BUILDING STAKEHOLDER TRUST IN ARTIFICIAL INTELLIGENCE

SPRING 2024

AUTHOR
Gosia Glinska
Associate Director of Thought Leadership, Batten Institute
UVA Darden School of Business
glinskam@darden.virginia.edu

FACULTY CONTRIBUTORS
Rajkumar "Raj" Venkatesan
Ronald Trzcinski Professor of Business Administration, Marketing

Luca Cian
Killgallon Ohio Art Associate Professor of Business Administration, Marketing

Roshni Raveendhran
Assistant Professor of Business Administration, Leadership and Organizational Behavior

ARTIFICIAL INTELLIGENCE (AI) has the potential to transform industries and usher in a new era of efficiency, productivity, and personalized products and services. According to the latest IBM Global AI Adoption Index, about 42% of enterprise-scale firms have deployed AI in their business, and 40% are currently exploring or experimenting with AI.[1]

One ingredient essential to unlocking the value of AI is trust. Customers need to trust that their personal data will not be misused. Citizens who rely on taxpayer-funded public services need to trust that AI will deliver benefits. Jobholders need to trust that employers will consider the well-being of employees when implementing AI tools in the workplace.

But public trust in AI technologies, and in the companies that develop them, is low around the world. According to the 2024 Edelman Trust Barometer, 43% of respondents will reject AI in products and services if they believe that AI-driven innovation is poorly managed. 26% will still reject AI even if they believe that AI innovation is managed well.[2]

The need to build stakeholder trust in AI was one of the themes at the UVA Conference on Leadership in Business, Data, and Intelligence, cohosted by the Darden School of Business and the School of Data Science. Held December 5, 2023, at UVA Darden DC Metro at Sands Family Grounds in Arlington, VA, the conference brought together experts from academia, industry, and the start-up community to discuss the challenges and opportunities surrounding AI as well as strategies for responsibly deploying AI tools.

This white paper introduces research from three Darden professors on how organizations can foster trust in AI. Professor **Rajkumar Venkatesan** examines how data privacy regulations impact investments in AI start-ups, Professor **Luca Cian** investigates consumer perceptions of faulty AI in the public sector, and Professor **Roshni Raveendhran** explores the psychological implications of AI technologies in the workplace.

AI IN MARKETING
How Customer-Centric Companies Can Benefit from Data Privacy Regulations

The latest advances in AI offer companies unprecedented opportunities to become more customer-centric. As Darden Professor **Rajkumar Venkatesan** expounds in his recent book, *The AI Marketing Canvas: A Five-Stage Road Map to Implementing Artificial Intelligence in Marketing*, AI can help companies create and deliver superior customer value through personalized products and services.[3]

Amazon, for example, strives to be the most customer-centric company on the planet by creating the best online shopping experience. Based on the vast trove of personal data it collects, Amazon leverages AI and machine learning (ML) to improve the matching of products with consumers and deliver recommendations tailored to their unique needs and preferences.

By being customer-centric, firms can obtain a deeper understanding of their customers' needs and wants, which can lead to better financial performance. According to a recent McKinsey report, personalization is a force multiplier that has the potential to drive double-digit revenue growth. It is also a business necessity that more than 70% of consumers expect.[4]

KEY INSIGHTS

Personal data provides a wellspring for firms, which turn it into customer insights and personalized products and services.

Consumer mistrust in the use of their data and the government response are introducing a new era of privacy regulations.

Contrary to conventional wisdom, customer-centric firms can benefit from privacy regulations because they have the potential to improve consumer trust toward brands.

Privacy regulations can incentivize companies to focus on delivering superior customer value through personalized products and services.

Unsurprisingly, companies looking to generate value from personal data have been racing to acquire AI start-ups. According to Venkatesan, acquisitions serve as an effective growth strategy, as they allow firms to obtain AI capabilities faster than developing them in-house.[5]

Since 2010, AI acquisitions have been growing at a compound annual growth rate of 44%, with tech giants like Facebook, Amazon, Microsoft, Google, and Apple leading the way.[6] According to Dykema's 19th Annual M&As Outlook Survey, 71% of M&A activity in 2024 is expected to center on acquiring companies that provide AI capabilities.[7]

Growing Privacy Concerns Spur Regulations

To deliver personalized experiences and tailored recommendations that increase customer satisfaction and loyalty, customer-centric AI technologies rely on vast amounts of customer data, which raises concerns about privacy and the ethical use of personal information.

