RETAIL executive

JANUARY / FEBRUARY 2018

The New Age Of Loss Prevention

p. 14

ROSAMARIA SOSTILIO
VP, Loss Prevention
Barnes & Noble

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The Rise Of Experiential Retailing

ERIN HARRIS Editor in Chief

In an effort to make omni-channel retailing more appealing to customers, many retailers have taken to experiential retailing — revamping the in-store experience to keep the customer happy and loyal, which, in turn, improves sales. In our last issue of *Retail Executive*, I talked about the why behind the need to focus on the customer experience in 2018. Here's the how.

KNOW YOUR AUDIENCE

Your target demographic will tell you everything you need to know about the experiential retailing concepts to offer in your stores. Experiential retailing is about quality, not quantity, as it should offer not only a pleasant shopping experience that appeals to all five senses but also practical, hands-on opportunities for customers to interact with products. Neck and neck for class valedictorian in experiential retailing are Nordstrom, Starbucks, and Apple. But other retailers have been delivering on experience long before experiential retailing became a buzzword. REI, for example, offers classes to test out products, such as kayaks. L.L.Bean's associates offer to teach customers how to properly strap large outdoor equipment to the roof of the car for safe traveling.

From a grocery perspective, Wegmans and Whole Foods are examples of experiential retailing done well. At many locations, both companies offer a coffee bar, an eat-in pub, various and spacious seating areas to eat what you've purchased from the prepared foods section, free live music, sample stations, and in Wegmans' case — a staffed, secure, on-site childcare area. And, oh yeah, groceries. Both offer Instacart delivery. High price gripes aside (in Whole Foods' case), given their wide age range of customers, these companies have managed to turn the otherwise arduous chore of grocery shopping into an experience that offers something for everyone.

STORY in New York City's Meatpacking District is another example of audience-driven experiential retailing. We've covered STORY over the years and its commitment to completely reinventing itself from the design to the merchandise with the goal of bringing to light a new theme, trend, or issue. Indeed, founder Rachel Shechtman is committed to experiential retailing, as she hosts events, including yoga classes and healthcare panels, along with a rotation of events that raise brand awareness for their sponsors.

DON'T BE THAT RETAILER

Knowing your target customer is based on data. Per capita income, population density, education levels, ethnic concentrations, analysis of foot traffic, etc. will help you best serve up the unique in-store experiences your customers want. Analyzing this information will help you improve how you interact with customers. Simply offering free food and wine samples or crayons and coloring books to the kids doesn't equal true experiential retailing that leaves customers wanting more. These things are fine, but to make it in the brave new world of experiential retailing there needs to be a well-constructed organizational effort that marries personalization with elements uniquely associated with the brand — and, more importantly, *different* from those of the competition.

Getting caught in the trap of doing and offering "cool stuff" for the customer isn't true experiential retailing, and it's likely not going to boost profits. Experiential retailing is a philosophy — and mindset — that differentiates your brand, and, done well, can improve the way customers interact with your brand for the long haul. R

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EAB

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Q | Neiman Marcus' "digital first" strategy is all over the news. Please explain what it is and how it will improve the business.

A OUR DIGITAL FIRST STRATEGY is focused on leveraging the latest in software and technology to deepen and enhance engagement with our online customers. Along those lines, we are testing unique programs and exclusive online services. One example is the online stylist program we are currently testing. We are very pleased with the early results:

- Average order value at 2.5 X more than a typical online order.
- 50 percent of participants become repeat purchasers.
- 32 percent conversation rate for participants.

This project illustrates how we can translate what we have always been great at in our physical stores and deliver it as a digital experience.

SCOTT EMMONS
As founder and head of the Neiman Marcus Innovation Lab (iLab), Scott Emmons is focused on innovation for the Neiman Marcus Group (NMG). He founded and built the iLab in 2012.

Q | What are some of the major topics and themes C-level retail executives should expect from RILA in 2018?

A LOOKING AHEAD TO 2018, RILA's focus will be on key issues, including trade, cybersecurity, sales tax fairness, and innovation. We'll continue to promote a trade agenda that works for retailers and consumers in all available forums, including weighing in on ongoing NAFTA renegotiations. We'll press for federal data breach legislation that provides greater security and certainty to customers and businesses. On eFairness, the U.S. Supreme Court will be our focus as it considers a review of outdated precedents, and finally, we'll help accelerate disruption inside retail companies through RILA's (R)Tech Center of Innovation.

BRIAN DODGE
is responsible for guiding the development and execution of RILA's public affairs strategy. As such, Dodge is responsible for identifying public policy challenges and opportunities, building consensus among member companies, and more.

Q **Ovum recently published *2018 Trends to Watch: Customer Engagement*. Please provide a brief synopsis.**

A IN THIS AGE OF DIGITAL TRANSFORMATION, delivering a customer experience that engages brands at all touchpoints and channels in the customer journey requires enterprises to be integrated, agile, and adaptive – ready to respond at key moments in the customer journey with the right messaging. As we look to 2018, we can see broad shifts taking place in the category of enterprise collaboration. Ovum cites three primary trends driving this change: the adoption of technologies like AI, customer engagement hubs, and APIs; greater implementation of customer journey mapping; and the use of self-service analytics, which has led to data democratization in enterprises.

This rapid shift in the enterprise presents myriad opportunities for companies to realize productivity gains, streamline processes, rid duplication, and digitally transform. Enterprises on this path toward seamless internal collaboration will position themselves as competitive and agile organizations, ready to quickly and easily innovate and transform as trends and customer demands necessitate.

MILA D'ANTONIO
is a principal analyst in Ovum's customer engagement practice. She specializes in enterprise customer experience and omni-channel engagement, as well as digital marketing and customer service.

Q **Your blog, *Omni Talk*, both seriously and amusingly discusses the future of retail. Your most recent post, "10 Things I Think I Love and Don't Love about Walmart Right Now (Part 1)," features the things you love about Walmart, with Part 2 to feature the 10 things you don't love. What is Walmart doing right AND wrong that retail execs should be aware of?**

A WALMART'S ACQUI-HIRE OF MARC LORE AND JET.COM WAS BRILLIANT, and Wall Street clearly agrees, too – Walmart's stock reached an all-time high in November. One word captures this brilliance: "Marc-las" (my mash up of Doug McMillon and Marc Lore). McMillon set aside his ego to get help, and Lore did not disappoint. Lore brought an ethos of fast experimentation and a digital strategy 100 percent on point. But Walmart still carries a ton of debt — technological, architectural, operational, cultural, and, most importantly, the precognition of the Walmart brand within its customers' minds. This debt will be hard to rewire without disrupting operations or alienating Walmart's core customers.

CHRISTOPHER WALTON
is a leading expert in omni-channel retailing and an accomplished senior executive with nearly 20 years of success within the retail and retail technology industries. Most recently, Chris was the vice president of Target's Store of the Future project.

Q **From a safety and security perspective, how can facial recognition technology help the retail organization?**

A ORGANIZED RETAIL CRIME, SHOPLIFTING, AND IN-STORE FRAUD are areas where facial recognition have shown positive results in those who have tested and implemented this technology. Side benefits have included time savings in following known shoplifters and reducing violence during apprehension. As this technology improves and costs decrease, the expectation is that more retailers will start to explore the benefits of facial recognition technology.

DAVID JOHNSTON
Currently the senior director of loss prevention and corporate security for Dunkin' Brands, Inc., David Johnston also serves on the NRF Loss Prevention Advisory Council and is a recent past president of the RLPSA.

Q **What industry events will you attend in 2018?**

A NRF'S BIG SHOW IS PRETTY HARD TO MISS, though it's gotten so large as to become unmanageable. Shoptalk is on my list this year; I'll be speaking. I've wanted to attend the last two and just wasn't able to make them. After that, I don't have a lot of must-attend trade shows. I attend several user conferences but not as many trade shows. I won't be attending IRCE this year, and I'm usually too busy with client travel to make it to any of the fall trade shows.

NIKKI BAIRD
is a managing partner at Retail Systems Research, an industry market intelligence firm specializing in retail and technology. She focuses on trends impacting the consumer-retailer relationship, along with their marketing and operational implications.

By RVCF

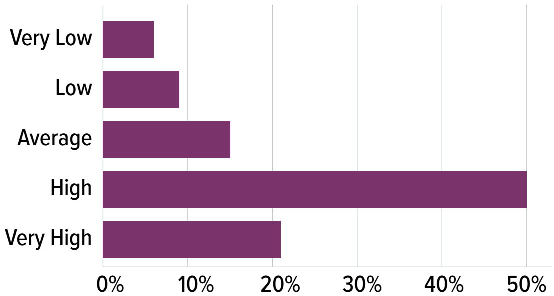
RVCF 2017 Report: Fill Rate Challenges For Retail Trading Partners

A recent RVCF survey sheds light on common obstacles and how to drive fill rate performance improvements.

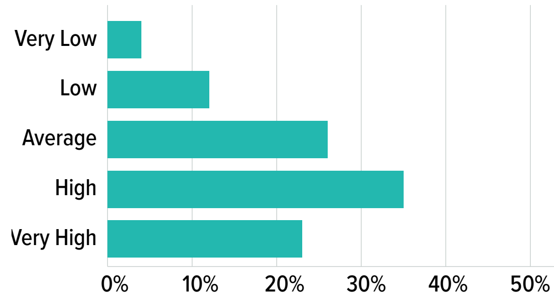
RVCF has taken a high-level look at the current challenges faced by retailers and suppliers as they work toward their mutual goal of full fill rate of purchase orders. Read the full report at www.RVCF.com.

Across just your biggest, **MOST IMPORTANT,** relationships, with regard to supplier performance, how big an issue is "Fill Rate Performance" in your overall trading partner relationships?

RETAILERS SAID

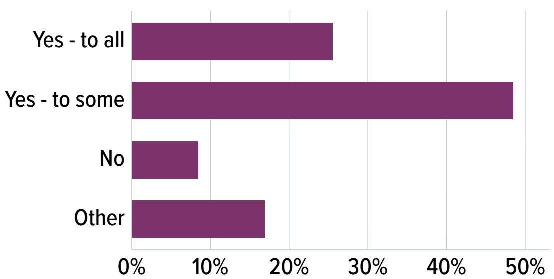


SUPPLIERS SAID



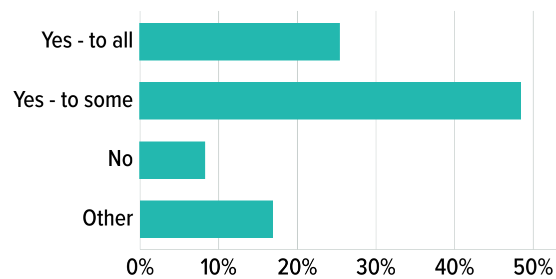
Do you currently provide forecasts to the suppliers you want better "Fill Rate Performance" from?

RETAILERS SAID



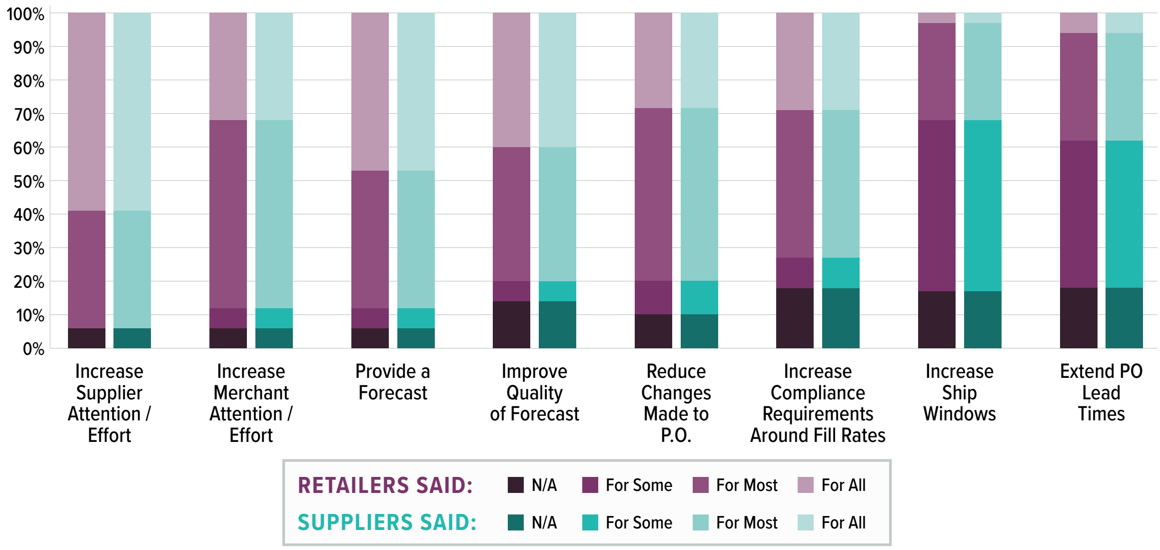
Do the retailers that want better "Fill Rate Performance" from you provide you with an order forecast?

