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ARTIFICIAL INTELLIGENCE IN INVESTOR RELATIONS

A REPORT OF THE **NIRI THINK TANK** ON ARTIFICIAL INTELLIGENCE IN INVESTOR RELATIONS

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Foreword

"One hallmark of great professional associations is their work to collaboratively envision and proactively help shape the future of their professions." So began the report on NIRI's first structured foray into environmental scanning and planning for change. NIRI undertook that project in 2018 on the eve of its 50th anniversary celebration, and ultimately produced, ***Investor Relations: The Disruption Opportunity – A Report of the Think Tank on the Future of Investor Relations***, a document that has helped the NIRI community begin exploring the future of the investor relations profession, and what part we may all play in intentionally guiding this future.

The members of the first NIRI Think Tank concluded that the profession of investor relations (IR) is changing, disrupted by external forces and other challenges, and must push to renew and revitalize or become less relevant. Near the top of the list of external forces were the changing nature of investors, data analytics and artificial intelligence (AI), all three of which are bound together.

The NIRI Board of Directors appointed the Think Tank on Artificial Intelligence in Investor Relations to examine these forces and issue a report and recommendations on the impact of AI on the IR profession. The Think Tank process is expected to inform the development of content, programs, services and products that will help NIRI to better serve the IR community.

The Think Tank on AI in IR convened a group of volunteer thought leaders in the fall of 2019 to begin their work. Guided by an outside advisor, they undertook a foresight process to examine the evolving dynamics of the effect of AI on the IR profession and identify specific recommendations regarding IR practice. As in the first Think Tank, the group's charge was to consider a range of plausible futures and the implications for IR practitioners, rather than to predict a specific "official" future.

With this report and associated facilitation guide and resources, NIRI now urges all IR stakeholders to take up the conversation. In so doing, the IR community can participate as a foresight network in understanding, anticipating, and preparing for multiple futures, and contribute to shaping the profession's preferred future.

NIRI thanks Think Tank Chair Sam Levenson, and Vice Chairs Darrell Heaps and Dennie Kimbrough for their leadership on this important project, as well as each member of the Think Tank for devoting their time and talent to advancing the IR profession. The work of this Think Tank was made possible thanks to the generous support of Computershare and Q4.

MELISSA PLAISANCE
NIRI Board Chair
Group Vice President, Treasury and Investor Relations
Albertsons Companies

GARY A. LABRANCHE, FASAE, CAE
President & CEO
National Investor Relations Institute

SAM LEVENSON
Think Tank Chair
Chief Executive Officer
Arbor Advisory Group

MATTHEW D. BRUSCH, CAE
Chief Programs Officer
National Investor Relations Institute
Staff Liaison to the Think Tank

Think Tank

CHAIR

SAM LEVENSON
Chief Executive Officer
Arbor Advisory Group

VICE CHAIRS

DARRELL HEAPS
Chief Executive Officer
Q4 Inc.

DENNIE KIMBROUGH
Investor Relations Manager
Microsoft

GENERAL MEMBERS

TANIA ALMOND
Investor Relations Director
Tech Data Corp. (most recently)

MATTHEW D. BRUSCH, CAE
Chief Programs Officer
NIRI

JEFF DE CAGNA FRSA FASAE
Executive Advisor
Foresight First LLC

JEFF GOESER
Managing Director, Head of IR
TD Ameritrade

SHELLY HUBBARD
Director, Global Investor Relations
Nike

GARY LABRANCHE, FASAE, CAE
President & CEO
NIRI

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Vice President Finance & Treasurer
Steelcase Inc.

MELISSA PLAISANCE
GVP, Treasury and IR
Albertsons Companies

LISA ROSE, IRC
President
Dix & Eaton

GREG SECORD
Vice President, Investor Relations
Open Text Corporation

JASON STOUT
Operations Shared Services
Computershare

TIFFANY WILLIS, CPA
Vice President, Head of Investor Relations
Fiserv

Think Tank Process

The work of the Think Tank on AI in IR was based on the learning-oriented practice of foresight. Foresight is a deliberate process of inquiry into the future to better understand the deeper forces that drive societal and professional transformation so that associations such as NIRI, and the stakeholders it serves, can anticipate and prepare. The practice of foresight is not about predicting a specific future, and that was not the focus of this Think Tank's work. Rather, the NIRI Think Tank on AI in IR used foresight approaches, including environmental scanning, prioritizing key drivers of change, and iteratively developing four scenarios presenting four plausible futures. With these thought-provoking scenarios in hand, NIRI and the IR community have the opportunity to examine orthodox beliefs, i.e., the deep-seated assumptions we make about how the world works, ask different questions, and act in new ways that can help create the profession's preferred future outcomes.

To inform its work, the Think Tank invited IR practitioners and IR community stakeholders to share their perspectives by answering a series of questions using an online collector. Illustrative comments from those responses are included in this report.

Think Tank members represent a diverse cross-section of NIRI members who contributed to the strategic thinking necessary to explore the topic. With the guidance of foresight advisor Jeff De Cagna FRSA FASAE, Executive Advisor of Foresight First LLC, the group examined key factors influencing the development of artificial intelligence and automation technologies and developed insights through a series of online meetings during the fall of 2019. The Think Tank conducted an in-person in January 2020 at Microsoft headquarters in Redmond, Washington, during which members focused on the development of scenarios of the future.

Through its foresight work, NIRI is building new capacity for learning with the future and developing a robust practice of foresight that will have benefits beyond the boundaries of the association. The two Think Tanks convened by the NIRI Board of Directors have helped NIRI envision a future in which IR practitioners develop an early awareness of potential shifts ahead and have the opportunity to actively engage with NIRI organizational leadership, colleagues, peers and the broader IR ecosystem to prepare for and create options for different action based on how those shifts unfold.

Overview

For the IR community, this report is an opportunity to consider the potential long-term impact of AI on the IR profession, and focus attention on how it can be implemented to ensure beneficial outcomes for all stakeholders. While the use of AI technologies in adjacent functions, and in society overall, has increased in the past decade, there is not yet widespread adoption of AI in investor relations. This represents a clear ***call to action*** to IR professionals to develop the capabilities required to work effectively in a world with greatly increased AI and automation.

The IR profession is now the beneficiary of this Think Tank's foresight work. This report presents four plausible scenarios of AI's impact on society in general, and investor relations in particular. It is important to keep in mind that these scenarios are not predictions. No one can know the future, an inescapable reality that has been made very clear in the early months of 2020 prior to release of this report. Even the most comprehensive foresight process can be surprised by unexpected events. The novel coronavirus (COVID-19) pandemic that has enveloped the world since this Think Tank met in January 2020 is a good example.