Studies indicate that consumers have little trust in companies to use AI and their data responsibly. For example, more than 80% of respondents surveyed by the Pew Research Center were not comfortable with the ways they believed companies would use information collected about them.[8]

Policymakers respond to such concerns with new laws and regulations. In 2016, the European Union enacted the General Data Protection Regulation (GDPR), a law mandating that firms manage customer data according to a set of principles and safeguards, including obtaining consent from customers before using their data.

GDPR has achieved the intended outcome of strengthening individual rights. However, as Venkatesan points out, it has also had unintended negative consequences.

Research shows that under privacy regulations, firms are directing resources away from AI initiatives.[9] There's evidence that GDPR negatively affects technology venture investments, hurting European start-ups. For example, between May 2018 and April 2019, the overall venture funding for EU tech firms decreased by $14.1 million per month per member state.[10]

This decline could be driven by concerns that under privacy laws, AI algorithms would have less accurate predictions about customer needs and result in lower returns from AI investments.

Those developments prompted Venkatesan and his collaborators from Texas Tech University and the University of Manitoba to investigate the changes in returns from AI-related acquisitions for firms exposed to GDPR. Using a uniquely compiled dataset of 432 AI acquisitions made by 312 US and European firms, Venkatesan specifically looked at how privacy regulations affected deal size and systematic risk of firms making AI investments. He presented his findings in the working paper, "Influence of Privacy Regulation on Customer-Centric AI Acquisitions: Case of GDPR." [11]

Privacy Regulations Boost Consumer Trust

Venkatesan's study found that, on average, deal size is lower and systematic firm risk is higher for firms exposed to GDPR that make AI acquisitions after the rollout of GDPR.

Contrary to conventional wisdom, his research also showed that, for firms making investments in AI capabilities around *customer centricity*, deal size is higher and the firm risk is lower in the presence of GDPR. The customer-centric focus of the AI technology being acquired seems to alleviate the negative impact of GDPR on deal valuation and weaken the impact of GDPR on the systematic risk that investors perceive to originate from the AI acquisition.

This finding underscores the key role of marketing in managing customer privacy.

Venkatesan also discovered that trust is a critical mechanism that enables increased returns on customer-centric AI investments. Through a lab experiment, Venkatesan and his collaborators demonstrated that privacy regulations increase consumer trust—and the willingness to share personal information—with brands that comply with those regulations.

By demonstrating why the decrease in AI investments following the rollout of GDPR may be myopic, Venkatesan's research can help not only firms investing in AI technologies, but also the innovative AI start-ups that are being acquired.

Regulators may also find Venkatesan's research relevant. It could help them convey to the venture capital industry the increased financial benefits of privacy regulations for AI acquisitions that prioritize customer experience and protect customers' personal information.

Among Americans who have heard of AI, % who say they trust companies to use AI responsibly.

A great deal or Some — 24%
Not sure or No answer — 6%
Very little or Not at all — 70%
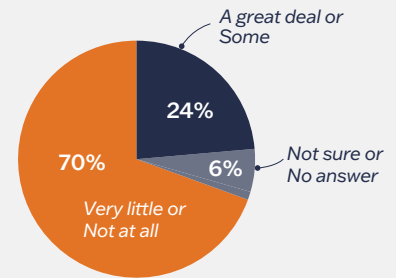
SOURCE:
The Pew Research Center

Privacy Management Matters

Privacy management is becoming a cornerstone of customer-centricity, which relies on extensive use of AI and data, per Venkatesan. His latest research offers evidence that privacy regulations can benefit not only consumers but also companies. By enforcing strict rules on how companies manage personal data, privacy laws like GDPR increase consumer trust in brands by reducing the perceived privacy risks associated with sharing their personal information.

Venkatesan's studies also suggest that firms deploying AI technologies to protect consumer data and deliver personalized value can in fact obtain higher returns from their AI investments, provided they demonstrate a commitment to privacy compliance and customer data protection.

According to Venkatesan, trust is a critical aspect of AI adoption and usage. As his latest research attests, the government has a role to play in enhancing that trust by enacting policies that give consumers rights to their data and recourse against its misuse.

AI IN THE PUBLIC SECTOR
Customer Trust in AI-Powered Government Services

Although government adoption of emerging technologies lags that of the private sector, AI is taking hold across multiple public agencies, revolutionizing how essential services are provided to consumers.

