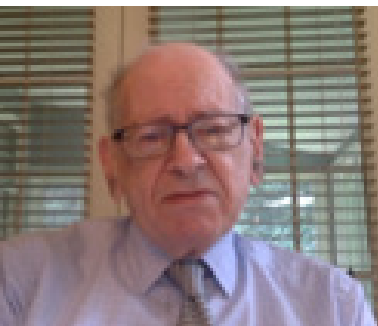
2024 marks 50 years since the architecture and protocols were developed and implemented that allowed the internet to blossom. Over these past 50 years, the internet has changed life, ushering in a new era of connectivity, information sharing, and now social media and AI. But with this connectivity have come threats and risks. Some believe that more regulation is required to minimize these risks, while others believe that regulation will add costs without improving security. Still, there is general agreement that government and business must work together to better protect the country's critical infrastructure, strengthen cybersecurity protections, and improve the security of AI systems and processes.

## Context

Internet pioneers discussed the technical foundations that have allowed the internet to thrive, while technologies and cybersecurity experts discussed the risks faced from connected networks and devices.

## Key Takeaways

**The internet turned 50. It has connected and transformed society, and introduced new types of risks.**

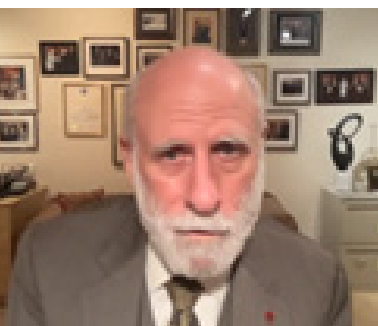


Bob Kahn, DARPA TCP and IP Communications Protocol Architect; Presidential Medal of Freedom Winner; and Chairman, Corporation for National Research Initiatives

Internet pioneer Bob Kahn explained that when he was running DARPA in the early 1980s, the focus was on “trying to link together machines, to get bytes from one machine to another.” This focus was driven by the need in the research community to share information.

Vint Cerf expounded on ARPANET's motivation: to link together universities and research institutions to share computing resources and software. This focus led to the development of TCP/IP protocols, which all participating institutions had to adopt as of January 1, 1983, to continue to be part of the growing internet.

Developing TCP/IP became the “lingua franca of the internet,” said George Conrades. “Internet Protocol is a beautiful thing.” It is this protocol, explained Conrades, that provides “an insanely brilliant capability to connect globally all forms of networks, all forms of devices.” He said that “IP has



Vint Cerf, DARPA Internet Architect; Presidential Medal of Freedom Winner; and Chief Internet Evangelist, Google

withstood the test of time,” and that the issues now being faced are on top of the existing IP structure, but these risks haven't convinced Conrades that there should be an alternative internet. It is not the internet that's the problem; it's the big content providers that need to do more about use of their platforms.



George Conrades, Former CEO of BBN and Chair of Akamai

### Yale Pioneering Leadership in Technology Award

In recognition of the enormous transformational impact of these pioneers, the Yale Chief Executive Leadership Institute honored Bob Kahn, Vint Cerf, and George Conrades with the Yale Pioneering Leadership in Technology Award.



Bob Kahn, DARPA TCP and IP Communications Protocol Architect; Presidential Medal of Freedom Winner; and Chairman, Corporation for National Research Initiatives  
George Conrades, Former CEO of BBN and Chair of Akamai  
Vint Cerf, DARPA Internet Architect; Presidential Medal of Freedom Winner; and Chief Internet Evangelist, Google

Reflections from participants about the internet turning 50 included:

- **Government support was essential.** It is important to recall that the internet would not have come into existence and America would not have played the leading role in its development without government support, funding, and policy decisions.  
  
