By Roben Farzad

ARTIFICIAL INTELLIGENCE: RED ALERT! RED ALERT!

The pandemic has created new urgencies for AI uses, from contact tracing to fraud detection to safer movie-theater openings.

Last spring, as the COVID-19 pandemic ravaged New York, Governor Andrew Cuomo voiced an unexpected lament. He worried that the talk of an economic downturn and hospital triage would make short shrift of the crisis's role in surging depression and anxiety, loneliness, and isolation. "We also need to talk about the social consequences," Cuomo said. "It's hard to gauge and hard to measure because there is no Dow Jones index [to measure this]."

Beni Gradwohl begged to differ. He is a cofounder and the CEO of Cognovi Labs, a VC-backed start-up that fuses artificial intelligence with behavioral psychology to measure how people make decisions. Weeks before Cuomo expressed his worry, Cognovi had launched a Coronavirus Panic Index, observing patterns of social media use to track the pandemic's emotional severity across states and countries. "We saw the first signals of COVID in our system in mid-January," Gradwohl says. Cognovi shared the signals with its clients: corporations seeking a head start on changing customer behaviors, pharmaceutical makers looking at prospective patients, retailers, and investors wanting to better position their portfolios.

Cognovi did not start developing the AI necessary for the index the moment the coronavirus was discovered. Once Cognovi's executives determined that there was a need for real-time information on people's anxieties, engineers just retooled their existing machine-learning code. "The technology," Gradwohl says, "is already here." →

ARTIFICIAL INTELLIGENCE:

RED ALERT! RED ALERT!

THE PROBLEM

The pandemic exposed critical flaws in industries everywhere that today's usual technology can't fix.

WHY IT MATTERS

Even when things return to "normal," organizations will need to figure out how to catch up on weak technology.

THE SOLUTION

Turn boldly to artificial intelligence, which continues to improve and find new solutions for the post-pandemic era.

For decades, artificial intelligence has been mostly a work in progress. Its possibilities have been endlessly discussed. (Self-driving cars! Virtual tutors! Robot surgeons!) But even as companies have spent tens of billions of dollars on machine learning, the returns have been less than stellar. Then the pandemic came along, and one of its only bright spots has been the ability to identify some critical tasks that manufacturing, retail, healthcare, and other systems using AI can do better, faster, and sometimes cheaper than conventional processes. "COVID-19 has forced everyone to take a crash course in the importance of digital transformation," says Vinay Menon, global lead for Korn Ferry's Artificial Intelligence practice.

This leap in faith in AI comes at a time when forecasts for its use were already strong. International Data Corporation's *Worldwide Artificial Intelligence Spending Guide* estimates that global spending on AI is slated to double from 2020 to 2024, surging about $50 billion to more than $110 billion. In crisis times, new tech tends to rev up even more. The Great Recession paved the way for outsize gains in cloud computing. The crash of the tech bubble in the early 2000s left so much global broadband capacity up for grabs that call centers in Asia and Latin America pounced to provision customer service to US corporations. Zoom conference calls seemed almost exotic before March; now they're a standard part of many workdays.

To be sure, the universal implementation of AI will not be all smooth sailing. It certainly has had its share of failures already. One AI voice-recognition start-up went from 200 employees and a $600 million valuation in the autumn of 2018 to bankruptcy, a staff of 28, and less than $10 million in assets by 2020. Then there are the issues over privacy and bias. (See "AI's Non-Tech Trouble Spots.") Look no further than the recent controversy over the use of facial-recognition software, which often relies heavily on AI, to see how the broad use of AI involves a lot more than getting the technology right.

But experts believe that these shortcomings are surmountable, and companies will be more motivated to find answers if they see how some post-COVID AI applications succeed. "If you have an AI solution in the midst, it allows you to scale, save, and improve the customer experience—if it's done right," says Menon. The following are some areas where AI is showing promise in the wake of the coronavirus.

KEEPING PEOPLE HEALTHY

Perhaps the most urgent need for artificial intelligence is at the very center of the crisis itself: public health. The onset of COVID-19 blindsided hospitals, nursing homes, and so many other institutions, demonstrating the urgent need for robust viral early-warning systems. Analysts say AI could help when it's used to analyze data from an unlikely source.

For decades, experts have been monitoring wastewater to track everything from the consumption of illicit narcotics and pharmaceutical abuse to sources of water pollution. In the spring of 2020, Dutch and French scientists were reporting having discovered the genetic fingerprints of the virus in wastewater many days before hospitals were seeing admissions—suggesting to the global public health community that sewage auditing could provide a critical leading indicator in the battle to contain the pandemic.

In July, the Israeli start-up Kando reported it had successfully utilized AI in its pilot to pinpoint coronavirus in sewer water. Collaborating with the Israel Institute of Technology and Ben-Gurion University, Kando dropped AI-backed sensors in sewage pits throughout Ashkelon, Israel. The hyper-local results allowed public health officials to identify early outbreaks at the neighborhood level at a time when person-to-person testing was not feasible. Kando CEO Ari Goldfarb likened this AI-assisted achievement to "conducting a blood test for a whole city."