The spread of the novel coronavirus began in the fall of 2019 but did not enter general awareness in the United States until early 2020. By March 2020, when the global pandemic was officially declared by the World Health Organization, it was already clear that this was a significant "wild card" development with profound and enduring implications for our entire society.

Contrary to the view expressed by some observers, the global pandemic is not a so-called "black swan" event. (The term "black swan" was coined by author Nassim Nicholas Taleb in his 2007 book of the same name to describe rare, hard-to-predict and potentially devastating events.) The plausible future of a pandemic has been considered for decades, and as such is a "wild card" event, i.e., a known and inevitable development with uncertain timing.

Now that the COVID-19 pandemic has happened, every organization, and the stakeholders they serve, must operate in uncharted waters in myriad ways, including with respect to the use of technology to keep work moving forward. The rapid increase in the use of technologies to enable remote work, for example, will continue to accelerate digital transformation. With market participants, including corporates, the buy-side and sell-side, thrust into a purely digital and virtual way of working, there are sure to be implications for the adoption of AI and automation across the entire market. As the use of smart technologies grows in a material way, IR professionals will need to keep pace with the transition to position themselves for internal influence and external impact.

The COVID-19 pandemic reaffirms that the future is always much closer than one thinks. It also confirms the need for all organizations to prioritize the practice of foresight to anticipate the unexpected and accept responsibility for shaping the future. Foresight also challenges every working professional to consider how very different the future could be, to confront the reality of ongoing societal transformation, and to no longer delay the decisions that must be made today to influence how the future unfolds.

Particularly relevant in this regard is the growing influence of environmental, societal and governance ("ESG") factors in the evaluation of public companies for potential investment by the buy-side. Many investors now use ESG criteria to help better determine a company's potential future financial performance and evaluate risk. This focus on ESG was already a major trend in IR, but the concept of risk management becoming synonymous with ESG has become more apparent during the pandemic.

> "We've seen two years' worth of digital transformation in two months," Satya Nadella, chief executive officer of Microsoft, Earnings Release FY20 Q3, April 29, 2020.

Even before the COVID-19 pandemic irrevocably altered this decade, it was clear that AI and automation would transform the future of work in every field of human endeavor, including investor relations. The global pandemic will only accelerate this transformation.

SOCIETAL CONSIDERATIONS

Throughout this decade and beyond, AI and automation technologies will change our lives in ways both large and small. AI-enabled automated assistants already deliver voice replies to spoken questions on our mobile phones and in-home devices, while chatbots handle customer service interactions. Ride-sharing services use AI algorithms

What do we mean by "AI"?

Artificial Intelligence, or "**AI**," as it is thought of today, is essentially a predictive technology. It is the application of enormous computing power to analyze vast amounts of data to ultimately identify patterns and make predictions. Including "intelligence" in the name may be a bit misleading in the sense that AI algorithms don't "know" anything, though some argue that prediction is an element of intelligence. The phrase was coined in 1956 at a Dartmouth College tech conference on the topic of machine learning.

The field has seen a boom over the last decade or so with the explosion of computing power and the growth of huge data sets. A key factor seems to have been a breakthrough in 2012 in which researchers used an "**artificial neural network**" (an algorithm that attempts to mimic the human brain with layers of connected "neurons") to demonstrate how AI could recognize images by employing more powerful computer chips and larger data sets.

In the time since, experts have been developing "**natural language processing**" systems that give machines the ability to read, understand and derive meaning from human languages, "**machine learning**" systems that automatically learn and improve without explicit programming, and "**deep learning**" systems (multiple layers of artificial neural networks), as the platforms for many important technological advances, including, for example, the use of algorithms for cybersecurity, the review of medical images and providing clinical decision support in health care, and the continuing evolution of autonomous vehicles. The potential applications for AI-powered prediction and decision-making are vast and will likely touch every industry.

to dispatch drivers, financial institutions use AI to detect fraud and automatically freeze credit cards, and numerous services automate the delivery of recommendations for movies, music, shopping and other content. In the years ahead, AI technologies will continue to reinvent value creation in many of the global economy's most important sectors, including agriculture, entertainment and media, financial services, health care and retail. According to a 2019 report from the consulting firm PwC, AI could add as much as $15.7 trillion to global GDP by 2030, a forecast that most will view as a compelling rationale to accelerate the adoption of these technologies and move us toward an "AI-first" world by the end of this decade.

While AI and automation technologies offer increasing levels of capability and convenience in our daily lives, their growing adoption also creates reasons for concern. For example, there is widespread discussion about the presence of bias in AI and its potential detrimental impact on human beings. In a 2019 report, the AI Now Institute at New York University pointed to a "diversity crisis" in the AI sector due to the lack of diversity among people working in the field creating a gap in understanding of the actual experiences that women, people of color and vulnerable populations can have when interacting with these technologies. The report explained that these experiences include discriminatory practices in the criminal justice system, health care, the hiring process and in the use of facial recognition technologies, and that in each case, biases embedded in either the design of algorithms or in the data used to train them (or both) can lead to detrimental outcomes.

As data is the essential resource that powers AI, data privacy, security and responsible use are major issues about which society must be concerned. The data we create through our everyday online activities is collected and used in data sets to train AI algorithms. The pandemic will likely increase data collection through contact tracing and biometric surveillance and individuals and companies alike are exposed to the danger of having our information hacked by bad actors or held for ransom.

Yet another ethical consideration is the lack of transparency in how AI often generates predictions. Since many AI algorithms operate as "black boxes" into which even their creators cannot see, there are legitimate questions about how those predictions are made and whether they are trustworthy. This is a particularly acute issue in high-stakes situations, such as college admissions, job hiring or job performance evaluation and mortgage applications, when AI predictions based on datasets may be presented as "decisions" or "judgments" despite the inability to provide any meaningful context for how those choices were made or options for reconsideration. These ethical dilemmas have led to a push for "explainable AI" that balances the human need for understandable, fair and trustworthy AI outputs with the organizational need for accuracy and high-quality insights.

Humans and AI Working Together

Corporate agriculture deploys an array of high-tech tools including sophisticated weather modeling, soil sensors, genetic seed breeding and drones. But there is another side to agriculture: the 500 million small farms — two hectares or less — that produce most of the developing world's food.

PlantVillage, a research and development project, based at Penn State University, is beginning to bring artificial intelligence to these smaller farms. Scientists at PlantVillage, in collaboration with international organizations, local farm extension programs and engineers at Google, is working to tailor A.I. technology for farmers in Tanzania who have inexpensive smartphones. The initial focus is on cassava, a hearty crop that can survive droughts and barren soil. But plant disease and pests can reduce crop yields by 40 percent or more.