“You can take almost any major industry in the history of this country and it was made possible with the help of government . . . The question is not whether government should be involved but HOW government is involved.”
- **Risks were apparent early.** Research scientist John Clippinger of the MIT Media Lab said it became very clear that people were not thinking about the fact that once you connect computers together, there are no protections and anything could happen.
- **Today's AI risks are largely related to incentives.** Several technology experts agreed with comments from Session 1 about

the dangers of AI. One expert said the current AI is premature, intrinsically unreliable, and vulnerable to abuse. It can be used to manipulate public opinion and foment social instability, and threatens democracy. However, “I think there’s no way of putting the genie back in the bottle,” said a tech expert. The key is to “make it in the interest of business to preserve trust,” which involves incentives and regulation.

“Cybersecurity and social media are really sobering. We need to put responsible regulation in place to ensure as a country that we benefit from the massive innovation that AI will bring.”

**The U.S. faces significant cybersecurity risks. Addressing them requires partnership between government and business.**

The connection of systems and devices, and the increased sophistication of criminals and countries, has exposed the government, businesses, and critical infrastructure to significant risk. However, the majority of Summit participants believe their organization is prepared for these threats.

Real-time polling question of CEO Summit participants	Agree	Disagree
I believe my company is sufficiently prepared to counter cybersecurity threats.	57%	43%

Other cybersecurity experts agreed with the problems that Neuberger mentioned. One former government official said it will take a “generational effort” and that “cybersecurity challenges will not be solved overnight.” Two additional points were discussed:

- **Disagreement over the effectiveness of regulation.** Several Summit participants expressed doubts about regulations. Regulations will impose costs and a compliance burden on businesses and aren’t likely to prevent the threats being faced.
- **Optimism about AI-enabled defenses.** Multiple experts remarked that AI is being used effectively for defensive purposes. “The good guys are winning.”

“AI-enabled defenses are far outstripping the capabilities of adversaries using AI to attack things like elections or critical infrastructure.”



Jeh Johnson, Former Homeland Security Secretary



Anne Neuberger, Deputy National Security Advisor for Cyber and Emerging Technology

Anne Neuberger, Deputy National Security Advisory for Cyber and Emerging Technology, sees significant vulnerabilities in hardware and software that bad actors – including Russia and China – are exploiting to achieve their goals.

In the U.S., critical infrastructure is often owned and operated by the private sector. “A lot of these systems are connected to the internet in ways that are not secure enough,” Neuberger said. She stressed that the solution involves partnership between government and business. She also believes it is necessary to:

- Regulate minimum cybersecurity standards across critical infrastructure.
- Make sure that AI systems are built more securely.
- Build in transparency about what data AI systems are trained on.
- Keep a human in the loop on key decisions.
- Ensure guardrails and adequate testing of AI models before they become operational.

**Business leaders support the government’s approach in several areas.**

While business leaders are rarely shy about criticizing government overreach, a few business leaders were complimentary about government. In particular, one CEO said that the federal government’s approach to China in terms of export control and protection of intellectual property has been sound. While the U.S. government may have initially been a bit slow, the “small yard, high fence approach” is seen by some as a sound policy.



Greg Brown, Chair & CEO, Motorola Solutions

In addition, another CEO sees efforts to decouple from China, through policies such as the CHIPS Act, as the right conversation to improve supply chains and U.S. manufacturing.

# Getting Your Money’s Worth From Technology – Perspectives From Global Finance

## Overview

Leading financial services firms are already using AI to improve productivity and enhance the consumer experience. Meanwhile, while billions of dollars are flowing into risky early-stage AI investments, some savvy tech investors see current valuations as astronomically high and believe that many early-stage AI companies are nothing more than product demos. Those who have lived through previous waves of technology investing urged investors and corporate leaders to remain calm, analytical, and unemotional about where to invest. One investor believes the true value of AI is likely to come through applications in specific verticals.

## Context

Global finance leaders shared examples of how technology is affecting the operations of financial services firms, offered perspectives on investments in the AI space, and discussed the impact of technologies such as cryptocurrency and blockchain.

## Key Takeaways

**Current valuations of AI companies are through the roof. The magic will be in applications.**

A legendary early-stage technology investor recently said that \$250 billion in capital had piled into AI startups in a pile of confusion, while another investor sees AI-related valuations as going through the roof based on what are largely product demos, not viable companies. One investor believes there needs to be more focus on computing power, such as data centers, and that real commercial value will be created when AI is implemented in applications in specific verticals.