SUPPLIERS SAID



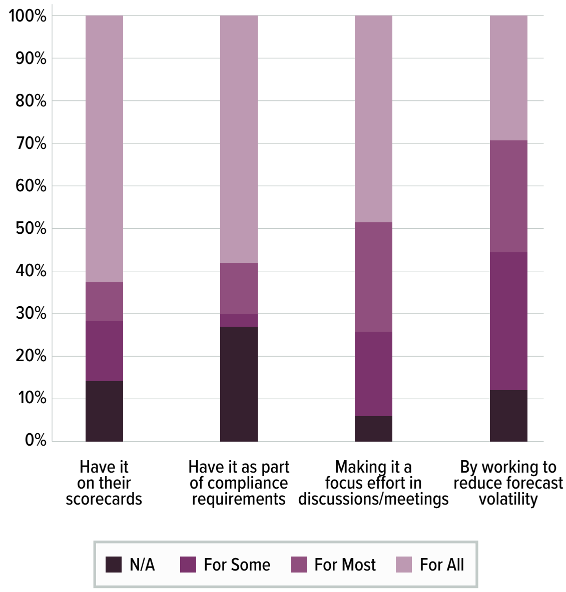
Please rate the importance of each of the following activities you may be using to improve "Fill Rate Performance."

What do you see as the biggest challenges you face to improving your "Fill Rate Performance" with your retailers?



Please tell us a little about how you are currently working to improve "Fill Rate Performance" with your trading partners. (Check all that apply.)

RETAILERS SAID



What Stands in the Way of "Fill Rate Performance" Improvement?

RETAILERS SAID

- It's usually whack-a-mole. We will see improvements with some vendors, but there are inevitable issues that affect others so net we tend to stay about the same.
- Still lots to learn on the forecast side. Just starting to use planned order forecast. Not a lot of accuracy measuring yet.

SUPPLIERS SAID

- Until we can find a way to properly communicate with retailers and adjust quantities accordingly (in a very timely manner), we will not be able to improve this metric. Retailers seem to be developing more stringent and, quite honestly, very impossible, rules and stipulations, and we wind up getting caught up in a "technicality" and are charged anyway, with no way of waiving or exempting or disputing.
- It is a challenge for us as vendors when we have factories that do not deliver full quantities and deliver late.

6 Transformational Trends From (R)Tech Center For Innovation

BY RILA

The (R)Tech Center for Innovation and RILA, in partnership with The Forum for the Future, performed extensive research and interviews with its membership and prioritized the trends driving change in the retail industry. This report is repurposed from the initial Retail Horizons toolkit, initially developed in 2014. These 22 trends address six categories:

1 NEW CONSUMPTION PATTERNS

UBIQUITOUS AND ULTRAPERSONAL SHOPPING:
Shopping will be invisible and ubiquitous, embedded into natural gestures and conversation, managed through a connected ecosystem, and will encompass all channels and all customers.

URBANIZATION:
Despite a pause or even reverse in city growth in the late 20th century, cities are now experiencing a resurgence. Shifting patterns of settlement have implications for infrastructure, people's lifestyles, and for consumer priorities and demands.

GLOBAL ECONOMIC SHIFTS:
The economic center of the world is moving south and east, with middle class growth in those economies. Meanwhile, global economic inequality is rising; the United States has the greatest wealth disparity of all the developed economies in the world.

THE SHARING ECONOMY:
Rather than buying new products to consume, people are increasingly sharing or renting things like cars, bikes, power tools, clothes, housing, and even leftover food. This trend could grow and continue to create a new form of consumer economy in which experiences and access to items are more desirable than ownership.

2 TECHNOLOGY

AUGMENTED REALITY:
Augmented reality (AR) allows computer generated images to be superimposed on the user's real-world environment, generally through a cellphone, headset, or video game. Augmented reality applications will increasingly be used in retail environments to give consumers product information and help them interact with brands.

DISTRIBUTED MANUFACTURING:
Technological advances are making localized production easier than ever, and 3D printing and information technology could disrupt and localize conventional manufacturing. Industry is using networks of geographically dispersed manufacturing facilities, and 3D printers have become affordable for consumers to own for their homes or use in their local community.

EMPOWERED CONSUMERS:
Empowered by social media and easy access to data, consumers are better and better informed about the ecological and social impacts of their buying habits and have greater means to create pressure for change.

3 BIG DATA & TRANSPARENCY

THE UBIQUITY OF DATA:
The accumulation of vast amounts of data, combined with an exponential increase in computing power, has enabled the use of new and powerful insights in every aspect of society. Companies that successfully leverage Big Data can provide highly targeted products and services. At the same time, the proliferation of individuals'

data and the increasing sophistication of analytic algorithms threaten to undermine individual privacy.

RADICAL TRANSPARENCY:
Technological developments mean that in the not-too-distant future, every aspect of a business could be fully in the public eye.

4 DEMOGRAPHICS

SHIFTING DEMOGRAPHICS:
The U.S. population is growing and changing, becoming an older and more multicultural society. The global population is also increasing, and the millennial generation is filling out the workforce.

NEW APPROACHES TO HEALTH AND WELL-BEING:
The cost of healthcare and a greater understanding of the determinants of poor health are placing a greater emphasis on prevention in addition to treatment. As a result, there has been an explosion in digital healthcare innovation and changes in lifestyle approaches.

SELF- AND COMMUNITY RELIANCE:
New models of self- and community reliance may flourish as a result of greater access to digital platforms, growth in distributed manufacturing, and the rise of the sharing economy, with the potential to distance people from brands. How this trend will unfold is uncertain, but its impact will be fundamental to retail's health over the next two decades.

EDUCATION REVOLUTION:
The educational model that prevailed in the United States for decades is rapidly changing. There is a widespread feeling that education is no longer preparing students adequately for the world but little agreement on how it should change. At the same time, technology is enabling new forms of teaching delivery, such as massive open online courses (MOOCs), that are making education more widely accessible and affordable.

5 RESOURCE CONSTRAINTS

RESOURCE SCARCITY:
Many key natural resources are becoming scarce and expensive. An increase in global interconnectedness means that shocks can quickly ripple throughout supply chains, causing price spikes and volatility. Governments and businesses will likely continue to struggle to secure continuous supplies of key resources and are developing alternatives where possible.

TIME POVERTY:
Time poverty is a growing concern for Americans, who work longer hours than citizens of many other countries. This influences many other retail-related trends such as pressure for greater convenience, online shopping, delivery-on-demand, and ubiquitous shopping.

DECLINE IN ECOSYSTEM SERVICES:
Ecosystems provide essential goods and services that sustain life — from the purification of air and water to the provision of food, fuel, and fiber. Although generally not valued or factored into investment decisions, industries such as agriculture, pharmaceuticals, or cosmetics could not exist without them.

WATER INSECURITY:
More water is being used for agriculture, industry, energy generation, and in-home uses as population grows and globalization increases. Freshwater is becoming scarcer and increasingly expensive in certain regions, which will necessitate changes in usage and conservation in both industrial and household contexts, while floods are increasingly common elsewhere.

ENERGY TRANSFORMATION:
The U.S. energy system is transitioning in response to multiple factors including energy security, increasing demand, cost, safety, advances in technology, and the need to lower greenhouse gas (GHG) emissions. Volatile energy costs will have profound impacts on business, both directly and indirectly.

COPING WITH CLIMATE CHANGE:
Global governments and organizations are likely to focus even more on reducing carbon emissions and will place a greater emphasis on adapting and developing climate resilient models.

6 POLITICS & ECONOMICS

GEOPOLITICAL INSTABILITY:
Today's retail supply chains are global in nature, meaning that even localized natural, humanitarian, and political disasters can influence the raw material extraction, production, and transportation of products around the world.

CIRCULAR ECONOMY:
The circular economy is an integrated industrial system inspired by the natural world, in which waste from one process provides the input for another process. In that way, nothing is discarded. For retail, applying this system typically means finding new uses for products and materials that would otherwise be discarded.

THE NEW AGE OF LP

By E. Harris

LP industry luminary Rosamaria Sostilio, VP, LP at Barnes & Noble, explains why loss prevention has changed drastically over the years and what retail executives need to do now to protect their assets.

To the loss prevention world, Rosamaria Sostilio needs no introduction. Her impressive career in the field spans more than three decades. Due to her work in her various positions within the asset protection pyramid, her industry leadership roles, including former NRF LP council chair, and her current role as VP of LP at Barnes & Noble, Sostilio is synonymous with LP. Yet, one conversation with her will prove she is as humble as she is brilliant. See, Sostilio earned her stripes in loss prevention at a time when very few women worked in the field. And, while she's keenly aware of this fact, which is fodder for another article altogether, she credits her mentors for having helped her along her path to success. As such, she continues to pay it forward to others looking to build a career in loss prevention. Indeed, mentorship is a key part of her multifaceted role, because loss prevention looks very different today from what it did when Sostilio began her career in the '80s. From cybersecurity to domestic terrorism, Sostilio weighs in on how drastically things have changed in the world of loss prevention and what retail executives need to do now to stay abreast of mounting risks and threats.

First of All, LP or AP?

Sostilio cut her teeth in retail the same way as most — by taking a job in retail and getting bit by the "retail bug." "You take a job in retail, not thinking you are going to stay in retail, and then something happens," she says. "I really enjoy the fast, dynamic pace. Through various experiences, one thing led to another, and I found myself in the security department, which is what it was called in the '80s."

From the ground up, Sostilio worked her way through various organizations and became a manager at Saks Fifth Avenue in 1989. Her tenure with Saks lasted until 2016. "I have had every single job in what is now called the Asset Protection Pyramid," she says. Today, as VP of

The New Age Of LP

ERIN HARRIS Editor in Chief @ErinOnRetail

LP at Barnes & Noble, Sostilio is responsible for all LP functions, and she'll tell you that the LP industry has evolved so much that the term loss prevention, which in itself has a reactionary connotation, has morphed into the commonly accepted proactive term, asset protection. "Technology changed loss prevention; it is evolving and expanding to help retailers protect their assets — their people and their products — as opposed to merely preventing loss. But, the more strategic reason for the move to asset protection stems from three types of programs. Some retailers have a security program, which focuses on theft and access control — the basics and fundamentals of physical security. Others have a loss prevention program, which means LP professionals have more responsibility when it comes to auditing and, perhaps, safety. Finally, some retailers have an asset protection program, which is an all-encompassing, holistic program that focuses on the multichannel environment by assessing risk in a more sophisticated way. I say 'holistic,' but what I really mean is the examination of issues from end to end, as opposed to LP's traditional siloed approach. In my younger years, loss prevention was a siloed group that was only there when needed. But, scarce resources have caused retail executives to do more with less, which has brought about the evolution and involvement of asset protection into the organization. Loss prevention has gained an important seat at the table by evolving into an asset protection philosophy thanks to its strategic approach to mitigating risk."

sizes to remain flat. "LP professionals work hard to help other leaders understand that in order to affect change, the organization must make capital investments that may take time to deliver an ROI." She advises LP leaders to overcome this challenge with open, face-to-face communication with key stakeholders. "Getting the various stakeholders to buy into an idea early on and taking them through the process helps. I think sometimes LP professionals make a mistake by taking a proposal right to the CEO or the CFO without vetting it with their peers for feedback or to gain support. It's important to get all the stakeholders excited about and engaged in your vision for improvement."