PlantVillage and International Institute of Tropical Agriculture have developed a simple A.I. assistant, called Nuru ("light" in Swahili). Wave the phone over a plant leaf, and the software diagnoses the disease or pest blight and suggests low-tech treatments. Once downloaded, the app does not require wireless access to cellular data or remote computing power, which means it works in rural villages.

Programs in Kenya and India are underway. In the developed nations, people fear A.I. as a job killer. "But in low-income countries that lack human capital in fields like agricultural science, there is an opportunity to use A.I. to help break the cycle of poverty," said David Hughes, an entomologist at Penn State and the director of PlantVillage.

"The A.I. Wave Sweeps In – Everywhere You Look," New York Times, October 21, 2018

BUSINESS CONSIDERATIONS

AI and automation technologies are changing the nature of work. The use of these powerful tools creates the opportunity to improve corporate performance across myriad industries. It is still relatively early in the implementation of AI, however, and there are important challenges to overcome, including the real-world concern about the potential detrimental impact of AI/automation on human workers.

The 2017 MIT Sloan Management Review and Boston Consulting Group report, "Reshaping Business With Artificial Intelligence" based on a survey of 3,000 business executives, found that the gap between ambition for the use of AI and execution is large at most companies. Three-quarters of executives in this survey believe AI will enable their companies to move into new businesses, and almost 85% believe AI will allow their companies to obtain or sustain a competitive advantage. But only about one in five companies has incorporated AI in some offerings or processes. Less than 39% of companies have an AI strategy in place.

The 2018 McKinsey Global Institute research paper "Skill Shift Automation and the Future of the Workforce," forecasted several provocative shifts in demand for workforce skills and how work will be organized within companies as the use of AI grows:

- **Automation will accelerate the shift in required workforce skills** seen over the past 15 years as people increasingly interact with ever smarter machines, with the strongest growth in demand for technological skills.
- **Some skill categories will be less in demand** such as basic cognitive skills, which include basic data input and processing, and physical and manual skills including general equipment operation.
- **Companies will need to make significant organizational changes** at the same time as addressing these skill shifts to stay competitive. A survey of more than 3,000 business leaders in seven countries highlights a new emphasis on continuous learning for workers and a shift to more cross-functional and team-based work. As tasks change, jobs will need to be redefined and companies say they will need to become more agile. Independent work will likely grow, a forecast that has come to pass, at least in the near term, driven by the COVID-19 pandemic.
- **Competition for high-skill workers will increase**, while displacement will be concentrated mainly on low-skill workers, continuing a trend that has exacerbated income inequality and reduced middle-wage jobs.

On the one hand, forecasts of a mismatch between current job skills and the skills that will be needed in an AI-enabled world are a legitimate source of anxiety for workers whose jobs are under threat. On the other hand, the primary concern of employers is how they will source the talent needed to implement AI/automation technologies, and the effect of their increased use on their overall workforces. According to McKinsey, the most digitized companies are more likely to expect head count to increase rather than decrease as AI changes the work people do, leading to greater collaboration between machines and people in an "**augmented intelligence**" capacity.

At the same time, there are questions about how AI may be creating a gap between corporate "haves" and "have nots." For example, the limited availability of AI talent increases its cost, and fosters a divide between the companies who can and cannot afford it. Will small companies be able to compete with the large, deep-pocketed companies that are significantly leveraging AI? If not, what are the implications for M&A activity or industry consolidation that reduces the number of available jobs?

In the decade ahead, it will be critical for all companies to examine whether the manner in which they are adopting AI is ensuring long-term beneficial outcomes for all stakeholders or only prioritizing automation for profitability over purpose and financial gain for owners of capital at the expense of providers of labor. Over the last several years, there have been both utopian and dystopian scenarios suggested for how the future of human work in an AI-first world could unfold. Among the deeper questions we will need to consider are 1) who will be expected to bear the burden of more AI-enabled automation and 2) how we can strive to both reduce and share that burden while not making existing societal divides created by economic inequality and other forces of turbulence worse.

INVESTOR RELATIONS CONSIDERATIONS

AI use in IR is in some ways at a nascent stage. Most IR professionals are not heavy users of AI-powered tools in their internal day-to-day work. However, some of their external audiences use AI extensively. This puts IR professionals at a disadvantage to a degree and highlights the need for IR professionals to quickly come up to speed to understand AI and its implications.

Public companies have been communicating to machines for years as the buy-side has increasingly used algorithmic trading strategies. In fact, what has been described as the "most secretive and successful" hedge fund in the world, Renaissance Technologies, specializes in quantitative trading models and was founded in 1982. Another similar firm, Dimensional Fund Advisors, was founded in 1981 and is a familiar name that most investor relations officers (IROs) are accustomed to finding on their shareholder list.

The buy-side is not, however, simply consuming corporate earnings information as raw data, but is increasingly using alternative data sets from unconventional sources as an algorithmic input to generate alpha. These non-traditional sources include, for example, satellite imagery, sentiment extraction from news media and social media content, weather patterns, credit card receipts and shopping center traffic.

Other tools find signals in the words of corporate executives. For example, there are service providers using machine learning and natural language processing technologies to create products based on a specific enterprise's most used words. Such unique resources can help institutional investors develop a better understanding of a company's tone over time and the potential implications for corporate decision-making.

According to the 2020 Alternative Investment Management Association report, "CASTING THE NET: How Hedge Funds are Using Alternative Data," more than half of hedge funds running a combined $720 billion, now use non-traditional data sets for new ideas. And the speed with which new data sources are adopted is being matched by a boom in alternative data providers. There were 20 firms offering this data in 1990 compared to more than 400 now.

Similarly, another IR audience, the financial media, is moving in the direction of "**automated journalism**," or news articles generated by computer programs. The New York Times reports, as just one example, that about one-third of Bloomberg News content is generated by some form of automated technology. According to the Times, the system Bloomberg uses, "can dissect a financial report the moment it appears and spit out an immediate news story that includes the most pertinent facts and figures." This practice is growing among news outlets.

IMPLICATIONS

In the words of the Greek philosopher, Heraclitus, "the only constant in life is change." IR professionals, for example, no longer deliver press releases by fax machine to news outlets even though this was a common practice during the 1990s. Fast forward to May 2020 and, in the thick of the COVID-19 pandemic, it seems obvious to hold analyst meetings or investor days remotely via an online video platform. The pandemic also required many companies to alter their earnings call processes to account for the C-Suite being remote, while also participating in virtual Wall Street investor conferences. Many IROs would have viewed these practices with some skepticism before the pandemic but, out of necessity, there has been significant change for the investor relations field within the first few months since the global public health crisis began.