Lloyd Blankfein, Senior Chairman, Goldman Sachs

**“What we’re seeing right now is just a large product demo that has captured the world’s imagination, but it’s not what the application of AI is going to be commercially . . . the real magic is going to be in the applications.”**

A former CEO who is now an investor hears lots of investment pitches and thinks many ideas sound great. However, much of what people are focused on is doing things better and faster as opposed to allowing people to do things that can’t even

be imagined today. He believes companies and investors will spend a great deal of money on technologies that sound essential, but will lead to dead ends. He encouraged corporate leaders and investors to take a deep breath, be analytical and dispassionate, and not get caught up in the excitement of the moment.

Another technology entrepreneur and investor is hopeful that this wave of innovation will be more geographically dispersed and won’t be dominated by the major tech platforms.

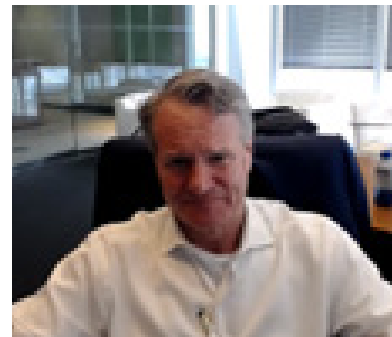
**Financial services companies are already using AI for some applications and see significant potential.**

The CEO of a financial services firm said that at any moment there are lots of customers struggling or demanding help related to a challenge. His company has found that AI chatbots or conversation bots can be used to understand better what customers really mean. A customer’s request can be filtered and summarized before the customer speaks with a human, enhancing the customer’s experience and saving the company money.



Max Levchin, Founder & CEO, Affirm

Another application of AI is a proprietary voice-activated financial assistant, developed in-house by a leading financial services company. This financial assistant gives consumers a greater ability to immediately get questions answered or take actions, without having to make a phone call or visit a branch. This powerful engine enables consumers, saves the organization money, and has applicability internally in an institutional setting.



Brian Moynihan, Chair & CEO, Bank of America

**Some finance leaders see enormous potential in cryptocurrencies and blockchain.**

While some finance leaders have dismissed cryptocurrencies, one global finance leader believes that cryptocurrencies are relevant to solve important problems. He thinks ignoring cryptocurrencies is a mistake. That’s because a global transition is occurring where technology allows people in different places to connect, form communities, and engage in commerce without regard for traditional borders.

In the past, the U.S. dollar has been the world’s reserve currency. But in a world without borders connected via computers, crypto could



become widely adopted as the world’s reserve currency, threatening the dollar’s status and role of the United States.

To remain in a position where capital still flows to the U.S., America must take the lead in creating a framework for cryptocurrencies. This finance leader warned, “If we don’t, someone else will figure this out and capital will flow to that society.”

Another financial technologist reiterated previous comments that important elements of today’s internet are broken. There is lack of trust, lack of security, and inadequate constructs for identity. He believes blockchain is a better solution, with far greater trust. Blockchains provide decentralized trust in a type of database that is shareable, inspectable, and scalable.

“Blockchain can be orders of magnitude more secure than what can be done with current internet and web tech, because it’s built on cryptography from the bottom up, and because it’s fundamentally user centric, where people will be in control of what they do.”



Joseph Lubin, Founder & CEO, ConsenSys; Co-Founder, Ethereum

## Has The Media Really Become The Message?

### Overview

Technology has enabled new media platforms that are overtaking the successful media models of the past. Still, as streaming takes hold, money continues to be made in multiple segments of the media landscape – television, theaters, live entertainment, and more.

### Context

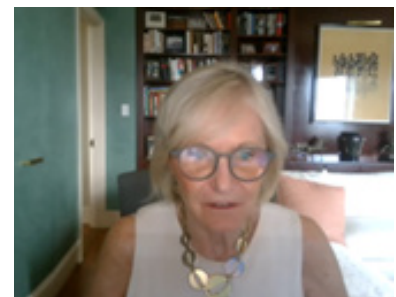
Leaders from across the media world provided quick takes on how different segments of media are faring in today’s technology-dominated environment.