Because tech is such a critical component of the LP department's success, Sostilio believes C-level executives have come to understand that LP technologies aid the entire organization. "Most LP technologies are smart and programmable to do a whole host of things, from heat mapping to people counting," she says. "Take the camera system — it not only catches bad guys but also captures data that can be used to improve the business. Yet, not every executive understands that LP technologies change quickly. And, so, it's the LP executives' responsibility as leaders to stay abreast of advancements in technology and to educate the organization accordingly. Everyone is focused on something else, so it's our job to communicate effectively on a regular, recurring basis."

"When I began my career, the biggest thing we worried about was fire drills. Our threats changed dramatically after 9/11. The world has changed, and we have to change with the world."

ROSAMARIA SOSTILIO
VP, LP AT BARNES & NOBLE

Difficulties Remain

Sostilio and other LP professionals have helped the retail industry adopt the asset protection philosophy, but challenges remain. "One of the LP professional's biggest challenges has been helping other stakeholders realize they may not see an immediate ROI from a capital investment," she explains.

These challenges are valid — according to the NRF's *2017 National Retail Security Survey*, two-thirds of LP budgets are flat or declining, and over half expect staff

The Changing Face of Cybercrime

Buy-in from the top helps move initiatives forward, and so it goes with combatting cybercrime — another massive issue facing retailers today that didn't exist decades ago. The problem is that cybercrime is always changing. For every measure taken to prevent a breach, there is someone out there trying to hack it.

Sostilio states that the cost of compromise can be higher than the cost of the measures. "Retailers must constantly challenge their systems. They cannot be afraid to bring in people to test the systems. There is not a single strategy that is guaranteed to boost cybersecurity end to end. Sometimes, the simplest actions are actually the best: Change passwords, be careful about opening email attachments, stay away from suspicious websites, don't click on suspicious or unverified links, and install and maintain updated and quality antivirus programs. Trust me, staying ahead of cybercriminals is not convenient."

Assuming cybercrime is a top concern for your organization, she and other LP industry leaders recommend building a governance committee that reviews cybersecurity on an ongoing basis. "Building a governance committee that meets on a regular basis to conduct tests and practice breaches can help retail executives learn more and develop awareness of cybercrime," she says. "Have your statements ready before you need them. This group should discuss various company policies as well as global current events to evaluate how to keep the company in the best possible position. It should include someone in loss prevention, the CIO, the CISO, the CEO, the CFO, a chief marketing executive, an HR executive, and someone from public relations."

Retail Security's Single Biggest Threat

When asked to detail the must-haves for protecting people and profits, Sostilio responds unequivocally, "Every retailer needs proper and prudent emergency planning," she insists.

Sostilio advocates proper and prudent emergency planning because retail's single biggest security threat isn't shrink or cybercrime — it's domestic terrorism.

"The world is a scary place, and we have seen attacks on large venues and malls, and retailers are very susceptible to attacks as well. Without overemphasizing it, retail executives must develop plans and practice those plans. Further, the time for retail executives to establish relationships with law enforcement is now — not during an attack. When I began my career, the biggest thing we worried about was fire drills," she says. "Our threats changed dramatically after 9/11. The world has changed, and we have to change with the world. It is important for all retailers to know how to shelter in place; your people need to understand what a lockdown would look like and feel like; you need to have all the right phone numbers of your associates. And these are just the basics."

She provides examples of how retail executives should prepare a solid plan now by asking these questions of your teams: "Can your corporate offices use technology to see directly into the stores? Can executives dial-in to provide guidance from a central location? Where do your team and staff go if the building shuts down? Where should your C-suite go if they cannot operate out of their offices? How do you still conduct business? Do you have the ability to shut down the corporate office should there be a threat in the air outside?" Remember, threats may not always require you to run out of the building — you have to know when to stay put and when to leave. "Do you have food reserves for people in your building should you need to keep people overnight? Have you reminded your population to keep a couple days' worth of medication with them in the event they are unable to leave the building or can't get home? Does your staff have plans for their children, family, and pets if they are unable to get home?"

Sostilio advises retail executives to craft a plan for each of these scenarios. And while it's impossible to fully prepare for every single one, a clear understanding of the plans and protocols will enable the people in the organization to be flexible and agile if a situation occurs. "As a situation unfolds is not the time to come up with a plan," she advises. "Discussions with your associates about plans for active threats are uncomfortable, but presenting the information in an educational, nonalarmist manner is beneficial for all involved. And, it's important to practice and walk through the action plans, step by step. People are in your buildings — how will you protect them; what will you do? Situations usually resolve themselves quickly, and unfortunately, you don't have a lot of time to act."

Building The Right Team

Given that loss prevention has changed so much over the years and that risk and threats are very real, the LP team needs to have a seemingly endless skillset. Sostilio explains that when building her teams she doesn't look for a specific background or education per se. "I look for a spark; I look for someone who is curious," she says. "I look for a diversity of thoughts. I don't want people who are like me. I want people who will challenge me, because I think differences keep the team healthy. For example, I have had CPAs and attorneys on my team. It's about finding the right fit; they don't necessarily have to have a great deal of LP experience. I want someone with fire in their belly, and I know it when I see it."

There is so much risk involved with modern retailing it's daunting. Gone are the days of reaction. Sostilio advises retail executives to integrate LP into the company, ensuring that LP has a seat at the table. Integrating the LP team into the fabric of the entire organization helps proactively protect people and profits. R

THE FUTURE IS FACIAL RECOGNITION

ERIN HARRIS Editor in Chief @ErinOnRetail

ONCE PRIVACY AND SECURITY CONCERNS AND KINKS IN THE TECHNOLOGY ARE OVERCOME, FACIAL RECOGNITION TECHNOLOGY WILL CHANGE RETAIL.

Facial recognition isn't a brand-new technology. Casinos and law enforcement, for example, have been using facial recognition for safety and security purposes for years. And while facial recognition isn't new to the retail industry either, it is being leveraged outside loss prevention as a beneficial way to improve customer engagement, marketing, advertising, and more. Privacy concerns are hefty, and, as a result, some retailers are gun-shy about incorporating facial recognition into their businesses, while some others don't know what they don't know about the technology. Yet, international acceptance is escalating quickly; MarketsandMarkets estimates sales of facial recognition software and equipment were $2.8 billion worldwide last year and forecasts they will increase to $6.19 billion by 2020. Rest assured, the technology is gaining steam domestically by the day. Just ask Apple.

FACIAL RECOGNITION FUNDAMENTALS

Not all retail executives have backgrounds in computer science and math or a Master in Information Systems to aid them in their pursuit of business-changing technologies, which is why they build their teams to include people who do. One such executive is Kesha Williams, who began her career with the NSA more than 20 years ago and is currently a software engineer in Chick-fil-A's corporate IT department, leading innovation teams as they research new technologies that can be applied to restaurant operations. "At the very highest level is computer vision, which is a field of artificial intelligence and computer science that gives computers a visual understanding of the world," Williams explains. "That means the computer can look at a picture or an image and extract attributes or information from that image. There are several components of computer vision, such as facial recognition, object and scene detection, sentiment analysis, and event detection. Facial recognition is a subdomain of computer vision. Consider facial recognition as a biometric way of identifying a person. Just as everyone has unique fingerprints, everyone has a unique faceprint. A system captures a live image of a person and compares it to stored images and returns a match percentage. When a computer looks at a picture, it sees numbers and blocks and values represented in grayscale. Each person has a unique faceprint, or pixel pattern, that will allow a computer to identify that person."

To prove facial recognition technology, Kesha's team was asked to brainstorm ways it could be used in restaurants. They imagined Chick-fil-A team members might eventually be able to clock in to their shift just by looking at a screen. And eventually, they envisioned a world where customers could even be greeted by name using this technology. Yum China, for example, has already implemented similar technology. According to the *Wall Street Journal*, Yum China executives state that digital initiatives aren't about cutting labor costs but about getting data that leads to improved logistics for food delivery and deeper insight into customers' preferences. As with Chick-fil-A, technology figures heavily into Yum China's strategy. The company has partnered with Alibaba Group Holding Ltd. affiliate Ant Financial to offer its "smile to pay" system at the KPRO in Hangzhou, Alibaba's headquarters city, which serves as a testing area for new technology and menu items. It's reported that customers go to a self-serve kiosk to choose items on a video screen, then pay by looking at a camera, provided they've enabled facial recognition on their Alipay app. For security, they must also enter their phone number. Domestically, while facial recognition technology will eventually disrupt the mobile payment field, more work must and will be done to prevent payment and identity fraud.

FACIAL RECOGNITION RESOURCES

MIT COMPUTER VISION NEWS

- news.mit.edu/topic/computer-vision
- Sign up for their newsletter

IEEE CONFERENCE ON COMPUTER VISION AND PATTERN RECOGNITION, CVPR

- cvpr2018.thecvf.com
- CVPR is the premier annual computer vision event comprising the main conference and several co-located workshops and short courses.
- The major professional organization is the **Technical Committee on Pattern Analysis and Machine Intelligence (TCPAMI)** of the IEEE Computer Society — www.computer.org/web/tcpami/

From a customer experience perspective, imagine being able to pick your customer out of a crowd. Imagine being able to determine whether your customer is happy, sad, confused, etc. Retailers can use facial recognition technology to identify how many people enter the store as well as their age, ethnicity, and gender, allowing them to better understand foot traffic in order to serve appropriate offers to those customers. This technology provides a unique way to connect with the customer, yet customer identities are kept anonymous. Indeed, facial recognition allows retailers to improve the customer experience in new ways, as emotions drive spending and loyalty.

Skeptics exist, however, as some retailers aren't sold on the idea that such technology will help associates better identify customers' needs simply by receiving a digital notice of their facial expressions. And their concerned customers may view this as an invasion of privacy. Yet, organizations managing research programs and customer experience activities can use facial recognition technology to analyze people's emotional reactions at the point of experience. This knowledge not only gives researchers a greater understanding of behavior patterns but also helps predict likely future actions of those consumers. Such information can drive business decisions, resulting in improved product and service offerings and experiences.

GETTING STARTED

Williams states that without question, building an image database is the hardest yet most important part of implementing a facial recognition solution. There are baby steps retailers can take to prepare for their facial recognition strategy, and building an image library is key among them. "For example, if your business already has a mobile app, one way to build your image library is to have your customers upload a profile photo and save it in a central cloud system," advises Williams. "Work with your team now to identify other ways to build an image library so you're ready to hit the ground running when your business reaches the technology adoption point."

Companies have to consider privacy issues, such as how to obtain photos of your customers and how to obtain their approval for you to use and store their likeness. Also, the information needs to be securely stored. "At this point we're seeing where legislation lags behind the innovation," states Williams. "Some states such as Illinois, Washington, and New Hampshire are attempting to put laws in place that prohibit entities from capturing biometric information about people without their consent. There are legal and privacy implications that companies must consider, and they need to find a good balance between security and privacy."

From a development standpoint, Williams explains that cloud solutions such as Amazon Recognition, a service provided by Amazon Web Services, are an option

> If retail executives are not considering computer vision and facial recognition as a part of their overall business strategy, they're already behind.
>
> **KESHA WILLIAMS**
> Software Engineer, Chick-fil-A

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For more information go to www.rvcf.com and click "Events" or contact Susan Haupt at (646)442-3433 or shaupt@rvcf.com for developers interested in facial recognition. Google has a similar offering. "These tools allow developers to quickly build and integrate computer vision and facial recognition technology into their applications," Williams explains. "There are several cloud companies that offer services that allow you to plug facial recognition into your existing systems. So really it's a combination of internal development teams using cloud services already on the market."

TECH KINKS

Williams explains that while facial recognition technology is the wave of the future, challenges exist with the technology. "First of all, determining the threshold number that really identifies a match is an issue," she explains. "What is that number that truly identifies a match? For example, when comparing photos of my sister and me, we have an 82 percent match. In that case, 82 percent seems like a high percentage, but in this case, it's too low because we're comparing photos of family members." And, so, the challenge remains — what must the match percentage be to be considered correct and secure?

