GLOBAL INDUSTRY STORIES IN FOCUS

INDUSTRIOUS.

INDUSTRIOUS

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Letters from the editors

**Sharon T. Driscoll, CMO Industry
Marketing & VP Sales Enablement, IBM**
The day-to-day of industry is a blur. Nimble competitors, shifting business models, and fast-paced emerging technologies blend into what can feel like an abstract landscape.

So, what's the solution? Focus.

In the second volume of INDUSTRIOUS, the editorial team and I have found and featured what we believe are the crucial trends coming into focus in retail, government, telco, insurance, manufacturing, and more.

I hope stories like How IoT and AI are driving the manufacturing industry forward, Coming soon to a theatre near you: Blockchain, and What today's airlines can learn from the 'golden age' of flying, serve as inspiration for your unique business vision.

**Ann G. Rubin, Vice President
Corporate Marketing, IBM**
Clients are at the center of the boldest business models, but what do you do when the client's focus is fragmented?

Tell a story no one can ignore.

The stories in INDUSTRIOUS volume 2 reach beyond the nuts and bolts of industry and into human problems addressed through tech—like solving the opioid crisis, addressing an aging workforce, and making transportation more intuitive and accessible for those with disabilities.

When attention is short, here is to focusing on the things that matter.

AI, from Science to Business

Garry Kasparov, April 19, 2018

To become truly revolutionary, every technology has to make the jump from the laboratory to the boardroom. We fly on Boeing airplanes, not Wright Brothers airplanes, because William Boeing saw the commercial potential of being on the cutting edge of aeronautics and developed a strategy to realize that potential. Long before airplanes could carry cargo or passengers, Boeing was busy planning for that day. The automobile and the desktop computer were literally garage innovations, but they required standardization and business models to change the world. Consider the enormity of the questions CEOs and managers of the past century had to face. How will the automobile change my industry? The mainframe, the personal computer, the internet, the smartphone? Artificial intelligence—or as I prefer to call AI, "augmented intelligence"—is no different, and its time has come.

Machines that learn have existed since 1956, when an IBM 704 improved its play at checkers. (For better or worse it would be quite a while before Big Blue turned its sights on my game of chess with Deep Blue.) But it was another half-century before there existed enough data and computers fast enough to process it to turn machine learning into a transformative technology. Now, as happened with cars and computers, and is still happening with the internet and smartphones, the challenge is how quickly and how well different industries will exploit these remarkable new tools.

Since the abacus, we have built machines to help us answer questions. The simplest calculator can tell you instantly what 484,382 x 89,348 is, but it has no idea why that question is important. AI is expanding the breadth and depth of what questions we can ask of our machines—although it's crucial to remember that they still don't know which questions matter and why.
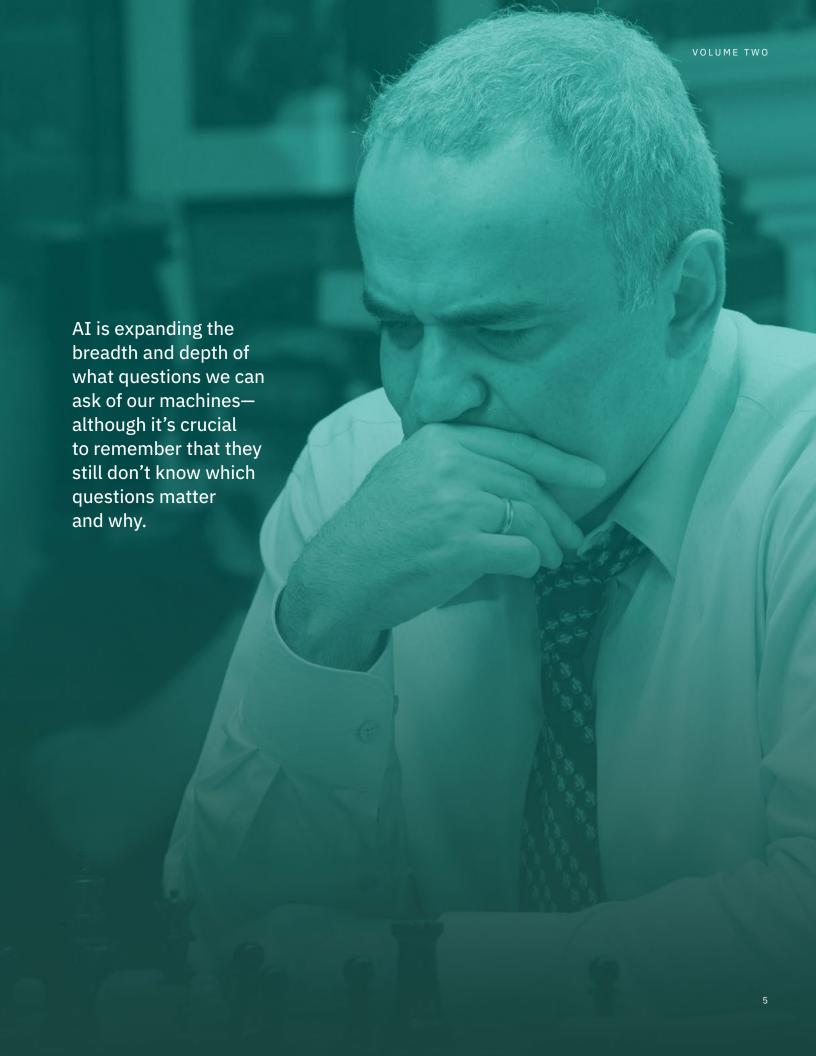
What are the common denominators for success across your product lines, business units, employees? Which links in a supply chain can be improved? What does the public really think of our company and why? Executives can no longer hide behind "nobody can be sure why" when one initiative fails and another succeeds. The failure will be in not finding out.

As AI technology and business processes advance and evolve, the competitive advantage will be in how well a company finds and formats the right questions.

As AI technology and business processes advance and evolve, the competitive advantage will be in how well a company finds and formats the right questions. The goal is to extract useful answers from the increasingly intelligent algorithms that swim through a sea of data—a sea that threatens to become an overwhelming flood. A team of human experts cannot cope with so much information, let alone tease out connections and correlations on which we can base our decisions. AI can—if we know what we're looking for.

With enough good data and proper guidance, intelligent machines will progress from demonstrating correlation to explaining causation, with a cascading effect in our understanding of education methods, health risks, and yes, even big business. Some changes will be slow, while sudden leaps will surprise even the experts. What we can be sure of is that when it comes to business, it's better to be a Boeing than a Wright—and that means having a plan.

Former World Chess Champion Garry Kasparov is a frequent speaker on decision-making, strategy, and the human-machine relationship. He is the author of Deep Thinking: Where Machine Intelligence Ends and Human Creativity Begins.

AI is expanding the breadth and depth of what questions we can ask of our machines—although it's crucial to remember that they still don't know which questions matter and why.

Automotive

"The world of mobility is quickly evolving as visionary concepts like self-driving vehicles, electric cars, and new mobility services become reality. The data from connected vehicles represents a rapidly emerging market for auto makers with the potential for new revenue streams and business models, but they will need to make that data secure and private. As the connected car connects more to our daily lives, issues of security, data, and connectivity will become increasingly important. And to compete in the connected world of the future, auto-motive companies need to develop strategies today."

Dirk Wollschlager, Global General Manager, Automotive, Aerospace, and Defense Industries, IBM

The next stop: accessible mobility for all

Rich McKay, May 11, 2018

An estimated 15 percent of the world's population has some form of disability. Can AI, IoT, and other autonomous vehicles technology help address their mobility needs?

Yes, through Olli, an AI-enabled, electric shuttle bus created by Local Motors. The #AccessibleOlli initiative, jointly led by Local Motors, IBM, and the CTA Foundation, is piloting technologies that could help riders—including the aging population—with a range of disabilities.

We talked with Gina O'Connell, Director of Labs at Local Motors, and Kal Gyimesi, Automotive Marketing Leader at IBM Watson IoT, to learn more about #AccessibleOlli.

What mobility challenges do people with disabilities face?

O'Connell: The unemployment rate for people with disabilities in 2016 was twice that of those with no disability. It's not because they can't work; it's often because they don't have a means to get to work.

A lot of people with disabilities live below the poverty level. A lack of transportation plays a big role in preventing them from reaching their full potential: working, having a full quality of life, being active in their community.

Gyimesi: People are conscious of their disabilities. Fear of hostility, for example, has stopped one in three people from leaving their homes to go out in their local areas.

And the disability community is underserved when it comes to transportation. Their needs are usually an afterthought when companies design products or vehicles.

How does #AccessibleOlli help people with disabilities?

Gyimesi: We applied technology to Olli in a subtle way that both assists and elevates people with disabilities—enhancing their mobility and confidence.

We designed the accessibility journey around four personas, each with distinct needs:

1. Erich has degenerative vision loss and is nearly blind. Olli could use machine vision to identify open spots and guide him there via audio cues and a mobile app—or even haptic sensors that project sensations through the air.
2. Brent has hearing loss. Buses could employ machine vision and augmented reality to read and speak sign language via onboard screens or his smartphone.
3. Katherine is confined to a wheelchair. Olli will have a smart retractable wheelchair ramp and securement system to be able to help her.
4. Grace has a cognitive disorder and is suffering from early dementia. Technologies will give her gentle reminders to help keep her on track.

How would Olli recognize people with disabilities?

O'Connell: Through two ways: information sharing and technologies like IoT and AI. Machine vision could detect visual cues that someone needs assistance—like people with wheelchairs, walkers, canes, or guide dogs waiting at bus stops.

Whatever information they share about their needs will make Olli smarter about helping them. Olli can recognize frequent riders: "Erich is getting on the bus. We know what he needs so he doesn't have to ask for help each time."

Olli would continue to learn more about people and personalize their experience each time they ride, through AI.

Can accessible technologies benefit everyone?

O'Connell: The entire global population can use accessible technologies in some way, just like wheelchair cut outs in sidewalks. They were originally designed for people with disabilities, but now we all use them.

We want everyone to benefit from Olli's technologies. We're not creating a paratransit vehicle and then a vehicle for everyone else. It's all one vehicle. Technologies that help people with disabilities will make their way to Olli, so everyone can use them.

Gyimesi: For the aging population who are unable to drive, the transportation options can be limited or inconvenient. By improving mobility for everyone, self-driving vehicles could help older adults reconnect to others and strengthen cherished social relationships.

Autonomous transportation can make a real difference. A self-driving car removes the driver from the equation and should work for everyone, including the almost 50 percent of adults over the age of 65 who have vision, hearing, mobility, or cognitive impairments.

Were there any surprising responses to Olli?

O'Connell: The aging community was not fearful of autonomous driving. They simply wanted independence and mobility. We thought we'd get pushback, but instead we got applause and questions about when it would be available.

There were questions about not having a bus driver to help during a medical episode or if a person is committing a crime. Through machine vision and audible cues, Olli would potentially be able to anticipate trouble before a bus driver and quickly call for help. Olli could even drive to a hospital or police station or meet in the middle.