### Key Takeaways

**While major tech companies are dominating the media world, money continues to be made in multiple ways.**

- **Movie theaters.** AMC CEO Adam Aron said movie theaters are not dead. Consumers still like the experience of going to the movies and the pipeline of outstanding movies for theatric releases is full for the next few years.
- **Television.** A media leader said that for decades, box office revenues have not mattered much because “the money has been in television for 30 years already.” First the money was in cable and now it is in streaming services such as Netflix and Amazon.

“The models that we created, myself and people in the cable industry, are being washed ashore today, overtaken by streaming, by AI.”



Kay Koplovitz, Founder & Former CEO, USA Networks

- **Live events.** There is strong consumer demand for experiences and live events, such as concerts, making this a healthy, profitable business.
- **Streaming radio.** SiriusXM Radio’s business remains strong, with a loyal, dedicated fan base and good profitability.



Greg Maffei, President & CEO, Liberty Media Corporation



Jeffrey Bewkes, Former Chair & CEO, Time Warner

One participant speculated that when the internet pioneers were developing the protocols for the internet, they couldn’t have imagined that the internet would be used for today’s media streaming services.

In a quick review of the media landscape, long-time media leaders acknowledged that big tech companies have become the dominant players. But the market is so large and consumers desire so many different types of media that money can still be made in multiple ways.

# Must The Buyer Beware? Consumer Market Transformation Through Innovation

## Overview

Consumer-facing companies in multiple segments – transportation, consumer products, retail, and restaurants – are experimenting with and/or adopting AI to enhance and personalize the consumer experience, increase productivity, and supplement employees by making their jobs easier. Technology is improving internal operations, streamlining supply chains, helping sales people strengthen relationships with customers, and helping marketers personalize their advertising messages.

Use of AI for internal, productivity-focused activities seems obvious and the benefits seem clear, but how consumers will react to the proliferation of AI-generated, “personalized” content is not yet as clear.

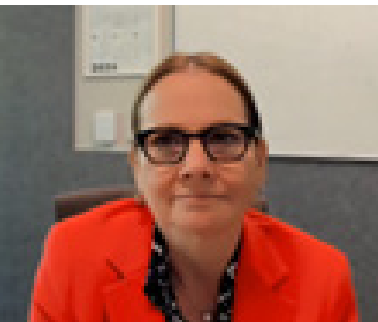
## Context

Leaders from different consumer-facing businesses described how they are embracing technology to drive innovation and transformation.

## Key Takeaways

### Technology is transforming consumer transportation.

General Motors CEO Mary Barra sees technology affecting consumer transportation in three ways:



Mary Barra, Chair & CEO, General Motors

**1. Changing how vehicles are propelled.** The shift is underway from internal combustion engines to electric propulsion. As this transformation accelerates, more affordable electric vehicles are coming to market with longer ranges that will give consumers more choices. This change in the form of propulsion requires a robust charging infrastructure, which is being built.

**2. Causing vehicles to be defined by software.** Technology in vehicles goes far beyond just the engine, as technology – software, in particular – is defining every part of consumers’ transportation experiences.

**3. Leading to greater autonomy and safety.** Technology will ultimately lead to autonomous vehicles that will be much safer than human drivers. Today, 90% of transportation fatalities are due to driver error; autonomous vehicles will be far safer. But, gaining consumer acceptance of autonomous driving technology requires building trust.

“All of this technology is combining to ultimately improve the consumer experience.”

### Technology is being used by retailers to improve their operations and the consumer experience.

Even traditional grocery stores are embracing technology. For example, Kroger is using technology-based simulations and digital twins to optimize a store’s checkout configuration and minimize checkout times.

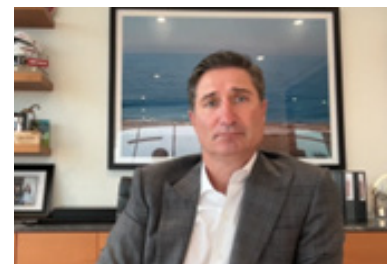
CEO Rodney McMullen said that technology is not focused on replacing jobs but on making associates’ jobs easier. Kroger is continually facing a huge labor shortage, with about 18,000 job openings at the moment. The intent of technology is to make people’s jobs easier, improve efficiency, and enhance the consumer experience.