REOPENING BUSINESSES

It's been a nightmare year for movie theaters. Venues around the world were desperate for any cash flow. But AI helped at least one theater chain reopen safely.

London-based Vue International has around 2,000 screens at nearly 230 locations spanning Europe and Asia. To more effectively and safely reopen, Vue relied on artificial intelligence to help determine everything from optimal screening times to how to get audience members into and out of theaters while maintaining social distance. The company fed 10 years' worth of customer data into its system to inform how and when to best open its doors.

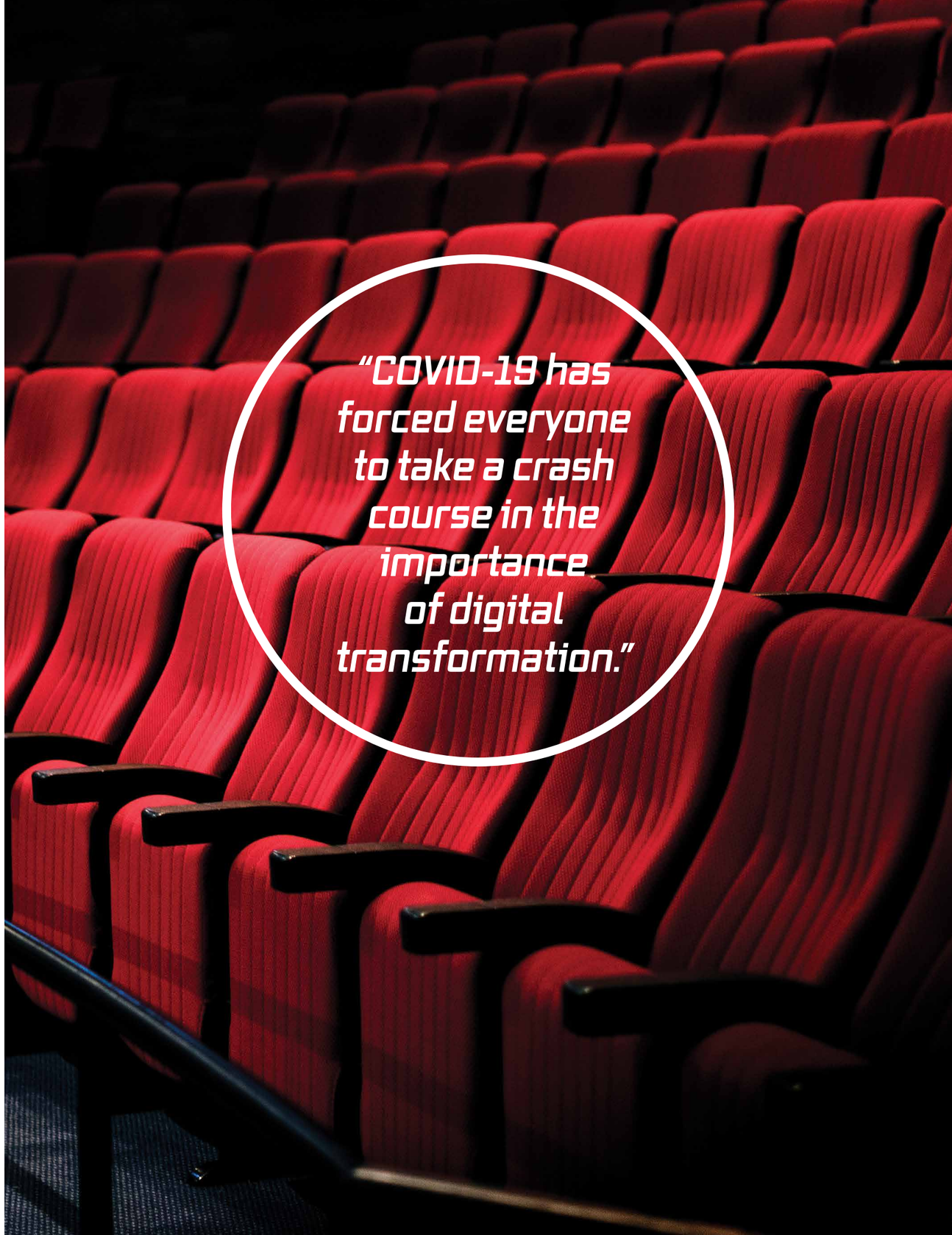
"We have been using AI to help determine what is played at what screen, and at which cinemas [to optimize revenues]," says Tim Richards, Vue's founder and CEO. "It recognizes if you are with family and it will cocoon you." AI helped Vue maximize box-office sales when only 50 percent of its cinemas' capacity was available. While that was far less than where it had been before the pandemic, it was critical business for an industry facing multiple bankruptcies.