What are your future plans?

Gyimesi: IBM has a long history of inventing technology that is more human, empathetic, and adaptive to everyone's age and ability. We hired our first person with disabilities in 1914 and have a dedicated IBM Accessibility Research group. We'll continue to advance the role technology plays in helping the aging population and people with disabilities.

O'Connell: We will continue to explore technology that makes Olli as accessible as possible for everyone. A lack of accessibility is a problem that we want to help solve. Work with us, tell us when we're going in the right and wrong direction. We'll listen to you. It's all too rare that people with disabilities are heard and that design is truly inclusive. We want to change that.

Chemicals & Petroleum

"With cost pressures remaining and customer expectations continuing to rise, the need for improvements across the entire value chain is seismic. Businesses are looking at new strategies to grow and differentiate. Digital transformation is opening more doors to new markets, enabling new business models, and driving new levels of performance. The challenge for chemical and petroleum companies is where best to apply digital solutions, and how fast and how far to go."

Luq Niazi, Global Managing Director,
Chemical & Petroleum Industries, IBM

As the energy landscape shifts, oil companies bet big on retail

Jordan Teicher, May 11, 2018

Oil companies don't just sell oil. At gas station convenience stores around the world, they also sell snacks, beverages, and hundreds of other products that consumers use every day. Strategically located and open 24/7, the stores are a destination all their own for many consumers.

By making customers happier and inventory management smarter, the companies plan to drive more visits and more purchases at stores.

As oil demand nears its peak and alternative energy sources rise, oil companies are looking to expand and improve the retail side of their businesses. By making customers happier and inventory management smarter, the companies plan to drive more visits and more purchases at stores.

"The portfolio of products sold at fuel stations needs to rebalance from fuel to non-fuel items," said Dirk Claessens, IBM's Managing Director for Royal Dutch Shell.

For Shell, the largest fuel retailer in the world, technology is a crucial part of that rebalance. Today, the company serves more than 30 million customers across 43,000 sites in nearly 80 countries. In the years ahead, company leaders want to grow that daily customer base to 40 million. To make that happen, they're developing a breakthrough technology—Instant Checkout—with IBM in the UK to create a unique store experience they hope will eventually attract millions of customers.

The key to the Instant Checkout system is a radio frequency identification (RFID) chip, which is placed on every product for sale in a Shell store. Unlike bar codes, which must be scanned individually, RFID chips can be read all at once and deployed effectively on any product regardless of its material.

At Shell's checkout, customers merely have to place their shopping bag on a kiosk's scanning platform, open an app, and tap their phones on a reader to deduct the payment from their mobile wallet. The process is 15 times faster than a standard self-service checkout.

"Unlike other futurist concept stores where the goal is to eliminate the need for shop staff completely, the invention means that retail staff can spend their time engaging with customers and enhancing the in-store experience, rather than facilitating transactions and fixing self-checkout bedlam," IBM inventor iX digital leader Lindsay Herbert wrote.

As the system rolls out to more Shell stores in the UK, shoppers will see the technology's impact largely at checkout. But store managers will see changes across multiple levels of the business.

With the data from universal RFID tags, managers can keep better tabs on their entire inventory. They can be alerted when a product is about to expire and when shelves need to be replenished. They can also figure out where best to place items in a store depending on the time of day or the weather. And they can help prevent theft.

"What we're looking at is the potential of this technology not only as an instant checkout but as a component of the connected store," said Matt D. Boltwood, Associate Partner in the Industrial Sector with IBM Global Business Services.

Currently, Claessens said, an average purchase of non-fuel items at a fuel station is around $10 or $11. But when stores are stocked with the right products at the right time and customers don't have to wait in long lines to check out, sales are sure to increase. That's not just true for convenience stores at gas stations— it's true for stores everywhere.

"What consumers want these days is a quick, efficient, frictionless experience. What's incumbent on retailers is to figure out how to provide that," said National Retail Federation VP of Research Development and Industry Analysis Mark Mathews.

Energy, Environment, & Utilities

"Today's world is more electric, sustainable, and diversified than ever. EE&U companies must embrace their role in the energy integrator ecosystem to innovate business processes, with the added urgency of massive demographic shifts. The next few years will be an exciting time for our industry as we advance smart energy grids, water management, natural disaster responses, and health."

Brad Gammons,
Global Managing Director,
Energy, Environment, and
Utilities Industries, IBM

The aging workforce will retire soon. Is the utilities industry ready?

Rich McKay, April 3, 2018

Fifty percent of the entire U.S. workforce will be ready to retire in the next five to ten years, according to the U.S. Department of Labor.

That includes 25 percent of the utility workforce in the next five years, says the U.S. Department of Energy.

To learn more about the impacts, we spoke with Eva Schulte, IBM Energy, Environment, and Utilities (EE&U) Industry Strategy Lead.

According to a study by CompTIA, three-quarters of millennials say technology usage by a company affects their employment decisions.

What challenges does an aging workforce present for the industry?
Utility employees are broadly split into two categories: office-oriented (front or back office operations) and field operations.

Workforce turnover is an especially tricky issue for field operations. It can take up seven years to train a lineman worker. Why so long? Some training happens upfront through formal training programs, employee manuals, and on-the-job aids. But people gain a lot of experience and knowledge through exposure to different scenarios over time: responding to infrequent major storms, for example.

That specialized, hands-on expertise is valuable and at risk of being lost as the workforce ages–through a combination of the large amount of retiring Baby Boomers and the length of training time for new field workers. It's exciting to consider how technology could mitigate this problem.

How can digital technology help preserve and transfer the knowledge in retiring workers' brains?
"In their brains" is a good way to describe it because that accumulated knowledge might not be documented, or might exist in the form of hundreds of engineer notes, drawings, and daily work logs. It's too much information for one person to process at a rapid pace.

However, unstructured data can be analyzed by AI, which uses tools like machine learning, natural language processing, and visual recognition to uncover trends, digitize knowledge, and scale expertise across an organization.

Woodside Energy, an energy company in Australia, used Watson, IBM's AI platform, to digitize and scale 30 years of engineering expertise and more than 38,000 documents, like field notes, drawings, and maintenance logs.

Watson turned that data into insights, used analytics to recommend the next best course of action, and enabled maintenance technicians to make smarter, faster, and evidence-based decisions.

Are companies also looking at keeping mature or older employees longer?

The bigger issue is a lack of inflow of talent. Millennials care about how much their employers use technology, and whether they use it well, but utilities are not typically known for being disrupters or technological front-runners.

According to a study by CompTIA, three-quarters of millennials say technology usage by a company affects their employment decisions. Only about half of baby boomers say that tech usage factors into employment decisions. This discrepancy highlights the need to better integrate digital business processes to attract a variety of employees.

Yes, this shift could be seen as a problem, but the fact that younger generations prefer to work differently is an opportunity to make a company more efficient, digital, and agile—all resulting in lower operating costs. These benefits are true for all industries, including government.

Are there any particular skills in short supply? How could EE&U companies hire or augment for future skills?

Much of it depends on what the future of utilities looks like, and the industry is changing rapidly. The industry is heading toward more integration of renewable resources, like solar and wind. In some places, utilities are becoming more deregulated and may face competition from outside industries. All this puts the traditional utility business model at risk.

Utilities are exploring new revenue streams. The Los Angeles Department of Water and Power (LADWP) and Électricité de France (EDF), for example, use online marketplaces to sell energy efficiency products to their customers.

Many utilities worldwide are exploring or implementing electric vehicle charging station pilots. These show the potential to cross typical industry boundaries and stretch the scope of what it means to be a utility.

To prepare for the future, utilities will need employees with new skills, like data science, app development, customer-centric marketing, and analytics.

How can utilities prepare for the aging workforce?

From my perspective, utilities must answer three main questions:

1. **How do you retain the knowledge accumulated by workers nearing retirement?**
   The answer could be digitization of unstructured data, skills assessment to understand where the gaps are going to occur, or development of strategic succession plans.

2. **How will you improve training programs of current employees to fill these gaps more quickly?**
   One example is at DTE Energy, which is exploring the idea of using virtual reality to simulate high consequence scenarios for employee training. This allows employees to be trained more quickly, in a safe and observable environment.

3. **How do you entice younger employees to work in this sector?**
   It may mean creating a more digital workplace or focusing on other aspects of the job experience to appeal more to younger employees. This applies to recruitment and onboarding, throughout the employee's tenure, and right up to retirement.

   Success will come from proactive planning and the adoption of new technology. Utilities need to have a strategy now for how they are going to address this demographic shift.

Workforce turnover is an especially tricky issue for field operations. It can take up to seven years to train a lineman worker.

Government

"We have just scratched the surface of how governments can digitally reinvent themselves. For decades, governments have used technology to support administrative processes. It is time for governments to leverage technology to reimagine their roles at the federal, state, and municipal levels. Governments will question processes, how services are delivered, the relationship with ecosystems, and how data insights drive every process. This technology-led reinvention will be spurred by an emerging group of digital leaders, passionate about shaping societies for future generations."

Sreeram Visvanathan, Global Managing Director,
Government Industry, IBM

An ancient seaport meets the age of AI

Rich McKay, March 15, 2018

The 800-year-old port of Rotterdam handles 140,000 vessels and 461 million tons of cargo annually, but when does size meet efficiency? How does Europe's largest seaport become the smartest?

"It's one of the greatest ports in the world, but we need to change and transform because the future is somewhere else: digitization," said Paul Smits, Port of Rotterdam Chief Financial Officer.

What does it take to become the smartest, and most sustainable, port in the world? The answer, port officials say, is Internet of Things technology, which can uncover new insights from data shared across the port's 42 kilometer (26 mile) site.

Shaving even an hour from the berthing process can save ship operators $80,000.

"When ships approach our port, we need to tell them everything they need to know for a seamless journey to the berth, including the depth of water, weather conditions, whether they need tugboats, when they are expected at the berth and more," said Smits. "IoT lets us coordinate through an easy-to-use digital dashboard."

So how do you connect an entire port? The key is a combination of IoT sensors, data from the Weather Company (an IBM business), and AI that learns from data, analyzes options, and predicts the best path.

With those tools, port operators can identify the most favorable conditions for ships to enter and relay that to the ships in real time through a digital dashboard.

The breadth of data is impressive. It includes information about tides, currents, air temperature, wind speeds, humidity, turbidity and salinity of the water—all of which help better predict visibility on a given day to calculate clearance heights for ships.

Insights into that data help reduce shipping costs by allowing ships to come and go more quickly and safely and to carry more cargo. Shaving even an hour from the berthing process can save ship operators $80,000. The potential extends beyond operational saving: The digitized information allows shipping companies to plan delivery times with greater certainty.

Another port innovation is a 3D printing field lab, which produces quality industrial spare shipping parts whenever and wherever they're needed. The production process, which uses a robotic welding arm to create on-demand ship components like propellers, infuses both AI and IoT technology. While the traditional manufacturing process might take six to eight weeks, it's estimated this 3D printing process could reduce that down to just over eight days.