W. Rodney McMullen, Chair & CEO, The Kroger Company

Similarly, Chipotle sees technology as a tool to make people’s jobs easier. For example, feedback from team members indicates that jobs they don’t enjoy doing include frying chips and coring avocados. So, Chipotle uses technology to help team members take care of the prep process, which is one of the company’s greatest operational challenges.

“We’re trying to figure out where all of the pain points are for our teams and our customers and then figuring out how we can use the latest technology—whether it’s automation or AI to alleviate these pain points.”



Brian Niccol, CEO, Chipotle

### Technology is being used to improve operations, sales, and marketing, with some uncertainties about how this will play out in the personalization of marketing.

Coca-Cola CEO James Quincey sees consumer products companies implementing AI in three layers, each with greater complexity and less certainty of the outcome.

**1. Help the company’s internal operations.** This includes using AI for customer service, to support product innovation, and to streamline

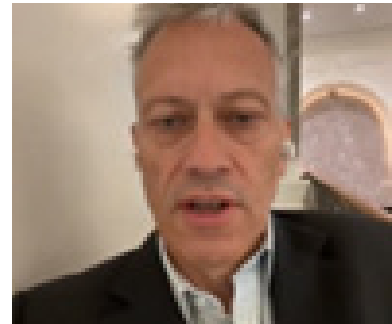


internal processes. This use seems straightforward and the benefits of increased productivity are obvious.

2. **Support the company's sales force in strengthening external relationships.** AI can help sales people and companies be better partners with retailers. AI can decrease out-of-stocks, increase product availability and sales, and be more precise in providing the right product at the right time. This layer is more complex, but is rapidly emerging.

3. **Personalize marketing.** This use of generative AI provides the ability to personalize advertising and marketing at scale. However, while technology makes personalization possible, there are two uncertainties: a) What are the unit costs of personalizing

marketing? and b) How will consumers respond to being flooded with personalized marketing? Will there be a backlash? These uncertainties make it less clear how this layer will play out.



James Quincey, Chair & CEO, The Coca-Cola Company



# Non-Human Contributions To Human Capital; Health and Workforce Disruptions

## Overview

The impact of AI goes far beyond merely improving productivity. While CEOs focus on the benefits of AI in helping address workforce shortages and helping workers do their jobs better, a likely consequence of AI will be workforce disruption and loss of jobs, particularly in areas such as customer service. Business and government leaders need to understand these implications, which can create fractures in society.

A far more positive impact of AI is the potential to expedite the lengthy drug development process by creating lifesaving therapies for Alzheimer's, Parkinson's, and other deadly and debilitating diseases. By creating digital twins and running billions of simulations of drug candidates, it may be possible to shave up to a decade off the development process. However, it is essential to ensure that the data used in drug development is free of bias and that this data represents all populations that a drug is intended to treat.

## Context

Summit participants discussed human-related implications of AI, including negatives of workforce disruption and positives of faster, more precise drug development for terrible diseases.

## Key Takeaways

**While CEOs are focused on using AI to boost productivity, it is necessary to pay attention to workforce disruptions.**

Participants in multiple sectors emphasized how AI can help companies deal with ongoing labor shortages by improving productivity and making it easier for employees to do their jobs. CEOs also mentioned cost savings associated with AI and the importance of upskilling and reskilling workers.

However, one CEO was blunt in stating: "We're talking about the loss of jobs." In particular, he mentioned customer service and call center jobs. He noted that while bots can answer questions and improve the customer experience, this results in fewer human agents. "Those jobs are going away," he said. This creates a challenge in that societies are not built for the rapid change that is occurring. He encouraged business leaders and policymakers not to underestimate or overlook the loss of jobs.