Artificial intelligence is reshaping investor relations in fundamental ways, first and foremost through the current Wall Street advantage over corporates in terms of access to both big and alternative data sets, greater computational power, and the application of AI to trading strategies. These advantages will not be easily overcome.

In late 2019, OpenAI released an analysis indicating the computing power used by AI has been increasing exponentially with a 3.4-month doubling time since 2012, compared to the 2-year doubling period associated with Moore's Law. IBM estimated in 2017 that 90% of the world's available data have been produced over the prior two years. The trend of digitizing everything is only predicted to increase and accelerate. IDC forecasts

The End of Wall Street as We Know It?

For some time now the financial press has published stories about the effect of AI on finance jobs revealing how, for example, experienced fund managers are being replaced by quant teams, and many Wall Street firms are loading up on programmers (sometimes increasing net headcount). Marcos Lopez de Prado, the former head of machine learning at the hedge fund AQR Capital Management LLC and now a Cornell University professor, testified before the U.S. House Committee on Financial Services in late 2019 that many of the 6.1 million people employed in finance and insurance will lose their jobs "not necessarily because they are replaced by machines, but because they are not trained to work alongside algorithms."

"As the technology adoption rate and comfort of shareholders/investors continues to increase, the capacity of AI to both provide [customer] service … as well as to drive insights, predictive interactions, personalize interactions, etc., is the future … [and] the level of engagement has the potential for significant change."

that by 2025 worldwide data will grow 61% to 175 zettabytes.

IROs unable to adapt in this rapidly changing environment risk being made obsolete over time due to a mismatch in skills versus unfolding market demands. This report should be considered a **call to action** for IR professionals to view the introduction of AI and automation technologies **as both an opportunity and a threat**, and a provocative reminder to rapidly grow their understanding of these technologies, their applications, and implications. To remain indispensable contributors to corporate success, IR professionals should:

- **Understand and adapt to how AI is being used externally.** IR professionals should learn how AI is being used in external audiences and use that information to inform how to interact with these parties and to anticipate their reactions. The shift from active to quantitative and passive asset management, and the significant reduction in the sell-side following MiFID-II, mean IR professionals must adapt to new ways of communicating effectively to ensure both humans and machines correctly value their companies.

  With corporate valuations increasingly being influenced by funds leveraging automated trading systems, IR professionals should establish a dialog with these funds to understand the data they are using as inputs. This data represents another valuable piece of the valuation puzzle and may ultimately assist in determining the information that companies release publicly.
- **Centralize external communications.** While not a new idea, it is now more important than ever to centralize all corporate communications to tightly manage the specific words used and overall messages delivered since they are being stored to develop a trackable lexicon to feed AI automated trading algorithms. Create the internal infrastructure necessary to develop the "IR as a team" concept to incorporate all relevant internal functions in centralizing external communications.
- **Determine how to use and benefit from AI internally.** The gap between the extensive external use of AI versus its limited internal IR use is unlikely to last. The forecasts generally predict that AI will boost efficiency for those that can work alongside it. IR professionals should explore how their peers may be using AI to improve their programs, and if and how IR service providers are leveraging AI in the tools they provide to the IR community. IROs should recognize and embrace the increased productivity opportunities AI may make possible by automating traditionally lower-value routine, repeatable and data distribution-type IR tasks. At the same time, IROs may want to explore how to bring a data and technology orientation to IR functions. For example, the IR function may be able to capitalize on the near-term momentum towards AI-driven customer self-service business models by introducing chatbots on IR websites to respond to common, repetitive shareholder questions. This approach may be able to free up IR staff for higher value functions, improve the

"Recognizing AI's impact on valuation and investment decisions will change how we strategize our IR plans, communications, advice to Board and management, and the need for deeper understanding of the capital markets."

"IR's focus becomes understanding how to ensure AI is evaluating and valuing the company accurately and how IR influences those models."

"AI's biggest impact is the change on valuation processes and investment decisions. IR adapts based on that knowledge. We also have to understand that AI is continually evolving, so with whom we communicate what must evolve as well … that's where IR will be critical."

customer experience by providing cost effective 24/7 service, and better meet the needs of the growing number of tech-savvy customers who prefer the do-it-yourself model.

- **Proceed responsibly and ethically.** As in all aspects of their profession, IROs should proceed down this new path of IR automation with a focus on maintaining their integrity and credibility by practicing investor relations in accordance with the highest legal and ethical standards. There is a segment of the population that views new technology skeptically and as primarily a risk. Introducing automation into IR programs in a responsible and ethical manner is the best way to avoid future backlash.

Automation presents an opportunity to boost the value of IR through a focus on the higher value elements of the function. Considering how quickly the IR profession adapted to the significant changes necessitated by the COVID-19 pandemic, IR professionals are clearly adaptable and resilient. IROs who can similarly adapt to and embrace this new opportunity can solidify their key role as capital markets experts, and strategic counselors to the C-suite and boards of directors now and in the future.

NEXT STEPS – AN INVITATION TO CAPITAL MARKETS ENGAGEMENT PROFESSIONALS

The work of this Think Tank can now be considered and discussed more broadly within the IR community to consider the implications of artificial intelligence and automation on the IR profession.

This report and related resources are an invitation to this strategic and provocative conversation among IR stakeholders. NIRI will use this report to continue the dialogue through publications, professional development programming, online discussions, etc. NIRI chapters are encouraged to continue these conversations locally. These programs and discussions will ideally:

- Explore how IR professionals can adapt to a rapidly evolving environment.
- Identify new technology-related knowledge and skills that IR professionals will need.
- Generate dialogue and discovery around the expanding role IR professionals can take within their companies.

NIRI chapters and others in the capital markets engagement ecosystem are invited to participate in this type of continuing dialogue on the future of IR and are encouraged to take advantage of the four scenarios provided in this report for that purpose. These resources enable local chapters to develop new programming that replicates the process of this Think Tank. This report creates opportunities for stimulating discussion around the evolution of the IR profession, and technology-specific drivers of change.

"If the use of AI to analyze executive speech is found to be an accurate way to assess the veracity of the speaker or the underlying and unspoken sentiment of the speaker, this could impact when and how executives make public comments."

"IR professionals … can become more predictive based on a set of proven criteria. AI could help determine investor and analyst expectations, Q&A predictability and a host of related communication issues by learning from the patterns of previous exchanges, such as conference calls and similar data."

"[AI] should enable the IR professional to have more of an expanded and strategic role within an organization, as it should eliminate the time taken for repetitive and administrative tasks."