She states that image quality is also very important when matching a person, as image quality and poor lighting can impact how well the matching algorithm works. "Next, consider the angle from which the picture was taken, as that can also impact the face matching algorithm on the back end," she explains. "It's very important to have multiple angles of a person — the front angle, the left angle, the right angle, etc., because the more image data you have on a person, the better the face matching algorithm will work. Some people may not realize that every time you upload a photo to Facebook, you're making Facebook smarter at identifying each person. Facebook uses facial recognition when it begins automatically tagging you and your friends when you upload a picture. Facebook has a 98 percent match percentage, which is due to the data it has access to, such as what people look like from different angles and in different settings. In short, the more data you have, the smarter the computer program becomes."

Senior leadership teams making decisions about facial recognition technology have a lot to consider. But, per Williams, if retail executives are not considering computer vision and facial recognition as a part of their overall business strategy, they're already behind. Other companies such as Amazon, MasterCard, and Delta, for example, are already experimenting with and actually using facial recognition in a production system. If you're not already thinking about facial recognition technology as part of your overall business strategy, it's time to start.

"

Remember a few years ago, when the industry was up in arms over whether consumers would find personalization strategies and tactics creepy? Well, here we are, just a few years later with customers expecting their shopping experiences to be personalized. Parlay that thinking to facial recognition.

ENTER APPLE

Facial recognition for retailers is one thing. But consider, for example, that Apple's new iPhone X, which includes Face ID (Apple's name for the technology), replaces Touch ID for unlocking the device and for mobile payment authentication. Just as facial recognition itself isn't new, smartphones with facial recognition software aren't new, as Samsung already uses early versions of the technology. But, according to Apple, with Face ID, the chance a random person can unlock your phone using their face is 1 in a million (it's 1 in 50,000 for Touch ID). Plenty has been written about smartphone facial recognition technology — but here's why it affects retail executives. Remember a few years ago, when the industry was up in arms over whether consumers would find personalization strategies and tactics creepy? Well, here we are, just a few years later with customers expecting their shopping experiences to be personalized. Parlay that thinking to facial recognition. Yes, security and privacy concerns abound, but now that facial recognition will be in consumers' pockets, widespread acceptance is likely, and mobile payment is likely to experience adoption growth. "As a result of facial recognition and, now, Apple's Face ID, I definitely see mobile payment becoming the preferred payment option," Williams says. "The best way to enhance security is through facial recognition — it's going to be the standard very soon." It doesn't matter whether you yourself are an Apple enthusiast. Some of your customers are. And, as facial recognition technology proliferates in consumers' lives via their phones, over time, they'll come to expect such computer vision technology from the retailers they frequent.

Retail Technology: Where Are Investments Going?

Omni-channel and personalization are driving new investments both in the store and the supply chain.

BRIAN ALBRIGHT Contributing Writer

Retailers across vertical markets — both large and small — are poised to make major technology investments in the coming year.

Last year, IDC Retail Insights predicted that digital transformation investments would triple by 2019, and a PwC survey of 350 retailers on behalf of JDA Software Group found that 69 percent of executives plan to increase investments in digital transformation.

Omni-channel and personalization efforts are affecting how those investments are targeted. According to sources contacted for this story, those investments will include better inventory optimization and planning tools, data analytics, and in-store technologies that can help enhance the overall customer experience.

Many of these investments will also focus on bridging the retail store with the e-commerce storefront and making brick-and-mortar stores more interactive. "Retailers are going to attempt to reinvent the in-store experience as best they can," says Paula Rosenblum, cofounder and managing partner at RSR Research. "At some point, we will reach stasis when it comes to online versus in-store. The online market is big, but it's not infinite."

Adam Siegel, senior vice president of research, innovation, and sustainability at the Retail Industry Leaders Association (RILA), says that in addition to investing in proven technology, retailers plan to test out more bleeding-edge solutions. RILA and Accenture launched the (R)Tech Center for Innovation in early 2017 to generate new research and help retailers experiment with some of these newer technologies.

Transformative technologies, on the other hand, are ones where the use case is still being defined. Retailers are experimenting with blockchain and augmented reality or virtual reality (AR/VR), for example, but no one knows for sure whether consumers will engage with them or what the ROI might be. "But experimentation is critical," Siegel says. "The more retailers experiment, the more likely they are to find what the right solutions are, even if there isn't an immediate payback."

KEY INVESTMENT AREAS

Before making those investments, retailers have to determine what pain points they are trying to address, and which components of the customer experience aren't fully optimized. According to Forrester's "Top Retail Technologies to Watch in 2017" report, 68 percent of companies have made "delivering personalized experiences" a priority, and that includes new omni-channel analytics and digital store technology investments.

In support of those efforts, retailers plan to invest in a variety of different enabling technologies. For companies trying to stay competitive, those investments fall into a handful of focus areas:

BIG DATA AND ANALYTICS: According to Forrester, nearly three out of five data and analytics decision makers classify big data/analytics as a high or critical priority.

"Analytics is one of the most profound fields that is going to be critical for the future of ubiquitous shopping," Siegel says. "The foundation for all of these initiatives is going to be good data and analytics. A number of our members are hiring data scientists or looking for data scientists to hire. That is one of the biggest challenges — finding the right talent around data science and engineering."

As an outgrowth of those analytics investments, artificial intelligence (AI) systems are also playing a role within back-end software systems to help retailers improve decision making when it comes to inventory planning or supply chain optimization and scheduling. Siegel says there is also increasing interest in consumer-facing applications like creating bots for retail websites and mobile apps that can help shoppers find the right products or make more intelligent recommendations.

CLOUD TECHNOLOGY: Cloud platforms can encompass just about any solution, from e-commerce to store systems to analytics. More of these solutions will transition to the cloud moving forward. During a session at the 2017 NRF Big Show, IHL shared that 34 percent of retailers' software budgets were going to the cloud, up from 26 percent in 2016, and those investments will continue to increase.

OMNI-CHANNEL INFRASTRUCTURE: Aligning the supply chain, e-commerce, and in-store inventory to accommodate omni-channel sales will be a big priority for retailers hoping to provide a more holistic shopping experience. When Target announced its mammoth $7 billion multiyear CAPEX spending plan, omni-channel was a key focus.

In the PwC survey mentioned above, 51 percent of CEOs indicated they would increase their investments in buy online, pick up in store services, up from 47 percent in 2016. In addition, 48 percent of retail CEOs planned to invest in buy online, ship to store solutions.

INVENTORY/SUPPLY CHAIN MANAGEMENT: Along with investments in analytics, retailers will need to parlay that knowledge into more predictive supply chain systems for better forecasting and planning. That will happen alongside what Rosenblum thinks will be a shift in inventory sourcing. "There still needs to be a change in the supply chain network to make it more flexible as we get better data, and there will be more near-sourcing for replenishment. You can't get faster and still do it from half a world away," she says.

Victoria Brown, senior research analyst supporting IDC Retail Insights, says that there is also interest in distributed order management solutions that can reallocate goods based on a variety of inputs. Using these solutions can help retailers avoid markdowns, for example, by reallocating stagnant inventory to different channels (or physical locations) to improve margin.

"The return on those solutions is very fast in opposition of margin erosion," Brown says. "Retailers are making back their investment in these systems within weeks by reallocating goods and avoiding markdowns."

Geospatial freight analytics is another application being targeted by retailers who not only want to track the location of goods in transit, but also make determinations about how arrival times might affect price or inventory allocations.

MOBILITY: Mobile solutions for use within the store will also be a focus moving forward, and 85 percent of respondents to the PwC survey planned an investment in mobile apps.

That is taking a number of different forms. Target, for example, has rolled out a myCheckout app that allows store associates to help customers make online purchases from the store floor using a handheld device and credit card reader. These capabilities provide a more direct connection between the store and the e-commerce channel, while also providing new ways to improve conversion rates.

This is part of a broader effort to increase the value of the store associate when it comes to the customer experience. Retailers want employees to be at least as knowledgeable as consumers when it comes to products and prices, and that means mobile connectivity.

Mobility efforts are also targeted at improving store efficiency. Target also deployed IT support bots that automatically identify and solve mobile software and hardware problems at the store level, a system that the company says has saved more than 1,000 store team hours in the first few months after rollout.

SOME TECH NOT READY FOR PRIME TIME

Note that the above list doesn't include some technologies that have received a lot of media attention like 3D printing, robotic last-mile delivery, the Internet of Things (IoT), and virtual reality. That's because, despite a high level of interest, many of these solutions don't yet have a proven use case.

That doesn't mean they don't have promise. AR/VR is a good example. According to Forrester's data, over a fifth of U.S. online adults have never heard of VR headsets, and 46 percent don't see a use for it.

But RILA's Siegel thinks that AR will be an important component of ubiquitous or ultrapersonal shopping, which is why retailers are testing the technology. "A furniture retailer could develop an app for a mobile device so you can virtually place a couch in your living room to see what it looks like," Siegel says.

In the case of the IoT, some retailers are taking advantage of real-time location tracking, but for the most part they aren't leveraging it to increase interactivity. In its benchmark report ("The Internet of Things in Retail: Getting Beyond the Hype"), RSR found that most retailers are not investing in the technology because they don't grasp the use case or don't have the infrastructure or IT bandwidth to tackle an implementation.

Moving into 2018, retailers are investing in technologies that will make omni-channel fulfillment more efficient and profitable, while also leveraging mobility to make the in-store consumer experience feel more like a personalized online experience.

The Prospects For Blockchain Adoption In Retail

The supply chain stands to gain big from blockchain.

DEBORAH WEINSWIG Managing Director, Fung Global Retail & Technology

There's been much talk about blockchain as a disruptor in industries as diverse as financial services, insurance, and government recordkeeping. Its inherent transactional qualities, coupled with a mass consumer tendency toward person-to-person interactions, make blockchain a seemingly natural fit for retail.

To briefly define it, blockchain is a distributed and decentralized database that keeps digital records of historical transactions, eliminating the need for third-party verification and enabling real-time information exchange. The four pillars of blockchain technology are security, transparency, trust, and speed. The manner in which transactions occur provides all four for all participants, and transactions occur in minutes, if not seconds, rather than over the longer time frame that many banking activities require.

But don't take my word for it: Citi Innovation Lab's Shai Rubin gives a clear and understandable overview of the technology, in which he emphasizes that *Blockchain is not Bitcoin*, in this video. So how can blockchain fit into the retail industry, and how close is retail to adopting it?

Since blockchain technology is still in its infancy, companies will likely face significant adoption challenges, which is why we believe it will have a mid- to long-term impact on the industry rather than being felt in the immediate future. Some of the challenges we see in retail's adoption of blockchain include:

- **UNCERTAINTIES IN DEVELOPMENT**. Still in the early stages of its development, blockchain technology faces inevitable uncertainties around the cost and design of the network infrastructure.
- **INTEROPERABILITY BETWEEN NEW AND LEGACY SYSTEMS**. Legacy infrastructures will be the main obstacle that slows down the adoption of blockchain for many businesses, as blockchain solutions require significant changes to existing systems. Add to this the challenges of technical understanding, and the implementation of decentralized databases likely falls outside of the traditional IT development skillset.
- **SCALABILITY**. There are lots of startups trying to create their own blockchains, which could create silos and walled gardens. As a result, the Enterprise Ethereum Alliance is trying to create a set of standard blockchain protocols to fit business needs. However, the initiative still has a long way to go to achieve its mandate.

HOW BLOCKCHAIN FITS IN

While those challenges are significant and may take time to resolve, other retail issues stand to be greatly improved by the application of blockchain technology. Particular security concerns such as the risks associated with operating centralized databases, the risk of third parties counterfeiting branded goods, and supply-chain opacity all have an answer in blockchain technology. Looking further into supply chain, it can also help to resolve incompatible databases across different supply-chain nodes.

We believe this new technology has the potential to revamp legacy supply chain management systems and streamline transaction processes, while at the same time improving supply chain visibility. Since blockchain offers a new method of storing information that is accessible by multiple parties, the technology is naturally suitable for businesses that operate in a network environment, which requires both security and identity management.