STOPPING FRAUD

The broad shift away from cash has been happening for years. A major worry, however, has always been credit-card fraud. Indeed, credit-card fraud more than doubled in the first quarter of 2020 from a year earlier, not coincidentally at the same time the pandemic made contactless, cashless payments a business necessity.

And yet AI has given finance firms and cardholders a new weapon to fight fraud. Enter Eno, the AI assistant for the credit-card giant Capital One. Requiring no opt-in by the cardholder, Eno can flag many anomalies within seconds for both the bank and customers, such as getting charged the same amount twice, adding unusually large tips, potentially misplacing a decimal figure, or nearing the expiration of a free trial.

Importantly, Eno also understands much more colloquial responses from customers. That's a big jump from Capital One's previous reliance on text-based fraud alerts, where customers could only answer yes or no. "We didn't understand any of it [then]," explained Ken Dodelin, vice president of conversational AI products at Capital One, at a conference earlier this year. "And so that kind of hit the light bulb for us—wouldn't it be great if we could understand natural language coming back to us from customers?" Capital One reports that it can now understand 99 percent of customer replies (versus 85 percent previously) and offers faster response times on confirmed fraud. Experts say Capital One's success will push AI further into compliance systems and the fight against financial fraud.



GETTING GOODS WHERE THEY NEED TO BE

For the past few years, analysts and consultants have been urging organizations to incorporate artificial intelligence into supply chains. Ideally, AI could spot potential bottlenecks before they happen, predict the ideal times to reorder supplies, and make the supply chain more responsive to changes in business strategy. But for cost reasons, many firms have been resistant to the new technology.

Their resistance may have decreased, however, thanks to the many problems the pandemic caused. Remember those empty shelves that should have stocked yeast, meat, toilet paper, hand sanitizer, and disinfecting wipes? COVID exposed the fragility of the consumer-goods supply chain. Manufacturers and retailers immediately appreciated the benefit of any head start in the increasingly chaotic game of matching supply with demand. More than ever, data-driven prediction factored in the mission to keep shelves stocked.

AI did help some firms avoid the worst of the supply shocks. In January, the AI upstart Noodle.ai observed coronavirus-related disruptions to food supply chains across Asia. The group has since raced to feed new information into its algorithms, to help everyone from chemical manufacturers to consumer packaged-goods companies to supermarkets meet demand and avoid empty shelves. A month later, Blue Yonder Inc., which uses AI in software to help forecast demand for grocery perishables, started integrating COVID-19 data from the Centers for Disease Control and Prevention into its systems. That allowed Blue Yonder's supermarket clients, including Albertsons and Canada's Loblaw, to calibrate delivery times and mark down items to clear space when needed.

HIRING NEW TALENT

The remote video interview has never been so de rigueur. But while video interviews can let hiring managers talk to more candidates during the day, it can still leave them having to speak with hundreds of them. So companies are increasingly relying on AI-driven tools to vet candidates before scheduling person-to-person interviews.

Silicon Valley–based Eightfold uses artificial intelligence to match prospective and current employees with the right job based on the individual's skills and potential. Using neural networks, the start-up has identified more than a million skills across the world's population. Eightfold tailors its AI to each job candidate. Its Talent Intelligence Platform is pitched to companies as a way of turning talent management into a competitive advantage instead of a drag; losing stars and recruiting new ones, after all, is costly and time consuming.

Which is not to say that AI in hiring is perfect. In October, one Slate headline announced "AI Job Interviews Are Stressing Out Applicants." There are also worries that AI, if it relies on bad data, could inadvertently bake bias into the process. In 2018, one tech firm that used AI to find employees wound up inadvertently discriminating against women. The reason: most of the thousands of historical resumes it fed the AI were from men.

But experts say careful human planning can overcome the bias issue. "AI, unlike any other asset, doesn't depreciate over time. It gets smarter and more intelligent with experience and knowledge," says Korn Ferry's Menon. "Lessons learned need to be constantly refreshed, upgraded."

AI'S NON-TECH TROUBLE SPOTS

The pandemic has shown how artificial intelligence is being used to solve a host of problems. But AI isn't perfect, and a bad implementation or strategy could lead to some serious problems for an organization. Some examples:

✘ **Misidentification** **AI-deployed image recognition systems in stores can mistake customers pulling something off a shelf for shoplifters while completely missing actual theft.**

✔ **Solution** **Feeding the AI a lot more surveillance data on customer movements, facial expressions, and even clothing choices could cut down the error rate.**

✘ **Bias** **Discrimination against people of color has shown up in several applications, including hiring and criminal justice.**

✔ **Solution** **Some of this is a data problem; having resume data from just men, for instance, will cause an AI tool to skew toward male candidates in the future. But this type of bias could be stopped at the programming level by hiring coders and analysts of diverse backgrounds.**

✘ **Privacy** **AI's growing ability to predict what anyone may think or do (and then act accordingly) scares employees, customers, and many others.**

✔ **Solution** **Be transparent about with stakeholders about what AI will be used for, and nothing else, then hold everyone involved accountable.**