NIRI Think Tank AI in IR Scenarios of the Future: What You Should Know

OVERVIEW

In this section of the report, the Think Tank presents four scenarios of the future of AI in the investor relations profession. As you will see, these four scenarios situate the use of AI in IR in the broader context of how society understands and acts to address the real-world concerns raised by AI and automation tools. In addition, these scenarios do not concentrate on specific AI technologies, but on the broader implications of the introduction of these technologies into companies and the IR function.

It is important to understand the four scenarios for what they are. Scenarios are plausible alternative contexts for **learning with the future** rather than about it, which means these Think Tank scenarios are neither forecasts, nor predictions. **No one can know what the future will be.** Instead, these scenarios are thought-provoking stories that have been crafted to offer readers a preview of what the future could be before it happens to accelerate learning and strengthen decision-making for NIRI, the IR ecosystem, and individual IR practitioners.

SCENARIO DEVELOPMENT PROCESS

Throughout the fall of 2019, the NIRI Think Tank on AI in IR met online regularly to discuss the issues raised by the integration of AI/automation technologies into capital markets and their implications for investor relations. When the Think Tank convened for its in-person session in January 2020, the group used the inductive method of scenario development, which focused participants' attention on "snippets," i.e., individual ideas/insights/issues that were combined into first-draft scenarios through structured small-group conversations. There were three types of snippets:

- **Core elements**—The central ideas/themes around which the scenarios are written.
- **Key uncertainties**—The ideas/themes that create threats and opportunities for investor relations/IROs.
- **Wild cards**—Unexpected yet plausible developments that would fundamentally alter the broader landscape over the next 120 months.

Throughout the Think Tank's work, the consistent focus was on developing scenarios that reflected both favorable (Scenarios A and C) and unfavorable (Scenarios B and D) futures for AI in investor relations. As part of any scenario process, it is important to confront both types of futures to challenge the assumption that the future will unfold in ways that are consistently favorable. **It is critical to keep in mind, however, that none of the four scenarios in this report presents NIRI's preferred or official future for AI in IR.** As described above, the purpose of this report is not to forecast or predict the future. The purpose is to promote the continued meaningful exploration of the issues raised by the growing importance of AI in the investor relations field in the decade ahead.

The spread of the novel coronavirus began in the fall of 2019, but it did not enter general awareness in the United States until early 2020. By March 2020, when the global pandemic was officially declared by the World Health Organization, it was already clear that this was a significant wild card development with profound and enduring implications for our entire society. Indeed, the pandemic and its ripple effects have been accurately described as an inflection point that has irrevocably altered society's previous trajectory. As a result, the four draft scenarios crafted in January 2020 and refined in the following weeks required additional work to integrate the plausible impact of this unexpected shift. A specific adjustment was made to the time horizons for all four scenarios. Originally, Scenarios A and B were developed on a 60-month time horizon (2025), while Scenarios C and D were developed on an 84-month time horizon (2027). As a result of the global pandemic, the time horizons were shifted forward by one year to 2026 and 2028 respectively.

IMPORTANT NOTE ON THE SCENARIO TIME HORIZONS

These four scenarios represent four separate pathways toward different plausible futures. In this respect, the 2028 scenarios do not build on the 2026 scenarios, nor are the 2026 scenarios a step toward the 2028 scenarios. While all four scenarios incorporate similar elements, each presents a distinct future. There is no "two-year difference" between the scenarios. Scenarios A and B unfold in a 72-month time horizon, while Scenarios C and D operate in a 96-month time horizon. There is no connection between those separate time horizons.

REFLECTION QUESTIONS AND DISCUSSION QUESTIONS

After reading each scenario, please reflect on the following three questions:

- *What is your personal reaction to this future? How does it make you feel?*
- *How do you think about the impact this future could have on your work in investor relations?*
- *What steps should IROs take today to anticipate and prepare for this future?*

Before beginning a scenario conversation, it is important for the reader to pause and reflect on their own thoughts and feelings about the scenario. Making a space for such reflection increases the learning impact of scenarios for individual participants and enhances the quality of scenario conversations.

In addition, at the end of each scenario, there are three discussion questions. These discussion questions can be used for informal one-on-one or small group discussions, or in more formal scenario conversations. The three questions provided for each scenario are just the starting point for conversation. As described in the Scenario Conversation Facilitation Guide that follows the four scenarios, scenario conversations benefit from the proper balance of focus and freedom. The discussion questions provide the focus, while the answers create the space and the freedom for further unstructured exploration

A FINAL WORD

These four scenarios are purposeful provocations crafted to nurture new thinking, conversation and action. It is important to remember that the deeper intention of scenarios is to be helpful but not necessarily hopeful. Depending on the reader, therefore, these scenarios may confound expectations, inspire creativity, surface disquiet, or spark anger. These and other reactions are completely appropriate and very human. The scenarios are a preview of things that could come and an essential step toward creating the best possible future for the investor relations profession.

SCENARIO A

AI Ready [Time Horizon—July 2026]

It is a huge surprise to most people just how "normal" things feel in July 2026. The novel coronavirus pandemic, which wreaked global havoc for more than three years, is now fully in the past. Instead of the profound fear that gripped so many people throughout society for years, there is a renewed sense of optimism that anything is possible. A clear outcome of this optimistic outlook is an important and unexpected shift in societal thinking about AI/automation technologies that is emerging as the pandemic's most enduring positive legacy.

In the early 2020s, as the public health crisis intensified, the breakneck pace of vaccine development was accelerated by an unprecedented level of scientific research cooperation aided by the power of AI technologies. After observing how humans and machines "collaborated" to rapidly achieve a favorable outcome for humanity, corporate executives and elected officials refocused their attention on applying AI/automation technologies to augment human capabilities instead of on eliminating workers, increasing profitability, and maximizing shareholder returns. While real concerns about the fairness, privacy, and transparency of AI/automation algorithms remain, the world appears to be ready for the wider and more ethical use of these technologies.

Operating in the context of this new shared view, governments, businesses, and non-governmental organizations (NGOs), all of which actively advocated for the expanded use of AI-ready tools during the public health crisis, have increased their own adoption as a part of an effort to solve other complex problems and make a deeper positive impact on the lives of billions of people. This collaborative shift toward improving human well-being is building momentum toward more fully realizing the promise of stakeholder capitalism as envisioned in the late 2010s.

With other sectors pursuing a more responsible implementation of machine intelligence, a growing number of academics, institutional investors, tech company executives, and Wall Street analysts have called for a better-designed and regulated approach for the use of AI/automation in capital markets. At the height of the pandemic, smart technologies made market volatility worse and inflicted damage on the broader economy. Although these negative consequences may have been unintended, they still undermined public confidence in the overall financial system during a perilous time. The larger concern is that without a clear regulatory framework in place, the next crisis could create chaos. There is no call for a ban on the use of smart technologies in capital markets. Not only would it be nearly impossible to implement, it would face massive resistance and ultimately would be counterproductive to the broader effort to implement AI/automation technologies in a responsible and ethical manner. Nevertheless, there is growing agreement that ensuring future market stability and integrity will require the design and development of AI/automation tools that serve the purpose of extending and enhancing human-machine collaboration.