**A powerful use of AI is reducing the time to get lifesaving drugs to patients, but ensuring equity requires eliminating biases in the data.**

It takes too long and is too expensive to develop lifesaving medications and get them to patients. Patients, providers, drug companies, and the FDA all want to dramatically decrease the timeline for developing new drugs. This, most importantly, requires reducing the pre-clinical stage of drug development, which can take decades.

Jack Hidary, CEO of SandboxAQ, described how by using Nvidia's technology and SandboxAQ's software, it is becoming possible to create digital twins of drug candidates and run billions of simulations. He added that instead of training AI on data from the internet, it makes sense to use equations to generate high-quality data and then use that data to train the AI models.

Hidary sees the use of digital twins to run simulations as not just limited to drug development. "This is about creating new catalysts and new inventions that will change our world," he said.

Other healthcare experts concurred about the power of technology to improve healthcare, with advances including nanotechnology and robotic medicine. However, the healthcare delivery system lags behind in adopting new technology, seen through the continuing use of pagers and faxes.

A key issue surrounding the use of AI in healthcare is embedded biases in the data. These biases exist because healthcare datasets are based on those patients who receive care. Yet with underserved populations not having adequate access to care, data from these populations is not being included in databases and AI training sets. "If you're underserved, you don't exist in the data," said Susan Winckler, CEO of the Reagan-Udall Foundation.

**"We are perpetuating some of our health equity challenges. We have to fix some of the service delivery to get better data to then use in the AI systems."**

Suggestions for improving the datasets used for training AI models include looking at where the data is coming from, being inclusive of the population being served, and involving the end users, who are the clinicians and patients.



Jack Hidary, CEO, SandboxAQ



Susan Winckler, CEO, Reagan-Udall Foundation



Christine Lum Lung, CEO, Origin Healthcare



# Lifting Heavy Industry Into The Future

## Overview

Adoption of AI is not limited to high-flying tech companies or to brand-name consumer products or financial services companies. Across the board, industrial companies in areas such as transportation, aerospace and defense, farming, manufacturing, and tooling are adopting AI. These companies see specific opportunities and use cases to leverage technology to help their customers solve business problems, while yielding tangible ROI. While still early, adoption of AI by industrial companies is not futuristic and is not hype – it is happening in a major way.

## Context

Several CEOs from industrial companies described why and how their companies are implementing AI to drive innovation.

## Key Takeaways

### The electrification taking place with consumer vehicles is also occurring in the industrial space.

Winnebago CEO Michael Happe said his company is testing electrification of RVs, which fits as part of what Happe termed as “the digital transformation around the entire outdoor lifestyle experience.”

Electrification is also occurring for types of vehicles that just a few years ago people didn’t think were electrifiable, like an 80,000-pound airport rescue vehicle or a 40,000-pound municipal firetruck. As with consumer vehicles, Oshkosh Corporation CEO John Pfeifer said his company is focused on autonomous functionality and on software services to improve the productivity and effectiveness of connected vehicles.

AI is also becoming a valuable part of farming equipment. AGCO CEO Eric Hansotia said the company’s vision is to become the trusted partner for industry-leading smart-farming solutions. That means the company’s farming machines now have sensors on them that can understand their environment—including changes in the soil—and can make onboard calculations, often using AI engines, to optimize the performance of farms. For farmers, AI-based optimization means improved cash flows and profitability.



Eric Hansotia, Chair & CEO, AGCO Corporation

“Machines are becoming much more intelligent. They are doing real-time calculations and optimization. More and more they take over the tasks that the operator is doing and provide a pathway to full autonomy.”

### Technology is transforming manufacturing.

A CEO noted that technology not only makes manufacturers more efficient, but it also now enables manufacturers to produce efficiently at smaller volumes. This allows manufacturers to introduce more types of new products faster.

### Technology is transforming the aerospace and defense sectors.

As a leading aerospace and defense company, Lockheed Martin’s goal is to elevate America’s deterrence so the United States is not challenged. Combining hardware, software, and connected devices is a key part of more effectively deterring conflict. Specifically, Lockheed Martin is advocating for and working to broadly implement a 5G Internet-of-Things-based open architecture.