Thanks to AI, government agencies can accomplish more within tight budgets, automate routine tasks, increase the speed of informed decision-making, and improve operations. According to Booz Allen's 2023 Velocity report, two-thirds of federal technology leaders believe AI will have the most transformative impact on how missions are executed within their organizations.[12]

Despite technological advancements, however, AI systems make mistakes. According to Darden Professor **Luca Cian**, whose expertise encompasses consumer behavior and psychology, AI failures in public agencies have far-reaching consequences. They can erode trust in the government and deter consumers from accessing critical services, such as food assistance, unemployment benefits, and disaster relief.

KEY INSIGHTS

Government agencies increasingly rely on AI to deliver essential services to consumers.

Research shows that when an AI system fails and makes mistakes, consumers tend to distrust all AI.

Premature deployment of untested AI technologies may deter consumers from accessing essential services and erode trust in the government.

Without trust, the benefits of AI in the public sector cannot be fully realized.

Cian explores consumer responses to AI failures in the public sector in a recent paper, "Algorithmic Transference: People Overgeneralize Failures of AI in the Government," published in the *Journal of Marketing Research*.[13]

This research is a crucial step toward understanding the complex phenomenon of how people perceive AI. The findings shed light on the critical issue of consumer trust in AI technologies, which increasingly make decisions affecting people's lives.

The benefits of AI in the public sector could be significant, but without trust, says Cian, those benefits cannot be fully realized.

Enhancing Government Services with AI

Government agencies have been leveraging advances in AI and natural language processing for years to deliver instant, personalized recommendations and guide citizens to essential services. For example, the US Citizenship and Immigration Services' chatbot Emma—available 24/7—answers questions in English and Spanish from more than a million applicants per month and resolves more than 50% of inquiries on its own.[14]

A 2022 McKinsey survey showed that 60% of residents across 50 states had a strong preference for government programs accessed through digital channels. The survey also suggested that reliability, transparency, and ease of use are important drivers of customer satisfaction with government services.[15]

AI can certainly help the government improve engagement with citizens and increase the speed and quality of public services. But AI technologies also come with the risk of catastrophic mistakes.

News reports are full of examples of algorithmic decision-making in the public sphere that led to problematic outcomes. Take *Time's* reporting on how Michigan's flawed automated unemployment insurance system erroneously charged tens of thousands of residents with fraud and seized millions of dollars from their wages.[16]

In a time when public trust in the government is near historic lows,[17] the use of unreliable algorithms in public agencies can exacerbate distrust.

Understanding Algorithmic Transference

Most research on AI in the public sector focuses on the technical strengths and weaknesses of AI systems and on the importance of making the use of AI transparent to consumers. Cian, however, wanted to understand how consumers respond when they learn of AI failures.

Together with experts from Babson College and Boston University, Cian conducted thirteen studies across a number of policy areas, ranging from the allocation of social security benefits to consumer protection services. The studies measured consumer response to learning that an AI system made an error compared to a human making the mistake.[18]

Cian's research found that algorithmic failures—in calculating benefits for low-income people or determining unemployment insurance fraud, for example—are generalized more broadly than human failures. In other words, when an AI system makes a mistake, consumers tend to distrust *all* AI.

Cian and his collaborators dubbed this novel effect "algorithmic transference," since it's a tendency people have to generalize— that is transfer—information about one member of a group to another member of that same group.

According to Cian, algorithmic transference is not merely a manifestation of algorithm aversion. Rather, it's a process rooted in how people perceive a group of AI algorithms versus a group of humans.

People view AI algorithms as a highly homogenous group. That's why, when they learn information about one algorithm, they transfer that information to other algorithms to a greater extent than they transfer information learned about a member of a more heterogeneous group—humans.

Algorithmic transference isn't just an interagency problem. Cian's research suggests that when consumers learn about algorithmic failures in one government agency with a faulty AI system, they also draw negative inferences about AI systems used by other agencies. This means that algorithmic transference may damage trust not only in the automated systems used by the public agencies but also in the government itself.

Mitigating AI Failures to Improve Consumer Trust

Cian's research puts the spotlight on how the premature and haphazard deployment of faulty AI systems could discourage consumers from using essential public services, the provision of which is the statutory duty of governmental agencies.

Fortunately, there are ways to mitigate algorithmic transference. According to Cian, dispelling the belief that all AI systems are alike and adding human oversight at critical decision-making points can prevent algorithmic transference.