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The port also created smart quay walls and sensor-equipped buoys dubbed "digital dolphins." These provide insights into a berthing terminal's use and the surrounding water and weather conditions. They also identify the optimal time and location for ships to dock. AI then learns from those data patterns to feed accurate, immediate data about the port's infrastructure into the digital dashboard.

The Port of Rotterdam aims to host autonomous ships by 2025, meaning that vessels themselves will calculate optimal shipping routes, flag unsafe conditions, communicate with other connected vessels to avoid collision, and operate autonomously.

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For health and human services, data is the key to prevention

Justine Jablonska, April 19, 2018

According to the U.S. Department of Health and Human Services, 1 in 25 adults in the U.S. had a serious mental illness in 2016. In 2017, more than 550,000 Americans were homeless on any given single night. And in 2018, more than 115 Americans die every day after an opioid overdose.

Some or all of these issues may be related—but agencies often have limited data to help solve them. To learn how to increase prevention, we spoke with Mary-Sara Jones, IBM Health & Human Services Industry Lead for US State & Local Government.

Baltimore citizens, for example, can have a 20-year difference in life expectancy, although individuals live just six blocks apart. So your ZIP code may be more important than your healthcare.

What are the biggest issues health and human services faces today? And how can we address them?
Addressing individuals with complex needs—particularly people who receive services across multiple programs or agencies. They're between 5–20 percent of individuals receiving services, but account for between 50–80 percent of the total cost.

It's critical that agencies identify complex clients, and more proactively address the root causes of their needs. One of the ways agencies can better improve outcomes for this population is by addressing the social determinants of health, because housing, food vulnerability, physical activity, education, and income can account for over 50 percent of a person's overall wellness.

Baltimore citizens, for example, can have a 20-year difference in life expectancy, although individuals live just six blocks apart. So your ZIP code may be more important than your healthcare.

What will it take for HHS to shift towards increased prevention?
Agencies are primarily mission-focused, which creates a lack of visibility. So the housing agency is not aware of somebody at risk until they become homeless. Prevention requires visibility to the individuals who will be homeless tomorrow, but are not today.

Prevention also requires an upfront investment. But agencies can't just shift dollars without negatively impacting outcomes. They need additional funds to invest in prevention. Complicating funding is the "wrong pocket problem," which means that the agency that spends money on preventive actions is not the agency that saves money from those actions.

There are opportunities to leverage models similar to accountable care organizations (ACOs), where the healthcare provider receives money from Medicaid for achieving certain healthcare targets. It's win-win because the cost is less than what Medicaid saves overall.

There's also the issue of data sharing. Data today is siloed within health and human services, and many federal, state, and agency policies restrict the way data can be shared. But technology has finally advanced to where we can more safely and widely share data, and remain compliant with all the relevant privacy restrictions. This would enable multi-disciplinary teams to more effectively collaborate to achieve improved outcomes for complex clients.

Having comprehensive data helps agencies connect people to the appropriate services, which improves access and outcomes. And ultimately it reduces costs.

What's possible through insights into that data?

Most of the valuable, rich data within health and human services is unstructured and in different formats, like case notes, hotline audio files, and images.

Tapping into and analyzing that unstructured data greatly improves an agency's ability to provide person-centered care, and helps agencies address underlying issues as well as the symptoms.

Homelessness, for example, tends to be a symptom of unemployment, mental health, or substance abuse. Providing housing alone would probably not be a sustainable solution without also addressing the underlying issues.

Having comprehensive data helps agencies connect people to the appropriate services, which improves access and outcomes. And ultimately it reduces costs. Earlier intervention yields better results, higher client satisfaction, and lower costs.

How can AI help?

Although caseworkers bring great expertise about their clients, they don't necessarily understand all the issues impacting each client.

AI will be increasingly important because of the vast amounts of data being created. AI can digest all of the data and discover new patterns to understand how different correlations of factors result in certain risk levels.

With the opioid crisis, for example, agencies know some factors common to individuals with substance use disorder, like mental health issues, lack of a strong social network or income level.

If agencies understood all the patterns, they could build a more accurate risk indicator to proactively address the driving factors and change the client's trajectory.

What does "single view" mean for HHS?

Today, client data lives in many different organizations. Single view means pulling all the data together in one place so agencies can better deliver care and optimize outcomes.

Say Ted has Type 2 diabetes. With a more holistic view, an agency can see that Ted recently went through a divorce, lost his job, and is being treated for severe depression—all of which exacerbated his physical health. Effectively addressing Ted's diabetes requires understanding and assisting Ted with his underlying issues.

How can agencies evolve to meet citizens' expectations?

By emphasizing digital government and user-focused design, agencies can create an integrated experience across processes, solutions, and devices.

Many health and human services clients may not have computer access, but may have a smartphone, so they can access mobile-ready services.

Agencies are also starting to overcome data sharing challenges by using a memorandum of understanding to create trust agreements between agencies.

Some municipalities are enacting new legislation that focuses on permitting data sharing for multidisciplinary teams, which bring together individuals with different expertise to work together to help a single client.

What will health and human services look like in 2025?

I'm very optimistic that agencies will move to new business models and develop the data management capabilities necessary to deliver services in a more individual-focused manner.

As costs become more constrained, community-based organizations will become increasingly important in the service delivery chain. This will increase the need for integration and data sharing to send service delivery data back to agencies so they make better decisions and more informed policies.

What agencies already effectively share data?

Sonoma County is just starting a project to provide a shared data platform to address the health, housing, and social services needs of homeless families.

LA County has introduced legislation that allows data sharing across multidisciplinary teams based on specific use cases, such as child welfare investigations. For the first 30 days of an investigation, child welfare investigators have access to an extensive amount of data, such as criminal history and mental health. When they complete the investigation, they have the information needed to determine if a child is safe in an environment.

Can AI help stop the opioid crisis?

Rich McKay, February 14, 2018

Every day, more than 115 Americans die after an opioid overdose.

And some public safety agencies are using new technology to respond.

New York state's Nassau County Police Department has rolled out new real-time overdose mapping technology with an early warning system. This technology reveals multiple overdoses in a neighborhood within 24 hours, which helps agencies identify and communicate about a potentially bad batch of heroin.

Public safety solutions can help law enforcement fight the opioid crisis.

The mapping system also helps police spot opioid-adjacent crime trends, like pharmacy robberies, and shift resources to focus on reducing that crime. It can also help governments provide targeted resources for education, prevention, and access to treatment.

Nassau County Executive Laura Curran sees the mapping technology as an important advance in the fight against opioids.

"Our police department continues to innovate ways to gather information crucial to battling this epidemic," said Curran. And it "will allow Nassau County to combat the epidemic of addiction in real-time."

As many agencies are discovering, this phase of gathering information is where things get incredibly challenging, said Bill Josko, IBM's GBS Public Safety Practice Leader for the U.S.

"The more data agencies collect—from more sources and formats—the more difficult their jobs will be," said Josko.

That's because the volume and variety of digital evidence data causes complex management and analytical issues. One investigation may have thousands of hours of video and audio footage, IoT sensor data, dispatch reports, and officer narratives.

While the epidemic primarily impacts the United States—costing more than $500 billion yearly since 2015—it is becoming a global problem.

Prescription drug abuse among teenagers in Canada, Australia, and Europe in 2017 were at rates comparable to U.S. teenagers. In Lebanon, Saudi Arabia, and parts of China, one in ten students had used prescription painkillers for non-medical purposes in 2017.

Applying technology and analytics can help the fight against this decades-long crisis. "It affords us an incredible opportunity for the additional discovery of clues and answers to questions we did not yet know to ask, and further, what the data is trying to tell us," said Josko.

One of those key technologies is AI, which can help sift through mountains of data, much of it unstructured—like video, photo, or audio files.

AI can mine for the golden nuggets lurking right below the surface: uncovering insights and patterns that can speed up investigations or provide a complete view of a situation as it unfolds.

Agencies will need that technological firepower to address the complex, entrenched issues that comprise opioid addiction.

"The more data agencies
    collect—from more sources
    and formats— the more
    difficult their jobs will be."

IBM's Bill Josko

Insurance

"Technology is disrupting traditional insurance operations. While the changes may allow for greatly reducing risk and increasing premium revenues, insurers must first react with new products and new underwriting processes. The industry impact of autonomous autos on auto insurance demonstrates that insurers must figure out how to incorporate emerging technologies to seek out new revenue streams."

Sandip Patel,
Global Managing Director,
Insurance Industry, IBM

Will autonomous automobiles drive auto insurers away?

Patrick Sheridan, March 29, 2018

In the last year, we've seen a number automobile manufactures take big steps towards releasing widely available, fully autonomous vehicles. This has led to speculation that we will see a massive decrease in the number of automobile accidents, and this also has led to a big question in the industry: Do we need traditional auto insurance if cars are no longer involved in accidents? Obviously, this is a key discussion around the world for insurers because the immediate next question is, if we don't need auto insurance, what happens to the auto insurance companies? This question has significant economic importance; auto insurance is a $200 billion global market.

Using these raw numbers, current replacement rates indicate that autonomous cars would not replace current vehicles for 15 years.

Insuring who, or what?

This is soon to move from a theoretical debate to real questions for the industry. Who do we insure for an autonomous vehicle? Is it the driver, the car manufacturer or the software writer(s)? This is only the beginning of the list. Undoubtedly the industry will change, and a safe bet is that auto insurance and companies are here to stay for the foreseeable future. There's even a good chance that they will grow in the short term.

First, let's put the premise on the table that self-driving cars will be smart enough not to drive into one another. While this may be a safe premise for marketability, it is not exactly reality. Volvo has announced that it will insure its self-driving cars, and that Volvo itself will cover the costs of any car repairs associated with an accident when in autonomous driving mode. While these cars will be introduced in various modes over the next few years, the number of models will be small for a while. Tesla is currently leading the industry, offering a self-driving mode on all of their cars and trucks. Cadillac is advertising a self-driving mode for the CT6 as part of the 2018 model offerings, Volvo is claiming 2020. Most other major automakers are in various stages of design, testing or implementation.

How long until we're completely autonomous?

Will autonomous driving vehicles replace today's cars in the near future? The simple answer is not with current trends. Let's use the US market as a sample. There are approximately 17 million cars sold in the US each year. Current replacement rates indicate that autonomous cars would not replace current vehicles for 15 years. Simple observation shows us that there are still a reasonable number of cars manufactured in the 1960's and 70's on the road today. This makes any complete takeover by autonomous vehicles likely to be more than 50 years away.

What happens when there is an accident?

Next, let's look at accidents. While the premise that autonomous vehicles will not run into one another could have merit, recent news proves that "no accidents" are unlikely. In March, an autonomous vehicle hit and killed a pedestrian in Tempe, Arizona. There are arguments on both sides as to whether the technology should have detected the pedestrian and stopped the vehicle. Regardless of fault, this tragic accident will lead to improvements in the technology, but as the situation shows, accidents are still a reality.