While the beneficiaries of the existing system will continue to protect their advantages, internal IR teams are quietly adapting their function to capitalize on the emerging landscape. During the early days of the pandemic, when most everyone was working remotely, IROs had no choice but to experiment with different approaches to sustain forward momentum in the face of uncertainty. As a result of corporate digital transformation, the experimentation process is continuing and now includes the increased use of AI/automation technologies to manage core IR tasks and create space and time for more virtual team collaboration. With most IR teams back in their offices, there are new applications of machine intelligence being built to address more complex challenges, including how to develop deeper insights into corporate performance, especially with respect to the ESG criteria that have become even more influential in shaping investor thinking in the last few years. While this effort remains a work in progress, it will continue to be a powerful form of human-machine collaboration that focuses on creating value for their companies, their investors, and the other key stakeholders they serve.

SCENARIO A DISCUSSION QUESTIONS

- What specific questions and concerns about AI does this scenario raise for you?
- What does the ethical use of AI/automation technologies mean to you?
- How can the investor relations field begin adapting to the world described in this scenario?

SCENARIO B

AI Wary [Time Horizon: July 2026]

By July 2026, there has been a dramatic decline in investment in the integration of AI/automation technologies by businesses and governments. This so-called "AI freeze" is mostly due to the lingering financial consequences of the novel coronavirus pandemic. Although the world is now on the other side of the pandemic, or at least appears to be, the impact of the economic disruption runs deep. Vaccinations, which became widely available in late 2023, helped to mitigate this damage. In the aftermath, however, the palpable uncertainty endures, and many technology investors are finding it difficult to shake.

Resource limitations are not the sole factor delaying the broader implementation of machine intelligence. Even as AI/automation has become more visible in society with more obvious and meaningful benefits—including the essential contributions that AI algorithms played in avoiding the pandemic's worst-case public health impact—a significant trust gap still exists. Deep-seated and pervasive concerns remain about algorithmic bias, the difficulty of explaining AI predictions, and the potential of these technologies to significantly reduce, if not completely eliminate, human participation in many forms of work, including knowledge work. In addition, as the climate crisis intensifies, AI's continuing negative environmental impact, both in terms of the energy consumption and equivalent CO2 output for machine learning (ML) algorithm training and usage, has received harsh criticism.

But even as the freeze takes hold in other sectors, the integration of AI/automation into capital markets continues, albeit at a far slower pace than in the late 2010s. For example, active fund managers using ML algorithms have seen some upside, including increased success in identifying previously unseen patterns in data leading to new investment insights and the ability to fully capitalize on the increasingly more esoteric alternative data sets available for analysis. This upside has not come without downside, however. The worsened economic conditions have exacerbated the existing affordability challenge for both AI tools and talent, further expanding the divide between large and small asset managers. In addition, while AI has reduced human bias in investment decision-making, it does not eliminate all biases already present in the data, nor does it prevent the introduction of new biases.

Questions about uneven performance notwithstanding, the expanding role of AI is roiling the IR field nearly as much as the pandemic. In the last six years, the long-standing corporate advantage of asymmetric access to internal business and industry data has completely evaporated, replaced by broad and unfettered access to information resources and the AI-powered expansion of the traditional IR audiences' knowledge and capabilities. In 2026, after many wearisome years of market volatility, investors now largely disregard quarterly earnings call as a source of meaningful guidance on current and future corporate decision-making, preferring instead to use machine intelligence to identify trends and anticipate important shifts much earlier than issuing companies. Limited resources have also made it difficult for IR teams to access the same datasets being used by some external audiences. At the same time, concerns about AI's impact on human work are coming true in the IR function. Indeed, AI is an increasingly potent force in the remaking of the IR team. This situation places new burdens on IROs, as the automation of routine tasks leads to headcount reductions and the loss of capable people with valuable expertise.

While ESG factors continue to play a prominent role in evaluating corporate performance, investors still mostly disregard AI/automation's recognized issues and problems and have not pushed companies to adopt specific ESG criteria related to their use of these technologies to close the public trust gap. As the economy continues to recover, the freeze will end and investment in AI will accelerate. IROs and their teams, already wary of what AI/automation technologies mean for the future, will need to adapt to an even more uncertain landscape, one that raises many more questions than answers for all stakeholders.

SCENARIO B DISCUSSION QUESTIONS

- What specific questions and concerns about AI does this scenario raise for you?
- What will it take to close the AI trust gap in the years ahead?
- How can the investor relations field begin adapting to the world described in this scenario?

SCENARIO C:

AI Enabled [Time Horizon—July 2028]

It is July 2028, and the lasting impact of the novel coronavirus pandemic continues to challenge both companies and governments to scrutinize with care the impact of AI/automation technologies on society. The U.S. outbreak lasted longer and did more damage because promising vaccine candidates in 2020-21 did not meet aggressive expectations. These early failures, attributed at least in part to concerns about the efficacy and trustworthiness of AI, slowed and increased the cost of the overall development process. As a result, safe and reliable vaccinations did not become widely available in the United States and elsewhere until the end of 2025.

These doubts about AI, which were front and center in the late 2010s and further exacerbated by the pandemic, led to forceful worldwide pushback on the accuracy and fairness of AI. In addition, serious questions about individual and corporate data ownership rights, the privacy protections afforded when personal data is shared with companies, and the manner in which companies use personal data (especially with respect to potential bias in the data used to train AI/automation platforms), sparked a years-long effort to enact and implement comprehensive regulation, the adoption of which would have been unthinkable when the decade began.

The pursuit of strong regulation was successful because the erosion of public trust in AI/automation technologies led most governments to adopt a new foundational principle for action in this area: the protection of humanity from the unrestricted development and implementation of machine intelligence. Eager to bolster trust so they could implement their AI/automation tools under development, public companies made good on the promised shift toward stakeholder capitalism and the prioritization of ESG factors. Most companies, including key technology players, developed specific criteria for the "human first" implementation of AI/automation technologies. These criteria often went beyond regulatory requirements and even the demands of institutional investors. The companies that embraced AI-related ESG criteria were rewarded, both in terms of reputation and financial performance, while more compliance-oriented businesses struggled.