With careful execution, AI can transform the public sector by making it more efficient, responsive, and consumer-centric. However, premature deployment of faulty AI systems can erode trust in the government and undermine efforts to improve access to critical benefits and services. This is why government agencies should be thoughtful, cautious, and transparent when rolling out new AI technologies.

Deloitte's 2021 global survey of 500 **government leaders** showed that...

72% say that their organization is prepared to deal with issues related to ethical AI.

but

44% say that AI has negatively impacted the reputation of their organization.

SOURCE: Deloitte Insights

THOUGHT LEADER
Professor Luca Cian,
an expert in consumer behavior with a focus on visual persuasion, psychological response to AI, and social identity.

CORE RESEARCH
Longoni, Chiara, Luca Cian, and Ellie J. Kyung.
"Algorithmic Transference: People Overgeneralize Failures of AI in the Government."
Journal of Marketing Research (JMR) 60, no. 1 (February 2023): 170–88.

AI IN THE WORKPLACE
How Understanding the Psychology of Human-Technology Interactions Can Foster Adoption and Trust

AI is changing the nature of work and transforming the ways employees engage with each other within organizations.

According to Darden Professor **Roshni Raveendhran**, an expert in the psychology of AI, the COVID-19 pandemic has dramatically accelerated the adoption of AI tools, creating new opportunities to further reshape how and where work is done.

For example, Google Drive, Slack, Zoom, and other digital platforms enable teams to work across time zones and geographies. They also enable organizations to capture a slew of employee data to monitor productivity. Increasingly, sophisticated algorithmic decision-making systems allow employers to automate traditional human roles of managing workers.

KEY INSIGHTS

Increasingly sophisticated AI tools are automating decision-making and taking over management roles in organizations.

The accelerated implementation of AI in the workplace has a profound impact on employee trust, wellbeing, and motivation.

To preempt potential pushback against new technology, organizations should be transparent about how and why they plan to implement AI tools.

While AI-based tools promise improvement in workplace efficiency, their successful adoption hinges on how employees will respond to them and whether employees will trust the companies that use them.

The 2023 Pew Research Center survey of more than 11,000 Americans found that 62% think the use of AI in the workplace will have a major impact on jobholders in the next 20 years. 39% of respondents oppose the use of AI to evaluate their job performance, and 51% oppose using AI to track what they do on work computers. About 66% of respondents would not apply for a job with an employer that uses AI to help make hiring decisions, while 32% would.[19]

According to Raveendhran, employee sentiment around the use of AI in the workplace cannot be discounted if organizations want to maximize the benefits of AI in the workplace while ensuring the continued well-being and motivation of their employees.

As Raveendhran's research uncovered, trust in AI depends on the human perception of AI, as well as on the context in which AI tools are being used. That knowledge can help organizations design and deploy AI technologies in ways that foster trust and acceptance in the workplace.

When AI Algorithms Track Behavior at Work

In a recent paper, "Humans Judge, Algorithms Nudge: The Psychology of Behavior Tracking Acceptance," published in *Organizational Behavior & Human Decision Processes*, Raveendhran and her coauthor, Nathanael Fast, from the University of Southern California examine the psychological underpinnings of employees' acceptance of behavior tracking in the workplace.[20]
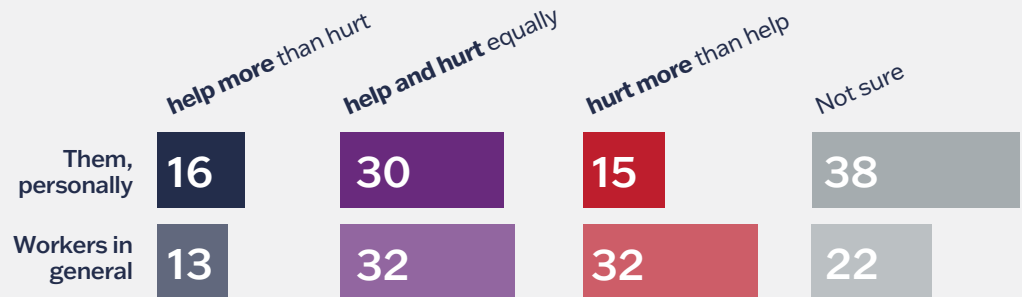
Historically, workers have been averse to tracking and monitoring, expressing concerns about a Big-Brother level of omnipresent surveillance that can lead to the loss of trust and motivation.

What Raveendhran found is that people are more willing to accept behavior tracking at work when it is conducted solely by technology—that is, AI algorithms—rather than by humans. What drives that acceptance, notes Raveendhran, is the fact that when people are tracked exclusively by AI, they are less concerned about potential negative judgment, which increases their subjective sense of autonomy.