Let's also discuss what makes up auto insurance. Typical auto insurance products include coverage for comprehensive damages for things the owner or driver can't control. For example, hail damage to the body, a tree branch falling on a car and causing damage, someone running into the car while parked, theft, vandalism, etc. While there are always improvements to minimize these damages, these risks can't be fully eliminated. Unless autonomous cars are going to be significantly cheaper, your average consumer will still want protection from these perils.

Paying careful attention to auto manufacturers press releases about autonomous vehicles they all refer to "autonomous" as a feature or mode for the car, which implies there are other modes, for example, being controlled by a human. Therefore, there's still a very good chance that if there is an option for humans to control a vehicle, there will be accidents. So, barring any major change in our legal system, as long as there is the risk of an accident, the mandate for insurance remains.

Another common notion is that with more self-driving cars on the road, there will be fewer accidents. Fewer accidents imply fewer claims. But can we let the logical argument progress that fewer claims equate to lower repair costs, leading to lower insurance premiums? Perhaps, but it is not very likely. There has been nothing specific that indicates these newer autonomous vehicles are cheaper to build or maintain than current vehicles. All the technology required for autonomous driving may be more expensive to fix than today's standard vehicle. There is also

the unknown exposure of the legal system. Who is responsible if a vehicle moving in autonomous mode is in an accident? Is it the manufacturer? Is it the autonomous software developer? Is it an independent testing service? These costs most likely will have to be covered by insurance companies and indirectly lead to higher premiums.

While these simple logic arguments imply that the need for automobile insurance will not go away any time soon, it doesn't mean the industry won't change. Certainly, as the number of autonomous vehicles increases the number of accidents will decrease or at least the severity of accidents will decrease. This trend will also be impacted by things like urbanization, shared cars and remote workers. The combination of these factors implies that that the size of the traditional automobile insurance market will decrease—but not go away. Open for discussion is whether this will this lead to new types of insurance designed for the unique circumstances surrounding autonomous vehicles?

Industry must embrace change

A summary of this logic implies that the industry is likely to consolidate. There will be a smaller number of people paying premiums, fewer severe auto-related accident claims, potentially higher repair costs of more complex technology, and a larger number of "products" to address the combination of coverages that the public will want.

An assessment indicates that an insurance company planning to be in the automotive insurance market in 20 years needs to be

making the following adjustments now to streamline operations for the future, specifically:

- Modernize core insurance platforms to allow for easy introduction of new products (groups of coverages)
- Move the appropriate pieces of technology platform to the cloud to take advantage of economy of scale when growing or shrinking
- Enhance claims processing to allow for efficient processing of less severe non-bodily injury claims, streamlined further by using cognitive technologies
- Build a solid base of policy holders' profiles today so as market trends change, the insurance company can model the impact on its specific book of business and react to changing market conditions faster than competitors.

While the coming explosion of autonomous cars will not eliminate the auto insurer we know today, it will certainly force change. Given the volumes that insurance companies deal with and the historical lack of success with large projects, time is of the essence to prepare for the changing market now.

Who is responsible if a vehicle moving in autonomous mode is in an accident?

How IoT and AI are driving the manufacturing industry forward

Ari Zoldan, May 10, 2018

Manufacturing is entering a new stage of development widely known as Industry 4.0. A synthesis of manufacturing processes and emerging technologies, Industry 4.0 promises greater efficiency and higher productive capacity, all for less operational expenses.

Industry 4.0 is still in its early stages, but now is the time for manufacturing businesses to get on board. According to Advanced Manufacturing, 27 percent of companies in the industry have already "experienced substantial transformation," while 36 percent of organizations were in the process of implementing new technologies.

"Technology is fundamentally remaking every industry, worldwide," said Serge Beck, CEO of global fintech company Optherium Labs. "These disruptions are helping to push the world forward."

Industry 4.0 starts with data capture. IoT devices incorporate sensors that capture data and transmit it over a network into a central depository, where it can be accessed for the benefit of the organization at large. These devices make "dumb" assets intelligent, allowing them to communicate with one another and a central database.

IoT devices can be applied to machinery on a factory floor, capturing data on energy usage, temperature, and output. IoT devices can also be outfitted on checkpoints in the distribution process, where they can keep tabs on parts and products as they are shipped from factory to warehouse and beyond.

A manufacturing operation that has been outfitted with IoT devices will see a sharp uptick in the amount of data captured. But, of course, there remains the question of how to process all this data. That's where AI and machine learning algorithms come in.

In order to contextualize the vast troves of data and make it usable, AI sifts through the information and identifies important patterns. It can find anomalies in machinery operations that decision-makers need to be aware of, or it could discover opportunities to streamline processes and reduce waste. In this way, AI does not replace human intelligence but augments it. AI allows humans to make better decisions about how they organize and manage the manufacturing process.

"The activities of every modern manufacturing plant produce an extraordinary amount of data every minute of every day," said Elisha Tropper, CEO of Cambridge Security Seals. "The challenge for companies is to determine which data can be utilized to directly improve or expand their businesses, and then utilize the available tools and systems to capture that data and effectively manage it."

Armed with contextualized and actionable data, manufacturers can engage in predictive maintenance, the technique of servicing a machine before it fails and gums up production. Decision makers in an organization can also identify sources of energy waste, drilling down to the level of individual components to identify and address pain points.

IoT and AI are critical parts of Industry 4.0, but they aren't the only technologies changing the way the industry operates. Mixed reality, for instance, is allowing workers to view digital overlays based on the data captured and contextualized by IoT and AI systems. Blockchain can employ a system of smart contracts to track and record supply chains that are crucial to the manufacturer's end-product.

While early adopters will reap the competitive advantages of Industry 4.0, make no mistake: adoption is not optional. Failure to recognize the inevitability of this transition is a death sentence for any manufacturer.

"Enterprises have a choice to make in this period of disruption and transition: embrace it or resist it," Beck said. "Those who embrace technological development and implement new technologies in smart ways will be the winners of tomorrow. Those who resist the inevitable march of technology are bound to fall behind."

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Media & Entertainment

"Cloud-based video is the breakthrough the media industry has needed. Whether they're live streaming to subscribers or launching a new service, cloud-based video offers media and entertainment companies a way to not only better manage current video strategies but also a flexible platform to support future innovation."

Steve Canepa, Global Managing Director, Telecommunications, Media & Entertainment Industry, IBM

Coming soon to a theater near you: Blockchain

Jordan Teicher, April 24, 2018

Mitzi Peirone was excited to start making her first feature film, a psychological thriller set in a creepy mansion. But like any filmmaker, she first had to figure out how she was going to pay for it.

None of the traditional funding options, however, looked good, Peirone said at a panel at the Tribeca Film Festival, where her film, "Braid," made its debut. The most obvious route was to go through a production studio. When she approached one, however, she was told she'd have to simplify her script to get a green light. The alternative was to ask her family and friends for money, but Peirone said they probably couldn't provide enough to sufficiently fund the film anyway.

"I was facing either seeing my creative freedom taken away or not having enough money to make [the film]," she said.

And then, in 2015, Peirone discovered another option: blockchain.

Last summer, Peirone launched a token sale on blockchain-based equity crowdfunding platform WeiFundwith the goal of raising at least $1.4 million for her film. Token holders would recover their investments, plus 15 percent interest and a proportional share of 30 percent of the film's profits. Both parties would agree to a decentralized, immutable ledger tracking all financial transactions.

"We had to fight off a lot of skepticism," she said. "Anything that goes against regular business models is always a risky thing."

Every single person in this industry plays a very important role. But the problem with all these people is they're all operating in silos.

The risk paid off. The crowdsale, Perione said, hit its goal in two weeks.

A blockchain-based equity crowdfunding model, Peirone said, is a win-win for businesspeople and artists alike. In this model, people who contribute money to films are not just donors providing favors, but investors who have a financial incentive to help the project succeed. Filmmakers meanwhile, can get funding without making undue artistic compromises. And with blockchain, all parties see more transparency and more efficient spending.

"Every single person in this industry plays a very important role. But the problem with all these people is they're all operating in silos. And that's where money is constantly being taken away from filmmakers and creatives who deserve it," said Daniel Hyman, the VP of Entertainment Finance and Development at the blockchain-based digital content distribution and management platform SingularDTV.

"Braid" is the first film to get full blockchain-based funding. But it won't be the last to use the technology, Hyman said. In June, another indie film, "No Postage Necessary," will be distributed through Vevue, a peer-to-peer video network app running on the Qtum blockchain platform. It will also be available to purchase using cryptocurrency.

"There are many advantages to blockchain distribution, including immutable proof of intellectual property rights, transparent royalty payments, and, since all data on the blockchain is resistant to duplication, we can now envision a world where films are no longer pirated," Jeremey Culver, the film's writer, director and producer said in a release.

As a tool for decentralized information sharing, blockchain has many exciting applications across the media and entertainment industry. In the music world, for instance, leaders like Benji Rogers are advocating for a decentralized blockchain-based ledger that can solve problems of ownership, payments and transparency in the industry. IBM, meanwhile, believes blockchain can transform everything from telecommunications to advertising.

"The whole point of blockchain… is to make the supply chain visible to all the participants so everyone can get compensated for what they contribute," Peter Guglielmino, the CTO for IBM's Media & Entertainment Industry, said at the panel.

While blockchain is just beginning to change the film world, Peirone is eager to share her experience with the technology, in the hope that fellow filmmakers will follow her example and bring change to the industry.

"If we can enable independent artists to truly follow their heart, to follow what they think is worth portraying instead of having to fall back into established algorithms of storytelling we've seen over and over, we can reestablish an entertainment industry we want to see," Peirone said.

How T Brand Studio created a culture of reinvention

Jordan Teicher, April 20, 2018

When The New York Times first debuted T Brand Studio, its branded content unit, in 2014, branded content didn't exactly have the best reputation in the industry. Other publishers generating branded content at the time had a tendency to confuse readers by failing to clearly differentiate between content from the newsroom and content from advertisers. Some would further muddy the waters by using newsroom editors and writers to create that content.

Newsroom leadership was initially "very anxious" about the new unit, said T Brand Vice President and Executive Editorial Director Adam Aston. But the need to create a new revenue stream in the organization was clear. The Times had to move from a print sales-based ad model to a digital-first model, and they had to get it right.

"We were watching our print advertising on a linear straight path down, which is where most publishers up to that point were getting most of their revenue and profit. That undermined the economics of subsidizing a news operation. And if you're cutting back on getting news it's a vicious cycle. For many of our peers it was a death cycle," Aston said.

The studio started small, with just a handful of employees producing content hosted on The New York Times' website. But it soon proved its mettle with the release of "Women Inmates: Why The Male Model Doesn't Work," a beautiful interactive piece for Netflix to promote the second season of "Orange Is the New Black." This, clearly, was not branded content as usual.