Demand for transparency in production is increasing in the retail industry. Before reaching the end consumer, consumer goods have already traveled through a vast network of suppliers, producers, logistics providers, distributors, and retailers, but in many cases, the processes in between are not visible to all participants. By combining smart contracts—computer protocols built on top of blockchains and ledgers—blockchain applications can automatically execute contracts between parties, in a completely transparent manner, once certain criteria have been met.

As mentioned, blockchain improves security through the power of many eyes watching the system. Decentralized ledgers can enable identity verification and authentication. By pairing hardware chips with blockchain technology, a digital history can be attributed to physical products, which allows users to trace and verify their origins, attributes, and ownership. Blockchain technology can allow retailers and consumers to validate a product's provenance and guarantee authenticity, helping identify counterfeit goods and reinforce the value of premium products. End-consumers can gain visibility into the entire production history, which tracks subassemblies, parts, and raw materials used to make the finished product.

The ability to trace back the origin of the raw materials is a crucial feature for suppliers and retailers in order to guarantee the safety of consumers and the sustainability of the production process. It is particularly important in fields such as medicine and luxury goods, where products must meet very strict standards, or with precious metals and jewels. One example of this type of usage is Chronicled, a blockchain and IoT technology company that combines near-field communication (NFC) chips with seals and blockchain technology to track and secure prescription drugs. The seal of each prescription bottle contains secure information about its contents, registering the information on a blockchain, while also recording the registering party and location data. This tamper-proof technology solution adds a key layer of visibility, ensuring patients and physicians that the medication is authentic.

In another anticounterfeiting application, Alibaba joined forces with AusPost, Blackmores, and PwC to explore the use of blockchain technology to tackle food fraud. Because the ledger is immune to tampering, the blockchain technology creates better transparency between buyers and sellers as shipments are tracked in real time, improves security, and reduces the risk of fraud. The technology will also allow the company to pinpoint the exact source of a particular package that has been sold, so a product that is subject to a recall can be identified easily.

Blockchain technology can also be used for logistics. For example, Walmart recently filed a patent for a drone-delivery tracking system that integrates blockchain technology. In this case, the blockchain would hold certain information such as the location, supply chain transition, authentication of the courier and customer, and temperature of the container and product. In simple terms, Walmart aims to leverage blockchain technology to enhance the security of unmanned drone delivery, as well as the supporting authentication system.

IS YOUR COMPANY READY FOR BLOCKCHAIN?

The first question a company *needs* to consider before implementing blockchain technology is, "Does the business need the technology?" Since blockchain offers a new method of storing information that is accessible by multiple parties, the technology is naturally suitable for businesses that operate in a network environment, which requires both security and identity management. Our report on the retail applications of blockchain features a decision flow chart posing key questions for your process.

When blockchain technology is applied to supply chain management, it addresses traceability issues by enhancing the transparency and solving the problem of trust. Transaction records on a blockchain are immutable and can be traced back to their origins with certainty. In a supply chain context, using blockchain technology offers traceability to track physical value in the supply chain. Enterprises that use blockchain technology to log the steps in the production and sourcing of products gain visibility across the entire supply chain ecosystem, enabling agility and improving planning capabilities.

That said, we believe blockchain technology will be the key driving force behind improvements in how supply chains handle transaction data. However, we see this as a mid- to long-term prospect for the industry rather than adoption in the immediate future. R

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Retail Robots: The Next Frontier

How semi- to fully autonomous robots will continue to change retail.

STEVEN KEITH PLATT
Director and Research Fellow, Platt Retail Institute, and Research Director, Retail Analytics Council, Northwestern University

Robots have been around for many years.[1] In fact, General Motors introduced industrial robots into production lines as far back as 1961.[2] These early robots were focused on simple repetitive manufacturing tasks. More recently, advancements in technology have led to autonomous mobile manipulation platforms, including those with the ability to pick and sort, such as the more than 100,000 robots deployed by Amazon in its warehouses.[3]

Yet, robotic introduction into retail stores has seriously lagged behind that of manufacturing and other industries. This point can be exemplified by a review of the WR Service Robots 2017 report,[4] which notes that the number of professional services robots sold globally in 2016 rose by 24 percent in applications from agriculture to window cleaning. Retail is not even listed as an application. The good news is that innovations in cognitive computing, which enables robots to function autonomously within complex environments, are now leading to the introduction of various robots into the front of the store.

In this article, we highlight various front-of-the-house robots currently being deployed. We also discuss what we believe is the most consequential application for retailers in the near term. Finally, we outline one emerging application that retail executives should be tracking, because it will soon be coming to a store near you.

CURRENT DEPLOYMENTS

Retail robots currently being introduced generally have functionality including providing shopper assistance and assistance in merchandising. Shopper assistance services can include greeting and guiding customers to a product's location, providing information, and/or the distribution of flyers, coupons, or food samples.[5] Merchandising operations include robots auditing items on store shelves to determine needs for restocking, misplaced items, etc.

Examples include:

- SoftBank Robotics' Pepper: a customer-facing robot focused on engagement, providing product and promotional information, the collection of customer information, and attracting customers to a store. Pepper has been piloted at various U.S. retailers, and the company claims over 10,000 are in place globally, including at Pizza Hut in Singapore.
- Fellow Robots' Navii: another customer-facing robot, Navii guides customers to products in the store and provides related product and store information. In addition, it scans inventory to determine products that may be out of stock, finds price discrepancies, and discovers misplaced items.
- Bossa Nova Robotics: a shelf-auditing robot that scans shelves to check stock, identifies missing and misplaced items, as well as incorrect prices and mislabeling. According to Walmart, which is currently testing in more than 50 stores, the robots scan shelves more accurately and three times faster than store associates.[6]

- Simbe Robotics' Tally: like Bossa Nova, Tally uses image-recognition technology to audit shelves to determine out-of-stock, low stock, misplaced items, and pricing errors. Grocer Schnuck Markets ran a six-week pilot with Tally over the summer.

THE NUMBER-ONE ROBOTIC APPLICATION

The use of autonomous navigating robots that track inventory via RFID is, in our view, the most important robotic application for retailers to consider. This allows for the continuous measurement of inventory accuracy and item location for omni-channel fulfillment, as robots navigate a store multiple times a day.

The benefits of RFID technology have been well-documented. For example, in a 15-month study at Macy's, monthly cycle counts taken by hand scanners resulted in gross unit variance being maintained in a 2 to 4.5 percent rate, versus a 20 to 30 percent annual distortion due to only once-a-year physical counts. Omni-channel fulfillment is another major benefit associated with RFID, by making single merchandise units visible systemwide due to the ability to locate RFID-enabled merchandise.[7]

Yet, the benefits of RFID are still muted, to some extent, in that staff must manually scan merchandise. Due to the associated labor costs, this may occur only monthly. Fixed reader systems, which are capable of more frequent tracking, on the other hand, are expensive to install. In contrast, a robot that wanders a store can take multiple cycle counts during a day, greatly enhancing the value of RFID. Interestingly, in a test of handheld reader versus robot-read accuracy, the robot handily outperformed the handheld scanner (perhaps due to human error, i.e., forgetting to scan an area). The researchers found, for example, in the menswear department of a store that the robot achieved a read accuracy of 99.8 percent versus the handheld read accuracy of 77.9 percent.[8]

> **"The next wave of robots in retail are fully autonomous, where the robot can manipulate merchandise, such as retrieving the product for a customer or stocking store shelves."**

The elimination of labor costs associated with scanning inventory, the robots' ability to take multiple cycle counts daily, and increased accuracy all should encourage savvy retailers to stay on top of this trend. While, of course, RFID-based inventory robots come at a cost, they are less complicated than those that perform shelf audits, because complex object recognition video systems are not required. Firms operating in this space include MetraLabs' TORY, Keonn Technologies' AdvanRobot, Fetch Robotics' Robi, and Pal Robotics' StockBot. According to MetraLabs, TORY is the first permanently installed RFID robot worldwide at ADLER Modemärkte in Germany.

THE TOP EMERGING APPLICATION

The robots discussed above operate semi-autonomously. For instance, they can guide a customer to a shelf, but the customer must then retrieve the product. The next wave of robots in retail are fully autonomous, where the robot can manipulate merchandise, such as retrieving the product for a customer or stocking store shelves. While stocking a store shelf, for example as in a grocery store, may seem simple for us humans, such fetch-and-place tasks are complex, requiring extensive extended perception and reasoning capabilities. Nevertheless, advancements in technology are making this possible.

Due to the complicated environment of a store and the complexity associated with matching human dexterity, robots are arriving late to the retail industry. Notwithstanding, advances in cognitive abilities are improving their ability to effectively function in retail environments. The result: Robots will soon be arriving at a store near you. R

STEVEN KEITH PLATT is director and research fellow at Platt Retail Institute, an international consulting and research firm that focuses on the use of technology to impact the customer experience. He also serves as research director at the Retail Analytics Council, an initiative between Northwestern University and PRI.

[1] The International Organization for Standardization defines a robot to be an "actuated mechanism programmable in two or more axes with a degree of autonomy, moving within its environment, to perform intended tasks."

[2] Economic Report of the President, together with the Annual Report of the Council of Economic Advisers, 2016, p. 231.

[3] See: "As Amazon Pushes Forward with Robots, Workers Find New Roles," New York Times, 10 September 2017.

[4] Published by the International Federation of Robotics.

[5] A variant on this, that is still a way off, is robot agents that shop with you and make product suggestions based on your purchase behavior.

[6] Available at: https://blog.walmart.com/innovation/20171026/thats-smart-see-the-tech-helping-us-serve-you-better.

[7] See: "Quantifiable Benefits and Analytical Application of RFID Data," *PRI Working Paper*, January 2017.

[8] "Development of an RFID Inventory Robot," *Robot Operating System*, 2017, p. 387.

Data In Omni-Channel Retailing Is About Art, Not Science

CHRISTOPHER WALTON Entrepreneur and former Vice President, Target Store of the Future

Rhett Butler in Gone with the Wind *remarked:*

> *I told you once before that there were two times for making big money — one in the upbuilding of a country and the other in its destruction. Slow money on the upbuilding; fast money in the crack-up. Remember my words. Perhaps they may be of use to you some day.*

While good old Rhett was really speaking about the Civil War, his advice still rings true today because a "crack-up" is exactly what we have in retail right now. We are in a period of incredible adaptation. The question is not what will happen to retail. The pie is the pie, so to speak. The far more important question is, how will the pie get carved up? Or said another way, which retailers that we know today will survive for the long term? What new players will emerge? And what technologies will play the largest roles in determining how the pie ultimately gets carved up?

The business model of legacy brick-and-mortar retail existed relatively unchallenged since the 1960s. Then, in the mid-1990s, along came the apex predator, Amazon, who introduced an entirely new business flywheel to retail.

Retailers now are at a crossroads. Amazon's flywheel is so formidable that legacy retailers are not sure how to respond. Historically speaking though, and this next fact is also why retailers find themselves in peril, physical retail stores have, for the most part, existed for five distinct reasons: 1) Inspiration, 2) Immediate Gratification, 3) Convenience, 4) Taction (i.e., the act of touching), and 5) Experience (i.e., the delight or memory of being somewhere).

Amazon's flywheel, predicated upon an enormous selection and convenient delivery at the press of a button, has obliterated reasons one through three. All that remains to differentiate physical retailing from e-commerce are the tactile feel of products and the delightful memories of being somewhere other than your home.

Therefore, for retailers to survive and prosper from the "crack-up," our industry needs a new flywheel, a flywheel that enables them to compete with Amazon, a flywheel that celebrates the physical and that answers the most fundamental question in our business — why still come to physical stores to shop?