Raveendhran's research has shown that in the context of behavior tracking, people are more willing to trust algorithms than humans. People believe the psychological threat that accompanies being judged negatively is removed when tracked by machines, notes Raveendhran. Furthermore, people trust that AI will be more accurate in monitoring their behavior than a human supervisor, and that fosters their trust in AI.

Findings from Raveendhran's study have important implications for both employees and employers. As organizations increasingly use technology to monitor

% of U.S. adults who say that over the next 20 years the use of AI in the workplace will produce this outcome for each group.		help more than hurt	help and hurt equally	hurt more than help	Not sure
	Them, personally	16	30	15	38
	Workers in general	13	32	32	22

SOURCE: Pew Research Center, 2023

employees, they might consider eliminating human involvement and fully automating tracking.

When AI Systems Replace Human Bosses

Companies increasingly deploy AI systems to communicate with, make decisions about, and even manage their employees.

Lyft and Uber, for example, have been using algorithmic management processes for years to assign rides, determine routes, and provide performance feedback. Even though rideshare companies may choose to frame contract work as having no management at all, the automated systems they use significantly influence worker behavior.

How do employees respond when algorithms replace some functions of their human bosses? Do they trust the "machines"? According to Raveendhran, organizations will need to navigate those questions as they adopt AI systems to make managerial decisions.

In a recent study, Raveendhran and experts from the University of Washington at Tacoma and the University of Southern California explore the psychological consequences of AI-based algorithmic management. In their paper, "Algorithmic Management Diminishes Status: An Unintended Consequence of Using Machines to Perform Social Roles," published in the *Journal of Experimental Social Psychology*, they investigate how the use of algorithmic management impacts employee perceptions of social status in an organization and trust.[21]

Raveendhran found that people believe working in roles with algorithmic management as opposed to a human one diminishes one's standing in an organization. Because of a lay belief that only simple, trivial, or routine tasks can be automated, employees assume that if they—and others—can be managed by an algorithm, it means that their jobs lack complexity.

This perception of diminished status persists even when the actual experience of being managed by AI is positive.

Regarding people's trust, Raveendhran's research shows that employees are less likely to trust an algorithmic manager than a human one. That distrust extends to the organization employing algorithmic management.

Preparing the Workforce for AI Adoption

One of the main drivers of the growing adoption of algorithms to manage the workforce is their potential for low-cost, efficient, and data-driven decision-making. However, as Raveendhran's research suggests, the fact that those decisions are made by the "machine" rather than a human manager can negatively affect employee perceptions and result in pushback, regardless of the quality of actual outcomes.

Fortunately, organizations can preempt employee resistance to algorithmic management in the workplace by addressing employee concerns in advance.

Raveendhran's research indicates that it's important to appropriately frame why and how these technologies will be used to perform management functions. It is also critical to address the perceived status loss under algorithmic management. This can be done by dispelling the idea that AI tools are used exclusively for managing routine, low-skill tasks and reinforcing the notion that AI is also a tool for complex jobs.

THOUGHT LEADER
Professor Roshni Raveendhran, an expert in psychology of technology, AI and automation, self-determination and motivation, and leadership and decision-making.

CORE RESEARCH
Raveendhran, Roshni, and Nathanael J. Fast. "Humans Judge, Algorithms Nudge: The Psychology of Behavior Tracking Acceptance." *Organizational Behavior and Human Decision Processes* 164, no. 3 (2021): 11–26.

Jago, Arthur S., Roshni Raveendhran, Nathanael Fast, and Jonathan Gratch. "Algorithmic Management Diminishes Status: An Unintended Consequence of Using Machines to Perform Social Roles." *Journal of Experimental Social Psychology* 110 (January 2024): N.PAG.

REFERENCES

INTRO

1. IBM Global AI Adoption Index—Enterprise Report, November 2023.

2. "2024 Edelman Trust Barometer: Innovation in Peril," Edelman, https://www.edelman.com/trust/2024/trust-barometer (accessed March 10, 2024).

AI IN MARKETING

3. Rajkumar Venkatesan and Jim Lecinski, *The AI Marketing Canvas: A Five-Stage Road Map to Implementing Artificial Intelligence in Marketing* (Redwood City, CA: Stanford University Press, 2021).