The company wants this open architecture to be used by the entire aerospace and defense industry. Gaining broad acceptance requires a body that creates standards so that everyone is using the same protocols, APIs, interfaces, frequencies, and other approaches. Necessary in moving forward is an accelerated acquisition path for digital services in the Department of Defense.



James Taiclet, Chair, President & CEO, Lockheed Martin Corporation

### All of this technological transformation requires energy.

There is a surge in demand for energy, especially in areas such as the Southeastern U.S. This is driven by population growth, and the growth of cloud computing, data centers, chip makers, battery manufacturers, and the numerous industries adopting AI. (In a previous session, participants described the huge amounts of energy required by AI.)

To meet this demand, Duke Energy is carefully assessing what amounts and types of energy are needed at different times, and is embracing partnerships. This includes relationships with companies such as Microsoft, Amazon, Google, and other large industrial companies.

“This is a recognized issue with our customers and policymakers, and we’re anxious to find solutions to this extraordinary growth opportunity.”



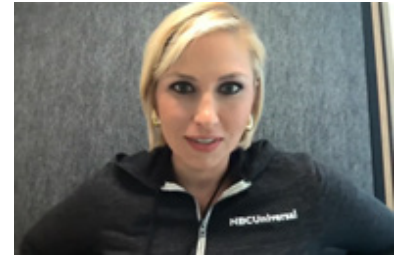
Lynn Good, Chair, President & CEO, Duke Energy Corporation

### These industrial companies are pursuing specific AI use cases with tangible ROI.

Returning to a theme from an earlier session, experienced investors see a tremendous amount of hype surrounding generative AI, but see enormous value in vertical applications of AI. The uses of AI by industrial companies are exactly the kind of practical vertical applications that investors had in mind.

The industrial companies in this session – in manufacturing, farming, aerospace and defense, industrial transportation, and

more – are companies pursuing specific AI use cases in specific verticals. These applications – like analyzing soil and making farming recommendations – may lack the hype and sexiness of generative AI platforms, but such applications are poised to deliver significant ROI while transforming industries.



Morgan Brennan, Closing Bell Anchor, CNBC

## Yale Legend in Leadership Award Presentation

Marc Benioff, Chair, CEO, and Co-Founder, Salesforce

#### PRESENTERS:

Michael Dell, Chair & CEO, Dell Technologies

Bob Iger, CEO, The Walt Disney Company

Arvind Krishna, Chair & CEO, IBM

Mike Sievert, CEO, T-Mobile

Salesforce co-founder, chair, and CEO Marc Benioff was recognized as a visionary, inspiring, values-based business and philanthropic leader. During his 25 years leading Salesforce, he and the company have changed the world, as Salesforce has grown to about 150,000 customers and nearly \$35 billion in revenue, with over 72,000 employees.



Marc Benioff, Chair, CEO, and Co-Founder, Salesforce

The presenters hailed Benioff for his vision of software-as-a-service in the cloud and for the great products his company builds. They also saluted Benioff for leading Salesforce based on values, integrity, trust,

and a belief that business can be the world's greatest platform for change.

“Thank you for being such an incredible voice about the importance of business as a force of good in our society.”

—Mike Sievert, CEO, T-Mobile



Mike Sievert, CEO, T-Mobile

Benioff was also recognized for his ability to see around corners and to innovate, and for the trailblazing 1-1-1 model where Salesforce commits one percent of its equity, technology, and employees' time toward service – to build a more equitable and sustainable world. To date, this has resulted in more than \$700 million in grants, nearly 9 million employee service hours, and 59,000 nonprofits and schools using free and discounted Salesforce technology.

“Marc has a belief that business can be the greatest platform for change, and that businesses exist to improve the state of the world. It's not just a great idea; it's a vision that he's turned into a reality. He's made a tangible, significant impact on the world we live in.”

—Michael Dell, Chair & CEO, Dell Technologies



Michael Dell, Chair & CEO, Dell Technologies



Arvind Krishna, Chair & CEO, IBM



Bob Iger, CEO, The Walt Disney Company