If you are interested in a live demo or an audio exposition of the flywheel while you exercise at the gym or as a helpful tool to put your kids to bed quickly, you can also view this video:

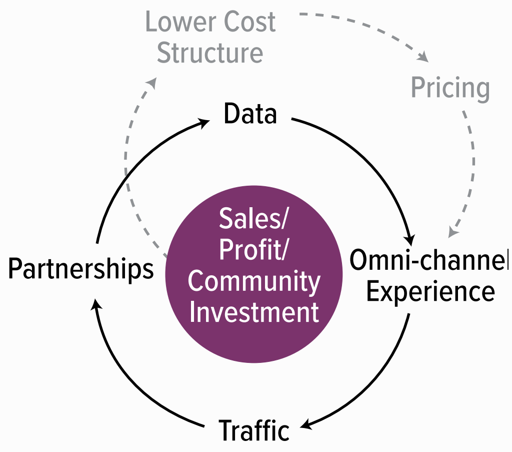
youtube.com/watch?v=aHgqeDIjAgY

As you can see from the diagram and/or from the video, the new flywheel of 21st century omni-channel retailing is not predicated upon selection. Rather, it is predicated upon data. Data is what will enable retailers to compete either against the Amazon monolith or the two-headed Amazon/Walmart Kraken.

Data begets better omni-channel brand experiences, which beget traffic, which, in turn, begets opportunities for new partnerships, partnerships that only further augment the quality of data and therefore enable the cycle to enrich itself and to begin again. In the background, a retailer's cost structure and pricing schemes augment these efforts by creating "margin" that can be funneled back into the wheel.

The key here though, and what I want to state candidly, is that DATA IN THIS FLYWHEEL IS MORE ABOUT ART THAN IT IS SCIENCE.

NEW BUSINESS FLYWHEEL



SOURCE: www.omnitalk.blog

PUTTING THE NEW FLYWHEEL INTO PRACTICE

Science is, of course, important, but what should scare the HELL out of the enginerds of e-commerce, who have no experience merchandising physical spaces, is that omni-channel retailing is nonlinear. Omni-channel retailing is "always-on." It is geometry gone wild. It is neither brick-and-mortar retailing, nor is it e-commerce retailing. It is a reverse-engineered bicycle, where if you want to turn the bicycle to the right, you need to turn the handle bars to the left.

No one knows how to ride this new bicycle yet either, so we need to learn how to ride it as fast as we can and be unafraid of scraping our knees. The new flywheel is our training manual. This flywheel, alongside advances in technology, unleashes a new world in which retail sales floors become analytically analogous to e-commerce browsers and capable of being analyzed as such; a world in which the activities that occur on our sales floors can be thought of as major regression analyses, where, all things being equal, we can know what experiences, what products, and even what sales associates drive the most comparative value in our stores day in and day out.

Our stores will become, from a data perspective, like multiplayer video games, in which the consumer is the main player character and everything else around the consumer (e.g., the shelves, the products, the sales associates, etc.) will act as the nonplayer characters within the game. Like video games, our stores will become feasts for our visual senses — our eyes, our ears, our noses, our mouths, and our fingertips.

We can imagine a world then, where, all things being equal, we will be able to understand the value of dining within a retail experience, the A/B financial value of a product being placed in one part of the store over another, and, what is perhaps most exciting, even the value of a work of art that catches the eye and the imagination of a passerby.

Yes, the analytics underlying the effort will remain linear, but the artistic expressions of what retailers choose to do with the data will remain 100 percent controlled and determined by the right hemispheres of our brains. New-world merchants and marketers will see their store sales floors as data-laden blank canvases and wipe them clean, again and again, until they circuitously uncover the sensory delights that powerfully answer the "physical whys" of retailing.

The technologies that unleash this world are already out there, too. They are right in front of us. They intersect to leverage the mobile phone as the remote control for the commercial exploration of the physical world. Mix one part Amazon (visual scan technology), one part Starbucks (mobile payments and on-demand ordering), one part Bonobos (inventory-light guideshops), one part IKEA (bifurcated fulfillment), and envelop it all within the umbrella of a casino (a place where we all feel like welcomed guests), and a radically new vision of 21st century omni-channel retailing emerges — an inspiring vision that runs on less working capital, that requires less day-to-day expense, and that is mobile-controlled by the customer to unlock a more personalized, cocreated artistic expression of retail than anything we have ever seen before.

Amazon, and even Walmart for that matter, play on selection and price. Neither plays on the physical well. Amazon still knows little about stores and Walmart is, well, Walmart, no matter what Marc-las (my affectionate combination for Marc Lore and Douglas McMillion) would like us to believe. Celebrating the physical and thinking of our stores as our real Product (big "P"), i.e., as the business we are all really in, through data, creates a niche within a realm these two juggernauts do not yet understand.

So, let Amazon and Walmart duke it out on price for their share of our couch time. My money is on the retailers who saddle up to the bar and drink from the cocktail of the new flywheel of retail and the technologies that enable it. Shaken or stirred, right-brained, Dylanesque experimentation with the cocktail (like so many things in life) will lead to new roads of discovery.

Omni-channel retailing is not about data for data's sake. It is about leveraging data to create nonlinear physical expressions of art that give us a more probabilistic understanding of the real reasons people want to go somewhere — the real reasons why people will always desire to "feel" something physically and emotionally and to engage their senses, both in the present and in looking back fondly within their own memory banks, in ways they never could realize left solely to the cozy confines of their homes. R

Why Self-Actualization Is The Future Of Retail

Understanding your customer's basic, societal, and growth needs should influence your current strategies and offerings.

LINDSAY ANGELO Growth strategist, consultant, speaker

What is the future of retail? A question that has stirred up spirited debate — one we are reminded of with a simple walk to the grocery store or while mulling over a gum purchase. The notion of looking in unordinary places to answer ordinary questions has always inspired me. Triggered by a desire to pursue a consulting venture that provoked positive change and coming off six years in strategy at Lululemon, this trail led me to none other than the field of evolutionary psychology. If that phrase conjures up Psychology 101 and images of Abraham Maslow, you're on the right track. It is in the posthumous of Maslow's work and its iterations that lay an undiscovered truth that, if unpacked, can open up a world of opportunity.

As a strategist, I subscribe to the notion that context is key. That said, we've seen two shifts emerge over the past decade: a) a market evolution and, b) a societal evolution. The former can be best described as the democratization of retail; that is, the proliferation of competitive and innovative offerings entering the market over the past decade, a dynamic driven by retail doing away with the high barriers to entry that have existed to date. Factors such as easier access to capital (think: the likes of Kickstarter and equity-based crowd-funding), easier distribution (think: the advent of marketplaces and the likes of Shopify), and the overall digital age have created a ripe landscape for innovation and entrepreneurialism.

Secondly, we've witnessed a societal evolution, one that is perhaps best described as Betterment. This relates to the progress we've made as a society, a notion that manifests in a global rising middle class (emphasis on global, as this varies regionally) and is enabled by a digital age that has widened the scope of people's lives, resources, and knowledge.

As these two shifts (market evolution + societal evolution) come up against one another, they cause us to seek out what's next in life – that is, the quest for purpose and growth. Enter Abraham Maslow. For those of you whose high school days are long past, let me provide a refresher. Abraham Maslow, in the 1940s, developed a basic model of human needs that looked something like this:

MASLOW'S HIERARCHY OF NEEDS

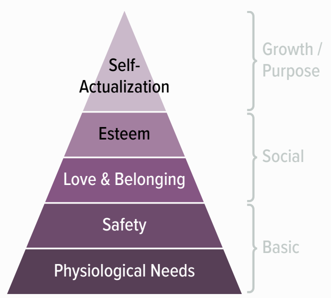


Illustration 1

Grounded in the notion that humans start at the bottom and work their way up, Maslow argued that first and foremost we strive to meet our most basic needs, such as safety and security. Once met, we graduate up to our social needs – love, belonging, and esteem. Finally, we reach for self-actualization, defined as being our best selves and fulfilling our greatest potential.

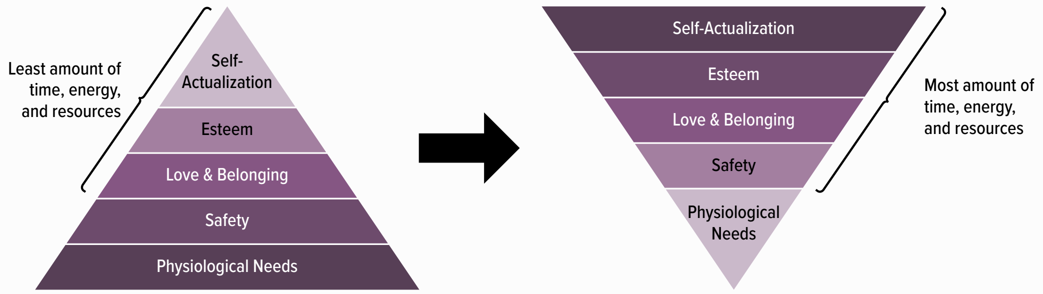


Illustration 2

If we think back to the beginning of humankind, most of our time, energy, and resources as a global society have been spent on the lower part of the pyramid — fulfilling needs such as a roof over our head, drinking water, food to sustain us, etc. The past 10 years, enabled by the digital age and societal progression, have graduated us into fulfilling our social needs — love, belonging, and esteem — and have been a subsequent breeding ground for behemoths such as Facebook, WeChat, Instagram, Twitter, online dating apps, etc. Today, we're seeing more and more people reaching for self-actualization. That is, the quest for growth, purpose, and fulfillment.

So, if we think of space on the pyramid above as denoting time, energy, and resources, we're seeing an inversion (see illustration 2). Whereas in the past, most of our time, energy, and dollars were spent on the lower half of the pyramid, today most of our time, energy, and dollars are spent on the upper half, including self-actualization.

Now, are people still very much in the social age? Yes. I'd make the distinction that progression up the pyramid is not linear. Moreover, at any given time, the events of one's life and the context surrounding it can result in digression back down the pyramid, a notion that's been captured in future iterations of Maslow's work. That said, what we are seeing, particularly amongst the aspirational millennials, is a growing population attempting to self-actualize.

So, wherein lies the opportunity for brands in this emerging self-actualization economy? Some brands, whether they know it or not, are already leveraging this trend. For example, Headspace enables people to be their most mindful selves, Uber enables people to be their most entrepreneurial selves, and ETSY enables people to be their most creative selves. Last year, consumer electronics brand Dyson opened the Dyson Institute of Technology, branching into a service sector and enabling people to be their most educated selves. Other examples include Lululemon's focus on elevating people to live their best lives through the power of practice, LVMH branching into the service/experience sector vis a vis Clos 19, offering curated luxury experiences that elevate their customers beyond providing goods. All are examples of brands helping people better themselves on some level.

INSIDE THE SELF-ACTUALIZATION ECONOMY

We're also seeing the self-actualization economy manifest at the industry level. Take the proliferation of life coaching, the second-fastest-growing profession in the world rivaled only by information technology[1]. A coach and friend of mine recently made the comment that she didn't know how to describe her work. My response was that she helps people be their best selves. Likewise, both a growing health and wellness and experience economy are rooted in self-actualization — a yearning to be one's healthiest and most experienced self. Diving into growth by sector will also unveil higher growth in self-actualization driven sectors such as healthcare and travel.

Clients often ask how to think about the self-actualization economy and their business/brand. I coach them to begin with two questions: 1) what aspect of self will your customers and potential customers trust you with? Is it mind? Body? Intellect? Creativity? The list is vast. And, 2) how can you elevate [x] aspect of self? Combined, these questions can springboard thinking to unexplored opportunities and unmet "jobs to be done," some perhaps far from your current offerings and from a traditional and conditioned interpretation of "retail."

Questions that often follow are, how does this trend apply regionally? How does it reconcile with other present-day psychology frameworks? How does it differ between business to consumer and business to business brands? How do I create a full strategy anchored around betterment and self-actualization? All good questions with meaty answers beyond the space provided here.

That all said, what is the future of retail? Will there be bots, AI, personalization, brandship, etc.? Yes. But at the core, there will still be a consumer, one driven by fundamental human motivations and needs. As a collective of brands, the more we can unveil those motivations and partner with consumers to fulfill those needs, the more we can be a force for activating positive change. R

[1] Forbes, May 2016

Do You Know Your Cyberattack Response Plan?