4. Arora Nidhi, et al., "The Next in Personalization 2021 Report," McKinsey & Company, November 12, 2021, https://www.mckinsey. com/capabilities/growth-marketing-and-sales/our-insights/the-value-of-getting-personalization-right-or-wrong-is-multiplying (accessed Feb. 20, 2024).

5. Venkatesan and Lecinski, *The Marketing Canvas*.

6. Race for AI 2021 Report, CB Insights, June 24, 2021, https://www. cbinsights.com/research/artificial-acquisitions-trends-annual-deals/ (accessed Mar. 15, 2024).

7. "19th Annual Mergers & Acquisitions Outlook Survey," Dykema, https://www.dykema.com/a/web/i5LZJJdKghvDdR9BfhFPNG/ dykema-m-a-survey.pdf (accessed Feb. 20, 2024).

8. Michelle Faverio, "Key Findings about Americans and Data Privacy," Pew Research Center, October 18, 2023, https://www.pewresearch. org/short-reads/2023/10/18/key-findings-about-americans-and-data-privacy/ (accessed Feb. 20, 2024).

9. James Bessen, Stephen Michael Impink, Lydia Reichensperger, and Robert Seamans, "GDPR and the Importance of Data to AI Startups," NYU Stern School of Business, April 1, 2020. Available at SSRN: https://ssrn.com/abstract=3576714 (accessed Feb. 20, 2024).

10. Jian Jia, Ginger Zhe Jin, and Liad Wagman, "The Short-Run Effects of the General Data Protection Regulation on Technology Venture Investment," *Marketing Science* 40, no. 4 (March 2021): 661–84.

11. Rajkumar Venkatesan, S. Arunachalam, Kiran Pedada, "Influence of Privacy Regulation on Customer-Centric AI Acquisitions: Case of GDPR" (working paper, 2024).

AI IN THE PUBLIC SECTOR

12. "The Latest Tech Insights for Federal Innovators from Booz Allen," ClearanceJobs, Feb 7, 2023, https://news.clearancejobs. com/2023/02/07/the-latest-tech-insights-for-federal-innovators-from-booz-allen/ (accessed Feb.20 2024).

13. Chiara Longoni, Luca Cian, Ellie J. Kyung, "Algorithmic Transference: People Overgeneralize Failures of AI in Government," *Journal of Marketing Research* 60, no. 1 (2023): 170–88.

14. "Meet Emma, Our Virtual Assistant," US Citizenship and Immigration Services, https://www.uscis.gov/tools/meet-emma-our-virtual-assistant (accessed Feb.20 2024).

15. Ashka Dave, Marcy Jacobs, Kunal Modi, and Sarah Tucker-Ray, "Governments Can Deliver Exceptional Customer Experiences—Here's How," McKinsey & Company, November 16, 2022, https://www. mckinsey.com/industries/public-sector/our-insights/governments-can-deliver-exceptional-customer-experiences-heres-how (accessed Feb. 20, 2024).

16. Alejandro de la Garza, "States' Automated Systems Are Trapping Citizens in Bureaucratic Nightmares With Their Lives on the Line," *Time*, May 28, 2020, https://time.com/5840609/algorithm-unemployment/ (accessed Feb. 20, 2024).

17. "Public Trust in Government: 1958–2023," Pew Research Center, September 19, 2023, https://www.pewresearch.org/politics/2023/09/19/ public-trust-in-government-1958-2023/#:~:text=Public%20trust%20 in%20the%20federal,the%20time%E2%80%9D%20(15%25) (accessed Feb. 29, 2024).

18. Longoni, Cian, and Kyung, "Algorithmic Transference," 2023.

AI IN THE WORKPLACE

19. Lee Rainie, et al., "AI in Hiring and Evaluating Workers: What Americans Think," Pew Research Center, 20 April 20, 2023, https:// www.pewresearch.org/internet/2023/04/20/ai-in-hiring-and-evaluating-workers-what-americans-think/?mod=djemWKPLC (accessed Feb. 20, 2024).

20. Roshni Raveendhran and Nathanael J. Fast, "Humans Judge, Algorithms Nudge: The Psychology of Behavior Tracking Acceptance," *Organizational Behavior and Human Decision Processes* 164, no. 3 (2021): 11–26.

21. Arthur S. Jago, Roshni Raveendhran, Nathanael Fast, and Jonathan Gratch, "Algorithmic Management Diminishes Status: An Unintended Consequence of Using Machines to Perform Social Roles," *Journal of Experimental Social Psychology* 110 (January 2024): N.PAG.