Even when sitting on an incredible foundation of writing, reputation, and loyal customers, change isn't easy.

Four years later, T Brand Studio has grown 25-fold, employing more than 100 people across offices in New York, London, Paris and Hong Kong. In 2016, it acquired HelloSociety, an influencer marketing agency, and FakeLove, a Brooklyn-based experiential agency. (IBM's "Outthink Hidden" campaign was T Brand's first project with the agency.) And it has expanded beyond producing native branded content to providing a whole suite of creative services for companies on their own platforms. T Brand Studio is not simply an in-house creative unit, it's an agency—and it's successful, growing both production and media revenue by double digits every year.

If you're looking for a study in how to disrupt your own organization, look no further than T Brand Studio.

"Even when sitting on an incredible foundation of writing, reputation, and loyal customers, change isn't easy," Aston said. "The Studio's success is part of a much larger digital transformation across the Times' newsroom and business operations that's accelerated in the past five years."

A crucial ingredient in T Brand's success has been its mix of personnel. While similar content organizations essentially hired the usual cast of characters one might find at a creative agency, Aston said, T Brand looked for content makers who were "a little bit different than your standard marketing copywriter creative type." In hiring, he said, the intent was to "borrow the best of the Times journalism and fuse it with the kind of goals brands would be pursuing."

"That's a rule of thumb for all business—you've got to master the best of disciplines and bring them together in ways that haven't been done before. Getting the chemistry right can be hard and getting the casting right can take time," Aston said.

Another crucial differentiator for T Brand has been its use of new technology, including VR, AR and 360 video. But while the studio has been an early adopter—and in some cases, a first adopter—of those technologies at the Times, Aston said it's just as important to know when not to use a new technology as it is to know when to use it. VR, AR, and 360 video are incredible storytelling tools, he said, but they're not right for every project.

"You don't want to add gratuitous technology to something just because it's neat," Aston said.

Once a source of anxiety within its organization, T Brand is now a source of inspiration as it drives innovation within the Times while contributing to a viable new business model. As T Brand gears up to launch its 400th paid post this quarter, it's intent on carrying that spirit of innovation into the future.

"The more we experiment and the more it's successful, the more comfortable the Times has gotten at experimenting," Aston said. "The organization is more confident knowing, 'Hey you can try this. It may be complicated, it may be hard, it might not always be a home run, but you have to experiment.'"

The more we experiment and the more it's successful, the more comfortable the Times has gotten at experimenting.

How Oovvuu harnesses AI to chart the future of content

Jordan Teicher, April 15, 2018

In 2009, Ricky Sutton was in charge of video at Fairfax Media in Australia when he heard that a plane had miraculously ditched in the Hudson River in New York City.

Over the coming days, Sutton saw new stories breaking about the event, but it was the video of the crash itself that people kept watching. A little over a year later, the Deepwater Horizon oil rig exploded. Again, in story after story, Sutton saw that the explosion was the video people kept watching.

The conclusion to draw, he realized, was that people wanted to be able to access video instantly without needing to go find it. But further research into the subject revealed to Sutton that only seven percent of news articles had a relevant video embedded. Clearly, there was a business need to match the best video with the best articles on a global scale. Thus, Sutton's AI-powered video distribution start-up Oovvuu was born in 2014.

IBM caught up with Sutton to discuss how Oovvuu and the digital media landscape have changed in the years since.

What were the challenges, if any, of selling content owners on the notion of an AI-powered curation?
Many people are excited and fearful about AI at the same time. The broadcasting and publishing industries are in the midst of unprecedented disruption. As they roll with the punches, they know AI is important but it's also another potential threat. The result is that they are approached by many promising them the world, but they struggle to navigate who to trust.

Our advantage is that we emerged from media and publishing so we know their problems and challenges first hand. It's also important to note that we did not set out to create an AI. It was an accident. We just wrote code to read articles, watch videos and match them together and then optimize the results based on user consumption. It was IBM who informed us we had created a nascent machine learning tool. We had no idea. The result is that our customers know we are honest brokers.

What made you interested, as a startup, in working with a big legacy organization like IBM?
When you are a C-suite executive with an ergonomic desk and the best chair, people pay attention to you. When you quit, don a T-shirt and start working out of a garage, you become invisible very fast. We knew we had something special in Oovvuu and we knew we needed to get back on the front foot to tell people about it. It was clear that IBM was winning at AI with Watson. We met with the global entrepreneur team and it was love at first sight. You had access to potential customers and we had a Watson-powered tool that everyone could understand, see and touch.

Have you observed any big changes in the media landscape, in terms of how and where people are consuming video, since you started Oovvuu?
Oh, far too many to list. The big ones— the industry changing developments— are that a billion people are watching news video daily but still want more. Despite this demand, major publishers still only publish video in around seven per cent of their articles, which means a huge customer demand was not being met until Oovvuu. The other is that the balance of trust has shifted, and is now shifting back. For a while, Google and Facebook became the place billions trusted to access news and information. Then scandals around fake news, brand safety and data mining made people think again. The result is that the world is now on a flight back to quality. When big news happens, they run to the BBC, or to Bloomberg, or to The Times. People are learning that journalism matters if they want the truth.

How, in your view, has Watson's intelligence evolved alongside your company?

I fundamentally believe that the future of content will be AI-led. I think of it like this: Hypertext gave us the web. Search organized it. AI will now personalize it. For that to work, we need to fill the cloud with brilliant video and learn from how people consume it so we can improve their experience. As a newspaper editor, I used to choose the story that millions of people got to see. Now, with AI, I can tell the news to billions of people individually. Watson has come along every step of that and continues to surprise and teach us every day. What we learn, we teach back. That's what our relationship with IBM is all about.

As a newspaper editor, I used to choose the story that millions of people got to see. Now, with AI, I can tell the news to billions of people individually.

INDUSTRIOUS

Retail & Consumer Products

"Each brand has a unique set of opportunities and actions to improve the shopping experience for its customers. The common thread is that brands must use new tools and technologies such as analytics and cloud to capture data regarding people, products, preferences and store facilities—and then leverage that information at a hyperlocal level to provide a more expansive, personalized, and effective experience wherever consumers want to shop."

Laurence Haziot,
Global Managing Director,
Consumer Industries, IBM

Legacy retailers are opening pop-up shops, but are they worth the cost?

Jordan Teicher, April 5, 2018

For two days last December, shoppers in New York City's SoHo neighborhood entered a sleek boutique with a vaguely French-sounding name, "Jacques Penné." There, they encountered holiday gifts curated by celebrities and influencers presented in a millennial-friendly, pared-down environment—think geometric wood shelving, copper accents, and tiny houseplants. If they didn't look closely at the signage, they might have missed that the store was a pop-up by J. C. Penney.

Jacques Penné might not have been exactly the sort of thing you'd expect from a big-box department store chain like J. C. Penney—which was exactly the point of the retailer's pop-up venture.

"Overall, [we] wanted to inspire customers to rediscover J. C. Penney. 'Jacques Penné' showcased our amazing value and unexpected newness, therefore updating the perception of J. C. Penney during the holiday season and beyond," a company spokeswoman told IBM.

J.C. Penney is just one of many legacy retailers that have organized a pop-up shop in recent years, marking a big shift in the pop-up sphere. Once the domain of small upstarts and online retailers wanting to experiment with a physical presence, pop-ups are now a go-to tool for retailers and consumer brands that have been doing business for decades.

"Pop-ups are no longer one of these trendy kind of things. It's really become a mainstream alternative model for doing retail. You'd be hard-pressed to find a really iconic brand that isn't doing pop-ups," Larry Baras of the pop-up industry service provider PopUp Republic told IBM.

Pop-ups can serve multiple functions for big retailers. Some open pop-ups to test new markets and products, drive online business, or attract new segments. Others are simply looking to generate buzz, or, like J. C. Penney, change the company image. At a time when empty storefronts are plentiful and short-term leases are relatively cheap, a pop-up is an appealing option.

Last summer, in an effort to "defy the conventions," Ikea Canada operated a Play Café in downtown Toronto, where visitors could play with a giant pinball machine, compete in a dance-off, and shop with RFID-activated wooden spoons. In February, Nike created a pop-up in LA to promote its new "90/10" collection. That same month, Macy's debuted a pop-up marketplace, "The Market @ Macy's," that gives temporary space to brands and companies on the retailer's ground floor to promote or sell products. The initiative is designed to "drive customers to stores by giving a constant break of discovery."

In 2016, PopUp Republic valued the pop-up model at $50 billion. But is the expense worthwhile? Pop-up shops, clearly, present multiple benefits for retailers, but they're not huge profit-generators. They're also big logistical undertakings.

"Whether you're a big brand or small brand, you think that creating a pop-up shop might be easy. Then you start getting into it and realize virtually every element associated with opening a permanent retail establishment—rent, staffing, design and fabrication, insurance, point of sale capability, PR and marketing—applies to a pop up, just at a smaller scale," Baras said.

But for many legacy retailers, the reasons for opening a pop-up outweigh the cost. As a slew of digital stores disrupt the industry, retailers are learning that innovation in the brick-and-mortar arena is pivotal to generating interest and sales. Opening pop-ups, incorporating food and beverage programs in stores, and exploring cutting-edge technologies like AI, IoT and blockchain, are all part of that strategy.

What does the future hold for the pop-up industry? If the past five years are any indication, Baras said, it's likely more growth, and undoubtedly more change.

"When I look back five years, it's like we're in a totally different industry. There are shifting sands underneath our feet, and we need to change what we do as more people get into it," he said.

Apple store designer Tim Kobe:
Stores are "as important as they've ever been"

Jordan Teicher, April 12, 2018

When Apple first asked Tim Kobe to design a retail store, the company only had four products in its line-up. So Kobe created a store experience that revolved entirely around the consumer and served as a space for service and learning. That formula helped make Apple one of the world's most successful consumer technology brands. (Apple and IBM are currently working together to bring enterprise AI to mobile.)

Those who are more digitally savvy are those that are going to succeed rather than those who ride the old model.

As the founder and CEO of the strategic design firm Eight Inc., Kobe has continued to create stores for some of the world's biggest brands. A lot has changed in retail since Kobe started his firm in 1989, and technological disruption has been a big part of that.

Technology, he said, will also be a big part of what comes next.

On April 18, as part of World Retail Congress, Kobe will join the London College of Fashion's Matthew Drinkwater and TheCurrent's Rachel Arthur for "Store design + technology= future of customer experience," a workshop on the power of cutting-edge technologies to create incredible customer experiences.

IBM spoke with Kobe over the phone about stores, technology and the future of retail. The conversation has been edited for length and clarity.

As e-commerce continues to boom, what role do stores play for retailers today?
Their role is shifting but they're also as important as they've ever been. When you look at retail today, good retail is not suffering, bad retail is—I'm talking about the people who haven't decided to be competitive or work on solutions that impact the end user experience. It's sort of a sorting out of the market. If you compare in America the number of stores per person to other parts of the world, we're something like 10 times more saturated…In a way I think it's a natural evolution but I think those who are more digitally savvy are those that are going to succeed rather than those who ride the old model.