These surprising developments shifted the context for IROs and IR teams in various ways. First, as was the case for hundreds of millions of other knowledge workers around the world, the pandemic led most IROs to work remotely. This sudden shift necessitated an extraordinary financial investment in digital transformation to realize its full potential. As a result, IROs had to devote an even higher level of attention to daily coordination within their teams, as well as with other internal departments and functions. Second, even with regulatory constraints placed on their development, AI/automation platforms have become quite effective at handling the IR function's routine tasks and repeatable activities. Although the shift to a new AI-enabled IR function did lead to the loss of full-time jobs in some companies, other IR teams grew by adding former full-time employees as external consultants.

A third shift occurred in how IR teams interact with analysts and investors. For example, AI privacy regulations and corporate data protections placed meaningful constraints on the use of alternative datasets. At the same time, ESG criteria now require a more stringent level of corporate transparency in the disclosure of AI and climate risks, the transition to sustainable human-first business models, and their overall impact on both the business and society. Instead of spending time on quarterly reporting activities, IROs now focus their attention on collaborating with other internal teams to monitor and interpret the performance of AI algorithms analyzing corporate data streams and communicate more frequently with analysts and investors to share insights and discuss potential risks.

The real-world impact of AI/automation technologies on humanity remains the subject of considerable controversy. Nevertheless, they are shaping an AI-enabled future for the investor relations field. It is a more human future, one in which IROs help their companies and investors think and act beyond short-term financial concerns, while also identifying ways to safeguard and strengthen the interests of other stakeholders and create new value.

SCENARIO C DISCUSSION QUESTIONS

- What specific questions and concerns about AI does this scenario raise for you?
- How would you describe a "human first" implementation of AI/automation technologies?
- How can the investor relations field begin adapting to the world described in this scenario

SCENARIO D:

AI First [Time Horizon—July 2028]

In July 2028, society is now on the verge of becoming fully "AI first." Even before the novel coronavirus pandemic at the beginning of the decade, many companies were actively exploring how they might use AI and automation technologies to create new customer value, as well as reduce costs and increase profitability. The profound impact of the global pandemic intensified the push to automate, which led to significant performance breakthroughs in AI applications and hardware, and their accelerated adoption across sectors. As a result, the world has become far more dependent on AI sooner than most expected.

Getting to this point has been painful both for people and businesses. Due to scientific and political disagreements, the public health crisis did not abate until a reliable vaccine became available worldwide in early 2024. For nearly four years, billions of people endured a serious emotional and financial toll. Instead of increasing their resilience, the experience left them more anxious, fragile, and vulnerable. For their part, businesses of all sizes, including more than a few public companies, also struggled during this time. Not all of them survived, and many millions of jobs were lost.

When the pandemic was declared over in mid-2024, corporate and human survivors alike were confronted with a very different business landscape. For example, a surprisingly large number of previously home-bound knowledge workers chose not to return to their offices, leading to an aggressive restructuring of both the workforce and the workplace. The widespread digital transformation that became a business necessity during the pandemic went much further after it ended. Despite myriad questions about how ubiquitous AI and automation technologies would irrevocably alter human work for the worse, well-resourced companies invested heavily in AI/automation talent and tools to replace human workers in some areas and increase human-machine collaboration in others. These steps were easily justified as the significant upside of more capable AI/automation technologies became obvious, lingering concerns about negative environmental impact declined, and trust in the beneficial impact of these tools increased.

The adoption of some modest regulatory measures prevented the total elimination of human beings from work, but the push to strengthen those protections faded by 2025. Over the last 36 months, as global public health conditions have become more stable, automation through AI has become the central financial and strategic imperative for U.S. and European companies, in part to drive their own recovery and the recovery of the global economy, and also to keep pace as other countries accelerate their focus on becoming world leaders in AI in the early 2030s.

At this critical moment of transition, IROs are navigating their own uncertainty. During the early days of the global pandemic, companies counted on their IR teams to assuage the concerns of anxious investors, even when they did not have good answers to offer. IROs brought an invaluable human element to difficult virtual interactions occurring during a period of greatly increased risk. The IR function's candor and responsiveness had a major impact as companies and investors dealt with capital market volatility. With the worst of the public health crisis now behind them, however, companies are bringing automation to the IR function as they have to other aspects of business operations. With passive investing now fully dominant and the sell-side community mostly gone, investors have made it clear: they want the ease, convenience, and power of an AI-first experience in every context. As a result, the transition from traditional human-centric IR functions to self-service operations is ongoing in most public companies, and IR teams are much smaller, with far fewer IROs overall.

The remaking of investor relations using an AI-first approach has prompted companies to bring a data and technology orientation to the function. Instead of addressing board concerns, conducting investor outreach, or focusing on ESG risks, most remaining IROs work primarily as internal consultants to in-house machine learning developers and data science/analytics teams, as well as liaisons to outside AI and IR consultants. Much has transpired in the last eight years, and most remaining IROs feel fortunate to be employed. Without question, the post-pandemic, AI-first world has transformed their lives and jobs forever.

SCENARIO D DISCUSSION QUESTIONS

- What specific questions and concerns about AI does this scenario raise for you?
- What do you see as the positive and negative implications of an AI-first world?
- How can the investor relations field begin adapting to the world described in this scenario?

NIRI Think Tank on AI in IR | Scenario Conversation Facilitation Guide

FACILITATING AN EFFECTIVE SCENARIO CONVERSATION

NIRI encourages the use of the four scenarios in this report as the basis for conducting conversations with peers and colleagues about the future of artificial intelligence in investor relations. This brief guide to facilitating scenario conversations will help keep those conversations focused, generative, and meaningful for all participants.

BEFORE THE CONVERSATION

Clarify the purpose of the scenario conversation—It is important for participants to know why they are being asked to participate in a scenario conversation. No matter what the specific purpose, however, remember that scenarios are most useful as a learning tool. Try to keep the focus of the conversation on a learning outcome.

- **Distribute scenarios ahead of time**—Make sure that all participants have a chance to review the scenarios ahead of time and encourage them to reflect on their content and the included discussion questions. Effective participant preparation greatly enhances the quality of scenario conversations.
- **Invite participants to submit questions before the conversation**—To maximize the time available for the scenario conversation, consider inviting participants to submit any questions they have before the conversation takes place. A day or so before the scheduled conversation, send out responses to the received questions.
- **Arrange for the involvement of a graphic recorder**—If it is possible to do so, consider involving a graphic recorder, i.e., a visual professional who can capture the scenario conversation in real time and create a visually-appealing and shareable artifact.
- **Prepare carefully for the facilitation role**—The facilitator of a scenario conversation is responsible for helping participants make the most of the experience. While it is good to have an idea in mind of how the conversation will flow before it happens, be sure to leave room for the participants to determine the direction they prefer.