Why business continuity plans and business impact analyses are critical components of crisis management.

RICK OLSON Retail Consultant

It's 2:00 a.m. and a ringing phone invades your slumber. Fumbling, you grab the phone, answer, and in a foggy-brained state realize disaster has disabled your business. All computer systems are down; terminal screens are black. Staff is paralyzed. An urgent project is at a standstill. Leaders try to gather as much information as possible from your IT department, and although IT has been taking calls, they have not had time to investigate. Information is fragmented and so minimal that the pieces of your disaster puzzle cannot be put together fast enough to minimize the negative effects of not having a business continuity plan. Your day is not starting well.

You thought you did what every good business owner should. As your business grew, you added resources and staff. Unfortunately, you were set back in a matter of minutes by a cyberattack on your system, or worse yet, maybe one of your vendors was breached.

Cybersecurity Ventures predicts by the end of 2019 a business will be attacked with ransomware every 14 seconds.

Most companies are prepared for daily disruptions and able to immediately address these instances without much thought. They can be as simple as an inoperable shipping door or a team member calling in sick, or as complex as a severe weather storm moving through the area. But is your team equipped to handle bigger challenges? Do they have a plan for a power outage that spans several hours, days, or even weeks? Expand that thinking to vendor partners. How will vendors maintain their service to you, their customer? What is their preparedness plan? In other words, what is your company's internal business continuity plan, or vendor plan, in the event of a cyberattack?

Throughout 2017 there were many notable cyberattacks, costing suppliers, retailers, and most recently the Danish shipping company Maersk, hundreds of millions of dollars. The disruption at Maersk was caused by a ransomware virus named Petya, and it rendered their computer system useless. Other malware programs caused catastrophic disruptions in the National Health Care systems of the United Kingdom, the pharmaceutical company Merck, and the entire Ukrainian power, banking, and transportation infrastructure.

Forty-four percent of ship operators believe their company's current IT defenses are not effective at repelling cyberattacks, and 39 percent experienced a cyberattack in the last 12 months.

HOW TO PREPARE

Even the best information technology teams cannot be expected to stop the most sophisticated attacks. As long as there is software or hardware that is not 100 percent controlled from design to manufacturing to implementation, there is a high probability of a cyber incident. Technology is the window to your business that can allow the crippling of physical processes, and your least prepared partner can, unfortunately, open that window.

The best strategy is to prepare a business continuity plan (BCP), which identifies financial and physical risks that arise from a crisis. If the plan is comprehensive, it will have the necessary implementation steps for operating critical functions during a disruption in business. Before creating the business continuity plan, however, the business impact analysis (BIA) needs to be completed. It is important to note the BCP and BIA are two distinct documents. Establishing this understanding when speaking about crisis management and business continuity will provide a clear road map for the shareholders, business owners, customers, and the leadership team. During an incident is not the time to share that you have a fire response plan but have not completed a full business impact analysis.

THE BUSINESS IMPACT ANALYSIS

The BIA is designed to highlight critical functions and processes. It should not be a plan for an infinite number of specific possible disruptions (e.g. a gopher could chew through our electrical cabling, and we'll lose power), but instead be a plan for the general types of disruptions (e.g. loss of power regardless of the cause). Some areas of the company will, and should, have more detailed plans. For example, the public relations team will have a communications plan for specific scenarios.

When completing a standard BIA, each area of the company answers questions on the criticality of team, technology, and building. For those in the supply chain industry, it is critical to add third-party vendors and partners in the answering of these questions. Doing so will quickly reveal gaps with vendors and show the importance of these partners to your organization.

TEAM:

Consider the human capital it takes to run your business. Do not identify individual people, but instead the positions that are critical decision makers and doers that keep the operation going. If there was an event that caused excessive absenteeism, are you prepared to continue operations? Avoid the disruption many manufacturing companies had in 2009 to 2010 because of the H1N1 virus; 60.8 million adults were ill or needed to stay home with a sick family member.

TECHNOLOGY:

Evaluate not only internal threats, but also the multiple touchpoints of the supply chain such as delivery, transportation, billing, etc. Security breaches are increasing at a double-digit rate year-over-year and are coming from a variety of sources, so it is important to evaluate with breadth and depth.

BUILDING:

Determine how long your organization can afford to be nonfunctional. Depending on your business, this may be zero tolerance for nonfunctionality to considerable tolerance for nonfunctionality because you have both space and capacity to move operations to other physical locations. Keep in mind that natural disasters wreaked havoc in the southern part of the United States in 2017. There were seven tropical storms and 10 hurricanes, causing over $316 billion in damage. You may not have a physical building in these impacted markets, but do you have third-party vendors operating in these high-risk areas?

THIRD-PARTY VENDORS AND PARTNERS:

Rely on partners for physical and technological help. They can support your success through transportation or warehousing, staffing during peak load, or last-mile delivery services. They can also connect processes, whether it is the handoff of electronic data interchange (EDI) documents, load forecasting, or details of customer orders.

Building a BIA and BCP can be overwhelming for companies large and small. There are many resources available, including Ready.Gov, a government resource. You could also hire a consultant to create a plan, complete the BIA, and create the BCP with the partnership of leaders within an organization.

Cyberattacks are not only a concern for large companies; they should be a concern for every leader in every organization. Leaders need to ask the question, "Who is our least-prepared partner when it comes to business continuity?" Then, leaders need to ensure their teams work with partners to take advantage of the efficiencies technology has created across all touchpoints in the supply chain process — the exact process cyber criminals are working so hard to disrupt. R

RICK OLSON is a retail consultant with over 24 years of experience in corporate and retail store management at one of the nation's largest discount box retailer. He brings to the table recognized experiences throughout the retail journey of in-store operations, merchandising, inventory management, crisis management, supply chain, and over 15 years experiential retail.

[1] http://www.digitalistmag.com/digital-supply-networks/2017/03/14/cyber-security-in-digital-supply-chain-managing-third-party-risk-through-verified-trust-04958505

[2] https://www.cdc.gov/flu/pandemic-resources/basics/past-pandemics.html

[3] http://www.ship-technology.com/features/maersk-cyber-attack-reveal-industry-dangerously-unprepared/

[4] www.ready.gov

The Fulfillment Center Next Door

Without leveraging stores as fulfillment centers, retailers will lose to Amazon every time.

NICHOLAS HODSON Partner with Strategy&, PwC
ALEXANDRA HALLAS BUTTON Director at Strategy&, PwC

Amazon is big. Really big. By the end of 2017, Amazon will have picked, packed, and shipped approximately 5 billion items to U.S. consumers[1]. That's north of 150 items every second. To support that volume, Amazon has built out an awe-inspiring network of fulfillment centers (FCs), sortation centers, cross-dock facilities — not to mention a nascent airline and growing fleet of vehicles — all designed to speed the efficient flow of merchandise around their system.

At the same time, Amazon has built an extensive "same-day" business. Prime Now is focused on major metros and allows consumers to buy from a "limited" selection and receive their order in a couple of hours. As consumers have come to demand this convenience, other retailers have been forced to compete with their own same-day offerings – often outsourced to turnkey providers like Deliv and Shipt. For retailers, these solutions are relatively simple to implement, but are costly (around $15 to $20 per order, at say, 10 miles[2]), and our research with consumers indicates that the market for such "premium express" services is relatively small unless the retailer is willing to absorb most/all of the cost.

However, we believe most retailers are missing a much bigger threat, one which we call "The Fulfillment Center Next Door." On current course, by about 2020, about 65 percent of the U.S. population will live within 50 miles of a full-scale Amazon FC (not just a Prime Now hub), 40 percent will live within 25 miles, and 15 percent within 10 miles. This proximity matters because it puts these consumers within range of low-cost, same-day delivery.

The traditional delivery networks operated by UPS, Fedex, USPS, and the like are designed to efficiently move packages over long distances. Sophisticated networks aggregate and sort packages to increase package delivery density and reduce cost. But over the shorter shipping distances the market is demanding, a new model of delivery service is emerging based on the crowd-sourced Uber/Lyft model. Amazon itself is leading the way and is already making extensive use of crowd-sourced Amazon Flex drivers in around 50 U.S. markets.

But Amazon's scale is starting to create its own delivery density. In a typical large metro area — Dallas-Fort Worth for example — there are already around 20 to 24 Amazon deliveries per square mile per day[3]. At that sort of density, crowd-sourced delivery drivers are more than competitive with the rates offered by large package delivery companies.

> **"On current course, by about 2020, about 65% of the U.S. population will live within 50 miles of a full-scale Amazon FC (not just a Prime Now hub), 40% will live within 25 miles, and 15% within 10 miles."**

Now imagine that one of those DFW neighborhoods is within say 10 to 20 miles of an Amazon FC. The inhabitants get up in the morning, brush their teeth, and start shopping. By around lunchtime, a good backlog of orders has built up on Amazon's servers. Some of those items will be for obscure "long tail" items probably sold and shipped by third-party sellers on Amazon's Market Place. But a good portion of these orders will be for "A" SKUs – the relatively small proportion of the assortment that make up a significantly larger proportion of the sales. These SKUs will likely be housed in inventory at the local FC, about 15 miles away. Amazon's algorithms will then sequence the picking of these orders such that the neighborhood's morning shopping (and in fact yesterday afternoon's) flows off the packing line together and into the back of a Flex driver's mini-van. Once loaded, the driver heads out on their route and is making deliveries within say 20 minutes or less.

Do you see what happened there? Amazon just made a same-day delivery *simply because it was cheaper than any other option*. Amazon's scale will shortly allow them to deliver truly on Jeff Bezos' mantra of "lower costs, faster." Amazon is already doing this for some part of its assortment in some cities, but we anticipate that this system will be widely available within the next two to three years; otherwise, why would they have built out the fulfillment center network so close to the end customer?

STORES ARE THE ANSWER

Retailers need to respond to this "mass consumption" same-day threat, but not with the niche, premium-priced services they are mostly using now. If retailers fail to respond, then they will lose volume to same-day-capable retailers (starting with Amazon itself) since, all else equal, consumers will always choose the most convenient option.

Retailers could respond by building out their own dense networks of fulfillment centers, positioning inventory closer to the consumer, speeding delivery, etc. However, our analysis indicates that at nearly all competing retailers' current e-commerce scale, to do so would require substantially more inventory to be held across the system as a whole, driving much higher fixed costs and rendering the end-to-end network prohibitively costly. Note that the option of listing products on Amazon.com and leveraging their fulfillment network is economically unattractive for the same reason — the amount of inventory required to meet your service goals (i.e., fill rate, shipping time/cost etc.) will drive storage rental fees to unacceptable levels.

The solution for traditional retailers is to leverage the merchandise inventory and fixed costs already deployed in the market; in other words, the stores. Ship-from-store has been talked about for some time, but adoption to date has been spotty. We believe that the relative lack of enthusiasm among retailers stems from three main reasons. First, the direct costs of an in-store pick-and-pack operation are indeed higher than those of a large-scale fulfillment center, and the sometimes clumsy process is abhorrent to store managers incentivized on store sales and labor budgets. Second, inventory management is a challenge: Many stores' inventory accuracy is poor, and even if it's not, consumers in the store have an annoying habit of "interfering," increasing search and pick times and lowering fill rates. Finally, the savings on shipping costs for shorter shipping distances provided by the traditional delivery networks are relatively modest, so the end-to-end cost for ship-from-store is likely quite similar to a centrally fulfilled item that has been shipped much further.

> **"As same-day delivery becomes commonplace, they simply have no choice but to leverage their full network. Without leveraging the stores, Amazon will beat them on 'speed-to-consumer' every time."**

Nevertheless, we believe retailers must solve these problems. As same-day delivery becomes commonplace, they simply have no choice but to leverage their full network. Without leveraging the stores, Amazon will beat them on "speed-to-consumer" every time.

Solving these problems will require close collaboration between retailers, delivery networks, and technology providers. Retailers must lean-out their in-store pick-and-pack operations (including being willing to allocate adequate footprint within the store, position inventory appropriately, etc.). Technology providers must work with retailers to solve the inventory management challenges (perhaps leveraging emerging AI, sensor, and RFID technology for better forecasts, inventory/product tracking, etc.). And delivery companies need to design delivery solutions able to reliably provide short-range, same-day service at lower costs, likely leveraging crowd-sourced resources.