Eight Inc. promises to design "meaningful human experiences." What role does technology play in that?
It's about making sure you're creating deeper meanings. Technology is just a tool to get to that. The human outcome is what should be the primary objective and then you use the right tool to achieve that outcome. It's not about just checking the box and getting the latest technology. It's one of those things where you have to be consistently evaluating what the human outcome is in order to have the business outcome.

Now more companies see their stores as brand touch points, rather than just a transaction space.

Do you think the Apple store has changed the way retailers have looked at their brick-and-mortar spaces?
What the Apple work helped develop was making the store a brand tool that could convey aspects of the brand that were previously left to a communications role. You can feel what the Apple brand is by the experience you have in the space. Now more companies see their stores as brand touch points, rather than just a transaction space.

Some companies are taking that idea to an extreme, and choosing not to sell any products at their stores. What do you make of that?
There's probably some balance that has to happen there. I don't know if in the near term you can just be an experience store and not sell anything. A few have tried it, but the idea that you could just do a brand store and not attribute any other values to it is a tough one for some companies to make work. The store is the point where you're driving the highest emotional connections, and we know that tends to drive the most conversions. If you're creating that emotional environment and not doing a conversion, then you're kind of wasting that opportunity.

The Nissan Crossing Experience Center in Ginza functions as a base for communicating Nissan Intelligent Mobility and showcasing future driving experiences to customers.

How might the role of the store change in the future?
I think retail is very interesting because to me it's one of the businesses where if you're not refreshing your offer every five years you're probably behind your competition. A lot of companies that haven't been looking at disrupting themselves end up being beaten by someone who is. Retail is especially competitive, especially challenging and I think it's quite complex when you think about the human psychology in addition to all the other functional parts that go into a successful retail program.

Retail is very interesting because to me it's one of the businesses where if you're not refreshing your offer every five years you're probably behind your competition.

Setting your customer service benchmark? Look outside your industry.

Jordan Teicher, May 10, 2018

Trying to figure out how to improve your customer service? Shep Hyken has been coming up with solutions for more than 30 years.

Since 1983, Hyken has advised hundreds of clients, from Fortune 100-size organizations to companies with less than 50 employees, on how to build loyal relationships with their customers and employees. He's written six books on the subject, and has given talks about it around the world.

Today, retailers are looking to improve customer service online and in stores through a mix of technologies including IoT, AI, Cloud and Blockchain. IBM spoke with Hyken about the opportunities and pitfalls retailers need to consider as they innovate.

Customers have higher expectations than ever. Why are they comparing experiences across industries, and what kind of challenge does that present for businesses?
Way back even before I got into my business, companies started to win awards for great customer service, and what would happen is these companies would brag that they've won these awards and then you'd do business with them and you'd see why. All that did is start to educate the customer about what great customer service looks like. It took a while before the expectations of customers became so high that they started to expect the same from everybody

they do business with. Today, I tell companies they shouldn't benchmark themselves against their competition, they should benchmark themselves against who they want to be most like, even if that's someone outside their industry.

In retail, marketers are using technology to make the shift from messaging customers by segment to messaging customers as individuals.
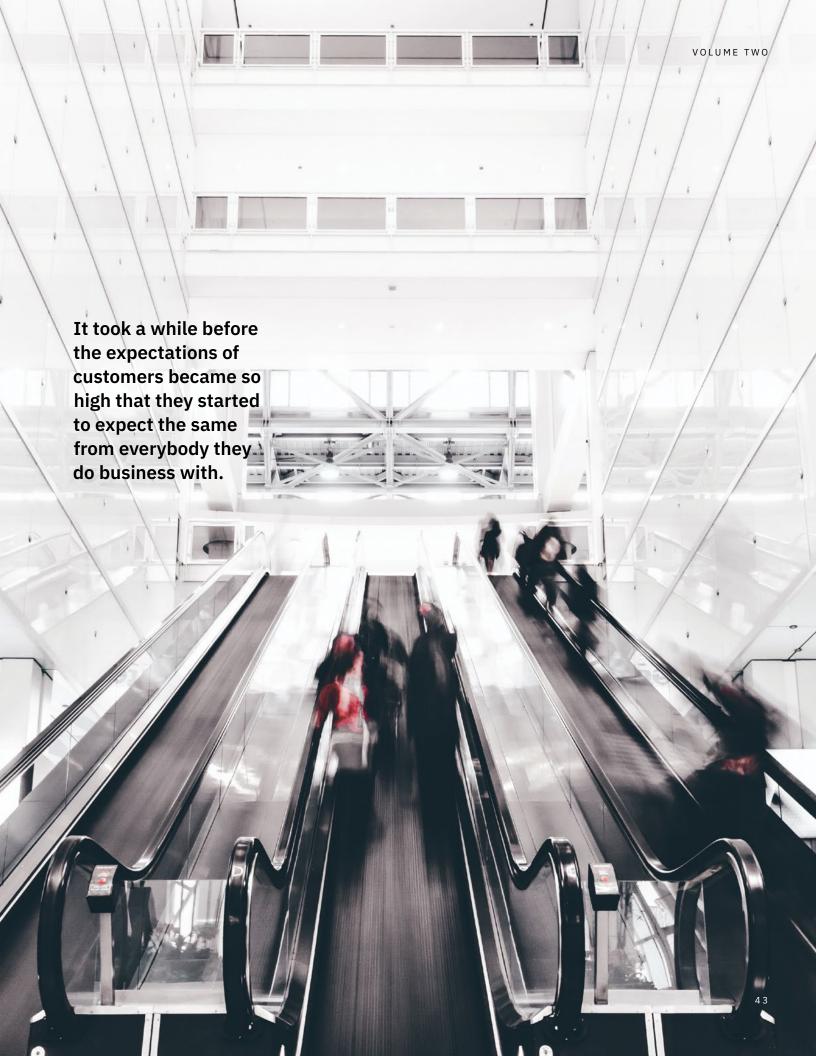
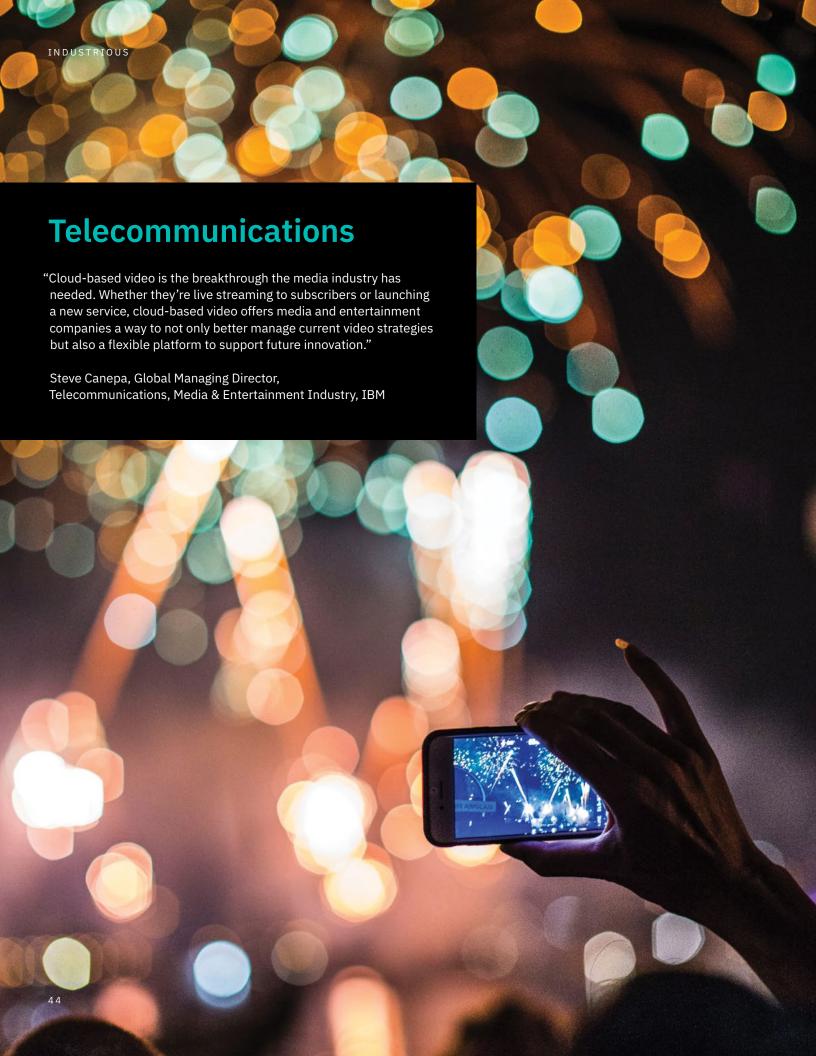**What does that kind of approach do to improve customer loyalty and customer experience?**
I believe marketing is part of the customer experience because if you do it right, the customer is going to feel you're talking to them specifically. What's amazing to me is when you tell a retailer or a company that you need to personalize your marketing messages so that each person feels they're getting an individual message, they're worried they're going to have to create 10,000 messages from scratch. That's not the case, because with AI and data analytics you can segment your customers based on buying patterns. If you're talking to a customer just like nearly 5,000 other customers, you can look at what the other 5,000 customers have done and predict they'll most likely do the same thing. When you do that, you're saying to your customers, 'I respect you enough to give you the right messages that are most appropriate

to you and I'm not going to jeopardize my relationship by spamming you with content that's not relevant to you.'

What are the potential pitfalls for companies using technology to connect more effectively with customers?
I'll give you an example. Recently, I made a purchase from a new company. I was so impressed with their customer service, how they sent me a message right away thanking me and telling me when I should expect to receive my package. I was like, 'Wow this is good.' A day later, I got a marketing message. It looked interesting, and I looked at it. Two days later I got another one. Two days later I got another one. Now I'm feeling spammed. The company could have said, 'Every once in a while we'll send you a promotion. If you want to hear our weekly specials, we're happy to send you that.' That's an opt-in culture. I think it's very important when you're looking to strike the balance is to ask the customer.

It took a while before the expectations of customers became so high that they started to expect the same from everybody they do business with.

Telecommunications

"Cloud-based video is the breakthrough the media industry has needed. Whether they're live streaming to subscribers or launching a new service, cloud-based video offers media and entertainment companies a way to not only better manage current video strategies but also a flexible platform to support future innovation."

Steve Canepa, Global Managing Director,
Telecommunications, Media & Entertainment Industry, IBM

The race to scale network virtualization through automation is accelerating

Jordan Teicher, February 23, 2018

Telcos, buckle up: The race to bring virtualized networks to scale is speeding up.

The idea of network function virtualization (NFV) first emerged in 2012 as a way for telcos to meet rising demand for bandwidth, cut down costs, and speed up delivery of new services. But for the most part, implementations have been slow and modest in their scope.