DURING THE CONVERSATION

- **Make it safe for every participant to contribute to the conversation**—Some participants will prefer to listen, so it is critical to set the expectation that everyone should contribute. Organize the large group into smaller discussion groups and have each group discuss 1-2 scenarios before returning to the large group. Remind participants just how important it is for all perspectives to be expressed and understood, especially perspectives that are different from the majority point of view.
- **Ask participants to suspend disbelief**—Each of these scenarios is only one of an infinite number of plausible futures that could occur within the next 72 and/or 96 months. Remind participants that even if they do not think a given scenario will occur, they should suspend disbelief, accept that it could occur, and discuss its implications accordingly.
- **Challenge participants to think through their assumptions**—Each scenario is an incomplete presentation of the future. Remind conversation participants to think through any assumptions they make to fill in gaps to ensure they are also plausible in the context of the scenario as written. Also, it may be useful to point out that scenarios are intended to be helpful rather than hopeful, a mindset shift that may influence the assumptions that participants make.
- **Challenge participants to resist the temptation to solve problems**—Scenarios A and C present favorable futures for IR, while Scenarios B and D present unfavorable futures. None of these scenarios constitute forecasts or predictions of what the future will be. Remind participants that since these futures have not yet occurred, they must resist the natural human impulse to solve any problems presented in the scenarios. Instead, they should accept each scenario at face value.
- **Help participants surface critical connections, issues and questions**—The essence of foresight is projecting forward to learn with the future and then bringing that learning back to the present to enable decision-making. Remind participants as they discuss the scenarios to surface the critical connections, issues, and questions each scenario raises, as well as the possible decisions to be made today to better understand, anticipate, and prepare for the conditions each scenario describes.
- **Maintain the proper balance between focus and freedom in the scenario conversation**—On the hand, scenario conversations are better when the facilitator provides participants with a meaningful structure within which they can focus their attention. On the other hand, participants typically value the freedom to explore the implications of each scenario. Having a clear purpose for the scenario conversation should help the group find the right balance.

- **Give participants a takeaway action or question**—Before the scenario conversation ends, give participants something to do or a question on which to reflect following the session. Ideally, the action or question should help them connect the conversation back to their companies and/or teams.

FOLLOWING THE CONVERSATION

- **Be sure to share a key themes summary with participants**—Whether a graphic recorder is involved in the session or not, be sure to capture key themes from both small group and large group conversations. If necessary, ask participants to share their notes to supplement any flipcharts.

IMPORTANT NOTE: The submission of your key themes summary/visual summary to NIRI National (info@niri.org) is strongly encouraged.

- **Remind participants of the takeaway action or question**—When sharing the key themes summary, include a reminder of the action or question given at the close of the scenario conversation.
- **Create a feedback loop**—Invite participants to share the action(s) they took or questions on which they reflected and give them feedback. If possible, ask for permission to collect and share those submissions with other participants without attribution to protect privacy.

- **Please contact Jeff De Cagna of Foresight First LLC at inquiries@foresightfirst.io with any additional questions.**

Curated Resource List

ARTICLES AND REPORTS

- AI Can Help Us Live More Deliberately by Julian Friedland
- Artificial Intelligence and the Future of Humans by Janna Anderson and Lee Rainie at Pew Research Center
- CASTING THE NET: How Hedge Funds are Using Alternative Data by The Alternative Investment Management Association, SS&C Technologies
- Discriminating Systems: Gender, Race, and Power in AI by AI Now Institute at New York University
- Investor Relations: The Disruption Opportunity – A Report of the Think Tank on the Future of Investor Relations by the National Investor Relations Institute (NIRI)
- Reshaping Business with Artificial Intelligence by Sam Ransbotham, David Kiron, Philipp Gerbert, Martin Reeves
- Robots on Wall Street: The Impact of AI on Capital Markets and Jobs in the Financial Services Industry Dr. Marcos Lopez De Prado
- Sizing the prize | PwC's Global Artificial Intelligence Study: Exploiting the AI Revolution Skill Shift Automation and the Future of the Workforce by Jacques Bughin, Eric Hazan, Susan Lund, Peter Dahlström, Anna Wiesinger, Amresh Subramaniam

BOOKS

- *An Artificial Revolution: On Power, Politics and AI* by Ivana Bartoletti
- *The Autonomous Revolution: Reclaiming the Future We've Sold to Machines* by William H. Davidow and Michael S. Malone
- *The Big Nine: How the Tech Titans & Their Thinking Machines Could Warp Humanity* by Amy Webb
- *Data Feminism* by Catherine D'Ignazio and Lauren F. Klein
- *Prediction Machines: The Simple Economics of Artificial Intelligence* by Ajay Agrawal, Joshua Gans, and Avi Goldfarb.
- *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy* by Cathy O'Neil

VIDEOS

- How AI can save our humanity by Kai-Fu Lee
- How humans and AI can work together to create better businesses by Sylvain Duranton
- How I'm fighting bias in algorithms by Joy Buolamwini

National Investor Relations Institute
www.niri.org

About NIRI

Founded in 1969, NIRI is the professional association of corporate officers and investor relations consultants responsible for communication among corporate management, shareholders, securities analysts and other financial community constituents. The largest professional investor relations association in the world, NIRI's more than 3,300 members represent over 1,600 publicly held companies and $9 trillion in stock market capitalization.

About Foresight First LLC

Foresight First LLC collaborates with association/non-profit staff and voluntary decision-makers as they strive to understand, anticipate, and prepare for a full-range of complex yet plausible futures. The primary focus of Foresight First LLC's work is on supporting association/non-profit boards in the process of nurturing a more generative integration of stewardship, governing, and foresight that builds the resilience, responsibility, and readiness of their organizations and stakeholders, while strengthening overall board performance.

About Computershare

Computershare (ASX: CPU) is a global market leader in transfer agency and share registration, employee equity plans, mortgage servicing, proxy solicitation and stakeholder communications. We also specialize in corporate trust, bankruptcy, class action and a range of other diversified financial and governance services. Founded in 1978, Computershare is renowned for its expertise in high integrity data management, high volume transaction processing and reconciliations, payments and stakeholder engagement. Many of the world's leading organizations use us to streamline and maximize the value of relationships with their investors, employees, creditors and customers. Computershare is represented in all major financial markets and has over 12,000 employees worldwide.

About Q4

Q4 is a leading global provider of cloud-based investor relations, with the mission of partnering with customers to achieve their strategic IR objectives. Through best-in-class customer experience and an innovative suite of IR technology, Q4 is a trusted partner to over 2,200 of the world's largest brands. Q4's comprehensive portfolio of IR communications and intelligence solutions, supported by an industry-leading customer experience model, empower customers to build impactful and strategic IR programs. Q4 has offices in New York, Toronto, Hamilton, Copenhagen, and London.