But the first step is to recognize the reality: Many retailers will soon be competing with the Fulfillment Center Next Door — a facility that provides extensive assortment to local consumers, incredibly fast at ever-lower cost. Daunting indeed.

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[1] PwC Strategy& estimates, represents volume sold by and/or fulfilled by Amazon

[2] PwC Strategy& estimates, assumes $1.70 base "fare" plus $0.95 per mile and $0.20 per minute, varying somewhat depending on the market

[3] PwC Strategy& estimates DFW MSA comprises around 2.5 million households, spread over ~9,300 square miles

Building Authentic, Long-Term Customer Relationships

Why interpersonal relationships are critical for a superior customer experience.

DORA BOCK Assistant Professor of Marketing, Auburn University's Harbert College of Business

With headlines frequently mentioning the "retail apocalypse," some traditional brick-and-mortar retailers are panicking. But despite these disturbing and attention-grabbing headlines, traditional retailing certainly is not dead. While online shopping is indeed growing, the majority of retail sales are still in stores, which should signal to retailers that the in-store customer experience is now more important than ever. Customers often shop with specific retailers because of their emotional attachment to the brand or because of the emotions they feel when shopping in a store. Gratitude — one emotion that can be elicited within the customer experience — is critical to building authentic, reciprocal, long-term customer relationships.

WHAT IS GRATITUDE, AND HOW IS IT ELICITED IN CUSTOMERS?

Within the retail context, customer gratitude occurs when a customer perceives they benefited from an employee's actions. That is, customers feel grateful when they perceive employees intentionally acted to improve the customers' well-being.

Research shows customer gratitude can result from employees engaging in extra effort and performing behaviors beyond their job responsibilities. Employees sharing important information with customers, such as product information, company objectives, or industry information, can also elicit gratitude.

Relatedly, interpersonal communication within employee-customer interactions is another factor promoting customer gratitude. Many customers walk into stores unsure of what they need. Employees who spend time with these customers explaining different products using terminology the customer can understand are setting themselves up for long-term success. The engagement of such employee behavior and sharing of information can send many positive signals to customers, including transparency, expertise, and benevolence, with the latter being critical to the generation of gratitude.

WHY IS GRATITUDE IMPORTANT, AND HOW DOES IT WORK?

Grateful feelings are linked with a desire to reciprocate, consequently leading to favorable, firm outcomes. Customers who feel grateful want to do something to return the favor. Interpersonal relationships are built upon reciprocity, and that is exactly what gratitude initiates — employees help customers in some way that elicits customer gratitude, and customers then want to do something in return to help the employee. As a result of these reciprocation cycles, customer gratitude is associated with increased customer loyalty and willingness to share positive word-of-mouth about a company and its employees, share of wallet, and sales revenue.

For decades, the focus has been on customer satisfaction and more general affective states, such as happiness. Certainly satisfaction continues to be important and tends to be correlated with gratitude. However, growing evidence is showing the subtleties of gratitude are meaningful in retail and service interactions, making these feelings equally important, if not more important, than satisfaction.

HOW DO EMOTIONS DRIVE CUSTOMER DECISIONS?

Emotions provide information to customers, who use their emotions to make decisions. If a purchase does not feel right, customers are not going to buy. Emotions often produce biased decisions; therefore — when experiencing positive emotions — customers are likely to make positive evaluations of a retailer and its employees.

The ability for emotions to influence judgments is heightened when the feelings are linked to the object being judged. Consequently, if a customer perceives an employee's behavior as beneficial, in turn creating customer gratitude, the grateful customer is likely to make positive judgments of the employee's or organization's character.

INTENTIONS MATTER FOR SUCCESS IN THE MARKETPLACE

One of the key factors driving customer gratitude is benevolent intentions, or the customer's perception that the employee's behavior occurred out of effort to improve the customer's well-being. This altruistic motivation manifests in employees engaging in behavior outside of their job responsibilities, the sharing of information or education of customers, and interpersonal communication.

Ace Hardware is a prime example of a retailer understanding the power of customer gratitude and the important role of employees. For 11 years in a row, Ace Hardware has been ranked as having the most satisfied customers among home improvement retailers, according to JD Power and Associates. Interestingly, much of this score is due to the retailer's employees offering a unique customer experience. Customers of Ace Hardware indicate the employees understood their questions and provided helpful advice — key behaviors eliciting customer gratitude.

Publix is another retailer understanding the science of positive employee-customer interactions. Publix employees quickly greet customers and, when asked about the location of certain items, often walk customers to the location of the item rather than stating "aisle 8." Moreover, the employees signal they are willing to help by offering to carry groceries to customers' cars, even in heavy rainstorms. Indeed, customers appreciate the additional effort put forth by Publix employees as the retailer continues to score highly on several customer experience surveys.

WHAT CAN RETAILERS DO TO BOOST GRATITUDE AMONG THEIR CUSTOMERS?

Retailers need to evaluate all possible customer touchpoints and identify the acts of kindness that customers might appreciate. Companies should not only evaluate what their employees are currently doing to elicit customer gratitude, but also evaluate what their employees could be doing and train them accordingly. After engaging in gratitude-eliciting behaviors, retailers can encourage customers to reciprocate by sharing their experiences on social media, providing WOM support, etc.

Moreover, expressions of gratitude need to be authentic. For instance, retailers within the bridal industry might thank customers for giving them the opportunity to be a part of this special time in their customers' lives. In making these changes to the customer experience, retailers are on their way to cultivating gratitude and building reciprocal, long-term customer relationships. R

5 Recommendations For Incorporating AI Into The Business

Artificial intelligence (AI) is not a silver bullet but is an important part of the future of retail.

ROBERT HETU Retail Research Director, Gartner

Retailers find themselves caught in a competitive battle royal as the existential crisis heats up to a fever pitch. Differentiation through a combination of services and products must be delivered to the individual customer across hundreds or thousands of locations and channels. Enter artificial intelligence, a gleaming machine that can solve all that ails retail. The hype around AI is palpable and so is the mystery associated with it. AI is not a silver bullet, but the technologies that typically comprise it should be part of the retail road map toward digitalization.

There are many evolving definitions of AI; for our purposes we will describe it as a set of technologies that can interpret complex data patterns, evaluate possible actions, and select and execute an autonomous solution. Technologies that are typically a part of AI include natural language processing (NLP), machine learning (ML), deep learning (DL), and deep neural networks (DNN). In retail we see opportunities for automating repetitive tasks and for fueling human creativity and innovation. Gartner predicts that by 2020, retailers will use AI to hone the accuracy of, and accelerate, human decision making well beyond current levels.

- Automation: Retailers will focus on many outdated and overly complex organizations at the headquarters level that are prime for intelligent process automation (IPA) and robotic process automation (RPA). In fact, Gartner recently predicted that by 2020, merchant leaders will become algorithms, prompting the top 10 retailers to cut up to one-third of headquarters merchandising staff.
    - We have already seen this coming to life with recent announcements from JC Penney and Macy's leveraging algorithms to drive merchandising decisions. Find a use case by identifying, optimizing, and automating labor-intensive and repetitive activities.
- Inspiring creativity: Retailers will focus on customer insights and an adaptive journey. Through natural-language processing and machine learning, AI systems can learn from the huge data created by customers, generating behavioral/usage insights and providing direction for product owners/retailers, which helps them gain a better understanding of their consumers and customizing their products, designs, and shopping experiences around unique user needs.
    - Chatbots and virtual personal assistants (VPAs): Retailers are striving to achieve a fully integrated, unified commerce presence, focusing on personalization and seamless customer experience with AI-powered solutions. Find a use case: Break paradigms and seek innovations across all areas, remembering that now all innovations require technology.

While AI is not a silver bullet, retailers must start exploring it, developing use cases, and preparing for a future in which AI will be an integral part of the business process. Here are a few recommendations on how to get started:

- Create a framework for use-case identification by identifying and targeting labor-intensive and repetitive activities
- Pilot a project immediately and use the lessons to develop a production AI function in 2018
- Incorporate safeguards to identify and prevent possible bias
- Create an environment conducive to continuous education
- Set explicit expectations that this is a learning process and mistakes will be made.

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Two Habits

Your Customers Want You To Give Up

Why superficial judgment and lack of passion will hurt sales.

DR. MARSHALL GOLDSMITH Professor of Management Practice, Tuck School of Business at Dartmouth

DR. MARSHALL GOLDSMITH is a Professor of Management Practice at the Tuck School of Business at Dartmouth. At the recent Thinkers50 ceremony in London, Marshall was recognized again as the World's #1 Leadership Thinker and #1 Executive Coach. His newest book, *Triggers*, is a #1 *New York Times* and *Wall Street Journal* best seller, as well as an Amazon Best Business Book of the Year.

Whether through coaching top executives or working with line managers or sales and service reps, I have come to the seemingly irrefutable conclusion that many of the habits that have brought you this far will no longer serve you going forward.

Following are two habits that are specific to retail and retail executives that often go unchecked and thus hurt sales and opportunities.

CURB QUALIFYING: THE TENDENCY TO SUPERFICIALLY JUDGE A PROSPECT'S MEANS AND MOTIVE FROM A DISTANCE.

It is a common practice across retail: Sometimes we're guilty of knowing all we need to know about someone simply by watching them "step over the curb" on their way in. They are still 40 feet away and haven't spoken a word, yet we make quick surface assumptions and act on them (or more often don't act). Many a sale has been stalled or broken by leading with incorrect assumptions based on what someone is wearing, what they're driving, the dirt under the fingernails, or the need to pass a comb through their hair. In most cases, the downside lies in underestimating the prospect based on appearance.

Remember the movie "Pretty Woman" in which Julia Roberts goes shopping on Rodeo Drive? She even tells the first store clerk "I have money, really," but it doesn't matter. She isn't dressed appropriately. She doesn't look like she should be shopping there. She is asked to leave. Later in the movie she walks past the same store loaded down with packages from up the street, stops in and asks the same clerk, "Are you on commission?" When the clerk replies — "Yes, I am" — Julia, barely able to contain herself, gets in the last word: "Big mistake!"

The solution is simple — even when we can't resist forming first impressions, we don't have to act based upon them.

WITHHOLDING PASSION: THE TENDENCY TO FORGET THAT PEOPLE DECIDE BASED ON EMOTION AND LATER JUSTIFY THAT DECISION BASED UPON LOGIC.

You believe in what you represent, right? Your product or service offering is very much a part of your personal identity. As a matter of fact, you probably live it — and you love it. With this kind of visceral commitment to the value that you bring to the lives of your customers, why is it that some customers find your presentation of self to be flat — seemingly mechanical, uninterested, or even indifferent?

There are countless reasons why we might tend to withhold passion in our interactions with customers or prospects. It might be that our prospects come to us, for example at retail, in such a way that sometimes we're overwhelmed. It might be that we've sold the same items or services to the same kinds of people for a long, long time. It might even be that certain individuals might not only drain your passion but also suck the very life out of you!

That's why it's called work — physical or mental effort or activity directed toward production or accomplishment; labor, or toil. There are a million things that can draw down our reserves, and it's often a lot easier to fix what's wrong than it is to figure out how things got screwed up in the first place. In fact, let's put a stake in the ground — it doesn't matter why we withhold passion in our interactions with others.

What matters is the understanding that about 80 percent of the time people make decisions based on their emotions; logic might be the tipping point in only about 20 percent of purchase decisions. And let's take it one step further; one Harvard scholar posits that not only are the purchase decisions emotionally based, but also they are caused by subconscious motivation 95 percent of the time. Given that theory, in only 5 percent of purchase decisions is a prospect's behavior based on rational thought.

Passion — a powerful emotion or appetite; boundless enthusiasm; an abandoned display of emotion, fervor, zeal, or ardor. Of course, unbridled displays of passion don't always work within a sales setting, nor are they always appropriate — but passion is a catalyst for rapport and empathy. Can you afford to withhold passion at work? You decide. R


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