That's changing, said Ian Roy, Associate Partner for Network and OSS Transformation in IBM's Telecom, Media & Entertainment Center of Competency. In the coming year, he said, NFV transformations will pick up speed in earnest.

"2018 is the year when it starts. Up to now it's been pilots and proof of concept trials. This is the year they really start to do this at scale," Roy said.

The signs of that acceleration in the industry are coming into focus. Early this year, Bell Canada implemented its first automation use case using the Open Network Automation Platform (ONAP). Epsilon expects its core networks to be fully automated by the first quarter of the year. And AT&T is reportedly well on its way to reaching its goal of virtualizing 75 percent of its network by 2020.

"While widespread network automation is still early, expect service provider automation projects to ramp in 2018," wrote FierceTelecom's Sean Buckley.
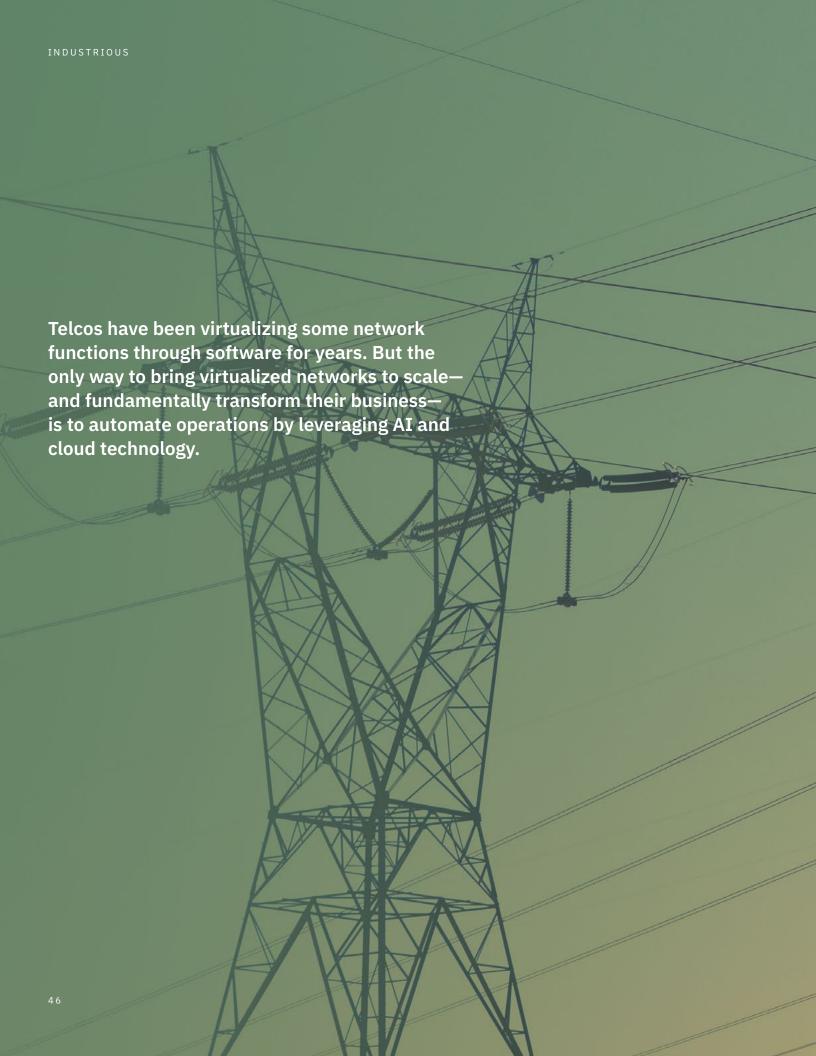
Why this year? Quite simply, the market forces that inspired the idea for NFV in the first place have continued, raising the pressure on telcos to make big changes. Mobile data usage is exploding with the growth of over-the-top businesses like Uber and Netflix, while the revenue per megabyte of data has continued to shrink. In five years, mobile video usage will grow by 870 percent. In that environment, telcos simply cannot survive if they fail to create "living networks" that can think ahead and continually transform.

"They have a business imperative to figure out how it will work at scale," Roy said.

Telcos have been virtualizing some network functions through software for years. But the only way to bring virtualized networks to scale—and fundamentally transform their business— is to automate operations by leveraging AI and cloud technology. To do that, they'll also need an operational model like IBM's Agile Lifecycle Manager, which provides a comprehensive services design, testing and automated deployment platform to address the challenges and complexities of the NFV paradigm.

"The requirements for lifecycle management can overwhelm traditional business process automation. A new approach across multiple domains of orchestration and resource management is required to enable consistent performance for emerging cloud native services at scale," wrote IBM's Denis Murphy.

The need for quicker time to market for new services, improved customer experience and capital expense reduction are evergreen for telcos. But today, said Rich Michos, IBM's Global & North America Marketing Director for the Telco, Media & Entertainment industry, "those forces are converging right now and creating a burning issue for telcos." The imperative for action has never been stronger.

Telcos have been virtualizing some network functions through software for years. But the only way to bring virtualized networks to scale— and fundamentally transform their business— is to automate operations by leveraging AI and cloud technology.

'I felt absolutely horrible': The world record-holder for binge watching looks back

Jordan Teicher, March 21, 2018

Binge-watching is a quintessential 21st-century pastime, a fact that's driving video demand through the roof and straining networks. But few have binged like 27-year-old Brooklyn resident Alejandro "AJ" Fragoso.

In 2016, after outlasting two other record-attempters, Fragoso watched 94 consecutive hours of TV—with one five-minute break every hour—to break the Guinness record for TV binge watching . Last year, he and Alex Christison spent 50 hours in VR to set Guinness' VR binging record. Both record attempts were sponsored by CyberLink, a Taiwanese multimedia software company.

"Some people were actually pretty upset that I did it," Fragoso told IBM recently. "If you look at some of the comments of the news postings or on Instagram, people were like, 'This is disgusting. How dare the media promote this kind of behavior?' Meanwhile, other people were like, 'This is incredible. I want to do this now.' Other people were like, 'Four days is nothing. I could totally do a week!'"

A year since his last record attempt, Fragoso isn't hankering for another binge fest, but he's looking back proudly on his accomplishments.

> I have a really strange ability to just zone out and watch something for a long time. The focusing part I knew I could do. It was really the staying awake part I wasn't sure about.

How did you end up attempting a TV-binging world record?

My friend from high school, Tim Williams, manages the PR account for CyberLink. I was out drinking with my girlfriend at the time and bumped into him. He told me how Cyberlink was organizing this world record attempt but didn't have anyone to attempt it and they had two weeks to get everything together. We were like, "We could totally do that!" And he texted me the next day and he was like, "All right, I told my boss you and Molly are up for it." By then it kind of felt like the control was taken out of my hands.

What made you think you could do it?

I have a really strange ability to just zone out and watch something for a long time. The focusing part I knew I could do. It was really the staying awake part I wasn't sure about.

Were you nervous before the attempt?

When they told us we couldn't look away from the screen—even a glance—or hold any serious conversation while doing it, both of us were pretty upset. We almost tried to get out of it when we found out.

What are your TV watching habits generally?

I would say generally when Netflix drops a series I'll watch quite a bit of it at once. I think the most recent long-term binge I did was the new Stranger Things season. Molly and I watched that whole thing in a day.

You started hallucinating during the attempt, right? What was that like?

I would liken it to when you take a hallucinogen. Your thoughts are just not quite right. After day two was when things got bad in terms of lack of appetite, incoherent thoughts, the beginning of hallucinations, and just feeling run down. The one example I still remember is being in the bathroom and looking at the wall and seeing the folds in the paint morph into a handwritten shopping list. I remember seeing "eggs" and "milk" on the wall and I remember thinking, "I know that's not there, but I can see it."

What happened after you broke the record?
I felt absolutely horrible, but somehow I was able to walk around and be semi-functioning. They called us a taxi. I don't remember much about the taxi ride. I thought that as soon as we got back home I'd fall asleep before my head hit the pillow. But I was just so wired at that point it took a while for my brain to shut down.

When did the opportunity for the VR binge come about?
It was about a year after. Tim came to me and said, "CyberLink wants to do another of these things. Can you do it?" I thought, "Sure, 50 hours is nothing next to 94. Let's do it."

What would make you want to do something like that again?
VR is a really cool technology and I kind of took pride in the fact that I could maybe be part of the movement to increase its adoption.

Was there a moment during either record attempt when you thought of quitting?
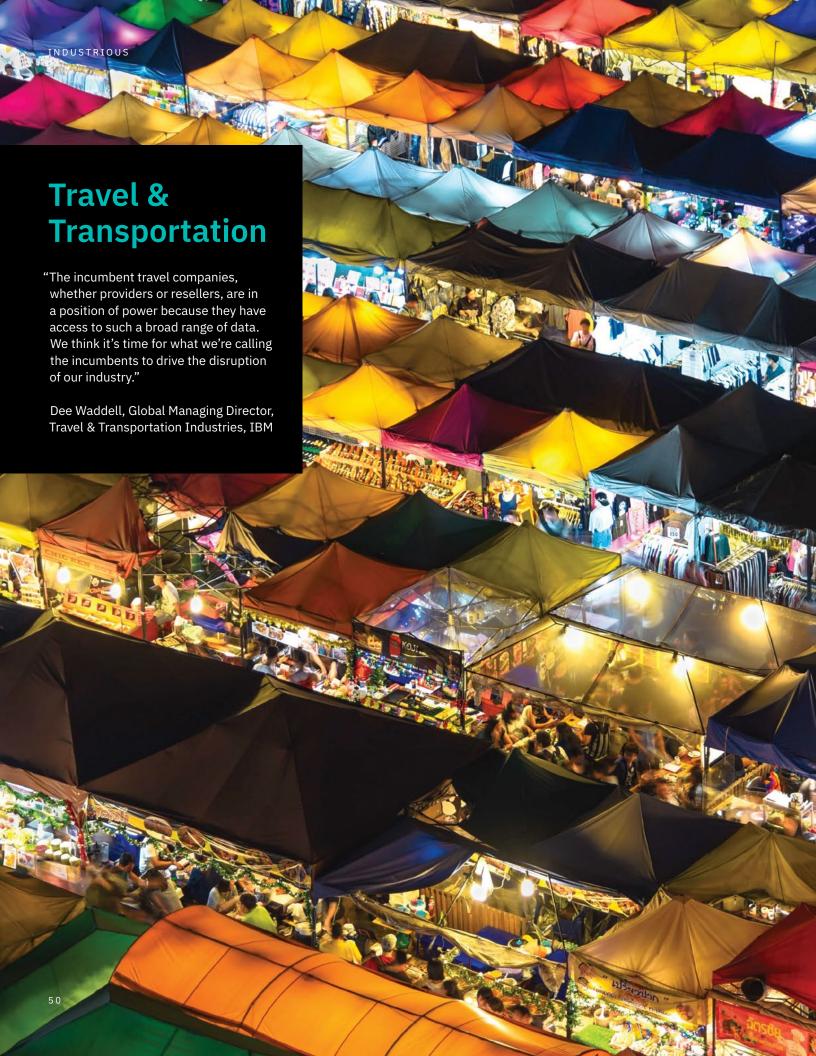Yeah. When Molly was disqualified on day three of the TV record attempt, at that point there was another 24 hours to go, which just seemed impossible. I wasn't sure I'd be able to do it.

What kept you going?
I don't know. I was kind of on autopilot at the time. I figured I'd done it three days, so I could do another one. A lot of people took a lot of time and effort to put the things together, and Molly and I had put a lot in to stay awake. To throw that all away at that point would have been devastating.

Would you do another record attempt?
I said I wouldn't after the TV one and then a year later I ended up doing the VR thing. They refer to those types of records as endurance records. I'd say I really wouldn't want to do another endurance record. I think really pushing myself, testing my will power and doing off-the-wall things that people think are outrageous is something I'm interested in, but I really wouldn't prefer to do something that has me staying awake for too long.

Travel & Transportation

"The incumbent travel companies, whether providers or resellers, are in a position of power because they have access to such a broad range of data. We think it's time for what we're calling the incumbents to drive the disruption of our industry."

Dee Waddell, Global Managing Director, Travel & Transportation Industries, IBM

What today's airlines can learn from the 'golden age' of flying

Jordan Teicher, March 27, 2018

Several times a month, a few dozen people dressed to impress board a Boeing 747 in Los Angeles, where they're met with a smile and the cocktail of their choosing. They then sit back in a plush Sleeperette seat, and spend the evening socializing with fellow passengers, enjoying an open bar, and eating a five-course meal that includes a Chateaubriand carved from a trolley.

It would be the perfect flight, if only it were on a real plane.

Passengers on this "flight," known as the Pan Am Experience, never get off the ground. Instead, they sit in a Boeing 747 replica parked in a Southern California aviation-themed motion picture studio called Air Hollywood. Their time on board is designed to recreate the experience of a flight with the now-defunct Pan Am airline during the late 1960s and early 70s. Tickets, which cost $300, typically sell out within a few minutes after they're made available.

"We've had people walk on to our airplane and start crying because it reminded them of the old days and the good time they had," Talaat Captan, CEO & Founder of Air Hollywood, told IBM.

In an age of shrinking legroom, diminishing onboard service, and increasing hidden charges it's no wonder that nostalgia for the so-called "golden age" of air travel is so strong, said IBM Travel & Transportation Industry VP Rob Ranieri.

"I think the way we used to fly was more of a luxury event. In the old days, you'd pay a single price for a full service flight. You were really taken care of," Ranieri said.

A changing industry

To a certain extent, Ranieri said, there's no going back to the golden age. Deregulation and the growth of low-cost carriers has fundamentally changed industry dynamics. Airlines, he said, have economized in an effort to get passengers from A to B at the cheapest possible cost. That means more seats on board, less legroom, a smaller flight crew, and fewer built-in amenities.

Security protocols have also irrevocably changed. Even if there were extra room on board for communal bars and lounges today, Ranieri said, post-9/11 safety concerns would keep passengers in their seats rather than roaming freely about the cabin. For practical reasons, flights simply can't be as social as they were in the 70s.

The golden age, of course, wasn't all roses. Flights were so expensive that most people could only fly a handful of times a year. Planes were louder. There were fewer routes. And cabins were full of cigarette smoke.

But today's common passenger complaints are valid, Ranieri said, and they can't be ignored. If airlines want to stay in business, they must figure out how to improve the customer experience within the regulatory and economic constraints of the day.

"Passengers want the best value for their money, but on the other hand they want to enjoy traveling," Ranieri said.

Prioritizing personalization

Finding that balance is tricky, said IBM Global Travel & Transportation Industries Executive Partner Heidi Fillmore, but it's possible. With the right technological tools, she said, airlines can make passengers feel as personally cared for as they did in the 70s while keeping costs down.

At the gate, Fillmore said, agents with better access to customer data can be empowered to make smart decisions that earn customer loyalty. Currently, she said, most ticket agents are only able to access limited information on passengers, including their seat and meal preference, and the number of trips they've taken with the airline previously.

"But when you start to layer in all the other elements beyond what's just sitting in your loyalty database—things like, 'We lost your bag last time,' or, 'Your flight was delayed last time, or the last three times'—this is now a point where you have the opportunity

to do something about that," Fillmore said. "It's about having a richer set of information at your fingertips so you have the opportunity to provide some better service or perks."

On board, flight attendants armed with a similarly robust set of data could be more efficient and more attentive. Having access to each passenger's preferences on an iPad, for instance, can help a single flight attendant provide more personal service to more people. American Airlines became the first airline to equip all its flight attendants with tablets in 2012.

"Equipping crew members with digital devices gives them access to information that allows them to address passengers in a relevant way," Raymond Kollau, founder of airlinetrends.com, told Fortune. "It's also a way to increase inflight revenues, as the transaction process is quicker."

In the event of a flight cancellation, Fillmore said, airlines could use AI to quickly find a passenger's next best travel option. Airlines could also use AI on their websites to provide personalized recommendations based on both structured and unstructured

data for passengers booking flights and accommodations.

The allure of the golden age of travel encapsulated in the Pan Am Experience will likely not lose its appeal any time soon. But airlines in 2018 can't parrot the past, and luckily they don't need to in order to provide an excellent experience for passengers. The golden age glistened, in part, because it strove to provide the same elevated experience for all passengers. Today, with cutting edge technology, airlines can instead provide a unique experience for each passenger, one that considers their unique tastes and desires.

"The reality is not everyone wants a meal and drinks and everything that came with the old way of flying," Ranieri said. "The way to do this cost effectively is to cater more personally to each individual."

Passengers want the best value for their money, but on the other hand they want to enjoy traveling.

Irregular operations are the new norm. Here's what airlines are doing about it.

Jordan Teicher, May 11, 2018

Over the course of 50 years in the airline industry, Nawal Taneja has seen it all.

He's served as the president of an airline. He's led a research organization that provided consulting services to airlines. He's advised government agencies on the aviation and tourism sectors.

Taneja has also channeled his experience as an airline business strategist to write 10 books for practitioners about the industry, which are available from Routledge Books.

Today, Taneja is an Executive-in-Residence at The Ohio State University's Fisher College of Business, and a distinguished fellow at the University's College of Engineering. Keeping an eye on developments in both business and engineering affords him a comprehensive understanding of the industry as it evolves.

In this interview, IBM talks with Taneja about the unique challenges facing the industry today, and the role technology is playing to address them.

What are the major forces shaping the airline industry today?

Customer expectations and behaviors are changing, and the industry is becoming increasingly complex. But at the same time there are emerging technologies that can help airlines cater to the needs of the changing customer base and manage the complexities of the business to make operations and services more seamless. The International Air Transport Association is forecasting the doubling of traffic in the next 20 years. The big airports are already constrained; they can't expand that much. So where is this expansion going to come from? Again, we're talking about technology. Biometerics, roving self-service check-in kiosks, roving intelligent robots that label bags and transport them to the correct loading points, and self-driving cars are just a few examples of such technologies.

What's the opportunity, in your view, presented by AI?

In the commercial airline business, they call operations regular or irregular. When I started my career, there were irregular operations once a week or month. Now, irregular operations are regular. They're happening all the time. Customer engagement in real time and at all touch points, to provide meaningful recommendations, is important for regular operations—when everything is going fine—but it's even more important during irregular operations. If I'm sitting on a plane, I'm more concerned about whether my bag got loaded and if I am going to make my connection than whether the flight attendant knows my favorite drink. Various aspects of AI will play an essential role in that engagement.

On the operational side, AI is beginning to add much value in aircraft maintenance planning by increasing the speed of human decision making and reducing human error, when looking for anomalies, for instance.

How can blockchain improve the industry?

Blockchain technology will help to reduce costs, increase revenues, and improve customer service and experience. An example on the commercial side of the business is the potential impact blockchain will have on distribution. It will change fundamentally the role of, and charges related to, intermediaries. Airlines having direct access to customers will not only reduce distribution costs, but also provide better ways to engage with customers. Airlines can, for example, present more personalized content. On the operations side, blockchain will bring about step changes in tracking assets, physical and human. Physical assets can be entire aircraft, individual parts, maintenance equipment, baggage, catering trucks, and so forth. Human assets can be the location of flight attendants, gate agents, ramp agents, mechanics, etc. The bottom line is substantial reduction in costs (operating and investment) and an increase in the revenue generating capability of assets, not to mention the higher value relating to customer

experience. Blockchain can also help in all these areas when it comes to flight planning.

We often talk about how technology can improve the airline customer experience. What about the employee experience?

On the commercial side, we ask, "What if you could make the right offer to the right customer at the right price through the right channel?" On the operations side, we can ask, "What if we could get the right part for the right airplane at the right gate with the right mechanic with the right tools?" Technologies that can help are data, mobile communications, AI, and IoT. Take an airplane engine, for example. An airplane engine now has sensors that can tell you all sorts of things about how it's working. But what are you going to do with that data? How will you store and analyze it to look for patterns, and use it to predict that one particular component, for instance, is going to fail in the next 20 hours? And beyond that, how are you going to use that data to know when and where exactly to replace that part? Prescriptive analytics is going to change the operating costs of the airplane. It's going to change the investment cost, it's going to increase revenue generation capability, and it's going to contribute to an improvement in on-time performance and, in turn, customer satisfaction.

There's a lot of frustration directed at airlines these days. What's the cure for that?

The frustration relates to friction at almost every touch point—from shopping to baggage collection. Consider the complexity associated with navigating an airline's website—the lack of transparency with some fares, and the uncertainty involving the best time to make a booking in light of the dynamic pricing aspect of the airline business. Consider next the hassles relating to the processing at airports—not so much the length of time but the uncertainty as to the amount of time needed. Airlines are making progress, for example, now with the capability of passengers to track their own bags. Besides making booking flights a lot less complex, technology will enable airlines to get the right information to the right customer and the right employee at the right time.

What's holding airlines back from making some of these changes?

It's not that executives at airlines don't know what to do. They know what to do but they've been constrained, at least, in four ways. First, they have not had access to the right data. Airlines do have lot of data but the data is siloed and is transactional data not behavioral data, and it's structured data not unstructured. Second, they are reluctant to share the data, for example, with airports. Third, they haven't had access to analytics. There are at least four kinds of analytics you need to have—descriptive, diagnostic, predictive and prescriptive. Airlines have used descriptive and perhaps diagnostic analytics, but not predictive and prescriptive analytics. The final barrier is that they have been working with legacy technology systems. Those are all being changed but they're being changed slowly.

The International Air Transport Association is forecasting the doubling of traffic in the next 20 years. The big airports are already constrained; they can't expand that much. So where is this expansion going to come from?

RANGI

PALI

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KARTA   SQ956   VA

NILA   SQ910   NZ

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GKOK-BKK   SQ972   LX

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