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Omichannel retailers are rapidly adapting to new customer needs that are evolving with breathtaking speed. In 2020 alone, the pandemic forced retailers to respond to customer needs they didn't have to address before, such as:

- "Will the in-store experience be safe?"
- "How does interacting with store associates work in-person?"
- "Do I really need to visit the store at all?"

In addition, we saw dramatic surges in demand for products ranging from toilet paper to puzzles as people adapt to extended periods of living in isolation and distancing. These behaviors created unpredictable surges in demand, leading to widely reported product shortages and delivery delays. Even the masters of the on-demand retailing faced shortages. That's because supply chains everywhere were being rocked – and still are. According to a McKinsey survey, 85 percent have struggled with insufficient technologies to support the supply chain. Decision makers lack real-time visibility into changes in demand. They're usually working off forecasting models created before the pandemic changed everything.

There's good news, though: retailers don't need to throw away old ways of working. By adopting an intelligent and adaptive digital fabric, they can become more responsive to customers, make their supply chains smarter, and reimagine retailing – all without needing to overhaul their existing

information technology infrastructure.

The Challenge: Disconnected Data

Many retailers have accumulated vast storehouses of customer data, and they're getting better at turning that data into insight. But retailers are not moving quickly enough. The problem is that those vast storehouses of customer data still don't talk to each other as quickly and effectively as they could. A room full of data scientists cannot work fast enough to analyze reams of customer data and detect patterns of behavior quickly enough to anticipate and respond to consumer buying behavior – say a surge in purchases of lemon-scented cleaning wipes made at specific times of day pinpointed to the region and store level. Lacking scale and speed, retailers are missing opportunities to know their customers better and to offer the right product at the right place and time.

But with an intelligent and adaptive digital fabric, data scientists don't need to do the heavy lifting. Instead, AI-based computer technology applies machine learning to ingest all that customer data and spit out myriad outcomes. If done correctly, a business can get a quick and comprehensive overview of the entire business in real time. It's still up to a human being to decide how to use that data in service of the customer. But decision makers can act faster and with better insight.

For instance, a retailer armed with an intelligent and adaptive digital fabric can see in real-time a surge in purchases of 60-watt lightbulbs at its Atlanta Buckhead store – not only the data itself but the context behind the data. Is this surge a one-time occurrence that is unlikely to repeat itself -- in which case the need to restock the lightbulbs becomes less urgent; or is this happening over a period of days, and, if so, what time of day? And if a restock is needed quickly, are the Buckhead store's employees being alerted in real-time, too?

An intelligent and adaptive digital fabric goes beyond reporting a single data point in real time. Instead, omnichannel retailers quickly understand patterns of data (intelligence) to not only react but anticipate what customers need at different stores. With the help of machine learning, a retailer creates a data fabric that:

- Connects cross-functional teams within the organization, such as Sales, Revenue Management, Finance, and Operations. A common data model connects disparate data systems. A retailer unifies data sources such as market data and CRM to accelerate decision making from large strategy initiatives like the annual operating plan to urgent decisions based on acute events in the market.
- Integrates artificial intelligence and machine learning to improve the efficiency and accuracy of functions such as trade promotion. The retailer ties AI and machine learning algorithms to workflows to ensure forecast accuracy, pricing optimization, and invoicing settlements. (Looking at trade promotion alone: Centific clients can safely automate 80 percent of the entire trade promotion management process within a set of predefined parameters that can be validated by account sales.)
- Helps the retailer create elegant experiences centered on the customer, ranging from in-store promotions to better curbside pick-up.

Once implemented, an intelligent and adaptive digital fabric helps retailers improve in three key areas:

1 Know Your Customer

The better and faster a retailer can interpret customer purchase data, the better and faster the retailer can anticipate and respond to what customers want – down to the customer level. Let's say a home improvement store notices a customer's pattern of purchases all connected to a bathroom – perhaps a new vanity mirror, faucet, or shower fixture occurring on separate days. An intelligent and adaptive digital fabric makes it possible for the retailer to predict that the customer is working on a bathroom improvement project. With that insight, the retailer can suggest to the customer products that the customer didn't even know they needed – such as a counter top that could improve the value of a home considerable. In addition, the retailer might suggest a tool that the customer didn't think about, such as a stud finder or gloves.

The right intelligence uncovers customer *intent*. Anticipating and addressing that intent builds customer loyalty.

2 Make the Supply Chain More Intelligent

As noted, one of the problems the pandemic exposed is that supply chain managers were relying on historical data about consumer demand that pre-dated 2020. And that data has failed supply chain managers in a year when consumer demand for products ranging from board games to bathroom tissue has unexpectedly surged. This is why next-generation supply chains need an intelligent and adaptive digital fabric. Supply chains supported by artificial intelligence that senses and responds to real-time data, not historical data, needs to replace supply chain technology as we know it today. When retailers get real-time insight into consumer purchasing behavior, they can respond in more agile fashion – not only in how they stock products but also in how they price them. Agile supply chains result in more responsive trade promotions both in store and online. Agile supply chains that sense and respond to consumes also support more personalized service.

The example cited earlier of the retailer monitoring a surge in lightbulb purchases relies on an intelligent supply in action. In this case, the key is for the supply chain to:

- Monitor real-time customer purchase data, not data from a year ago.
- Report that data in real-time to the retailer.

Real-time data and real-time visibility: they're both essential outcomes of a more intelligent supply chain.

3 Reimagine Retail

It's not difficult to see how an intelligent and adaptive digital fabric can reimagine retail. Forward-thinking retailers such as Amazon and Walmart already are.

Amazon anticipated the rise of friction-free retailing and launched its Amazon GO stores in 2018. These stores famously combine a palm-reading biometric identification system with in-store cameras and sensors to make it possible for shoppers to check in, purchase, and check-out without needing to interact with a person or a machine. Typical Amazon GO stores are small, though. Walmart is now piloting an Amazon GO approach on a much more ambitious scale: **large Walmart stores spanning 50,000 square feet.**

In addition to making the customer experience friction-free, Walmart is using AI to more effectively replenish inventory. The in-store cameras notify store associates when a product needs restocking or if a product has been sitting on the shelf too long.

Walmart **explained on its own website** that the combination of cameras and real-time analytics automatically trigger out-of-stock notifications to internal apps that alert associates when to re-stock. To pull this off, the store needs to automatically:

- Detect the product on the shelf.
- Recognize the specific product (meaning, decipher the differences between 1 pound of ground beef and 2 pounds of ground beef).
- Compare the quantities on the shelf to the upcoming sales demand.

As a result, associates won't have to continually comb the store to replace products running low on the shelves. They know what to bring out of the back room before customers show up – thus sensing and responding to customers rather than reacting.

What Retailers Should Do Next

To get started, we suggest:

First assess what your pain point is. Are you trying to reduce customer churn? Reduce returns? Improve the quality of curbside pick-up?

Develop an agile plan to develop an intelligent and adaptive digital fabric. We strongly suggest a crawl-walk-run approach that breaks down development into smaller test-and-learn stages. Most retailers are too complex to go from zero to 100. There are too many stores to manage and too many employees to train. It's better to break down a change like this into manageable chunks.

Adopting an intelligent and adaptive digital fabric is not an either/or choice. Retailers can build off their existing data infrastructure rather than replace it. If you need to improve your loyalty program with an intelligent and adaptive digital fabric, you don't need to build your loyalty program from scratch. Consider an intelligent and adaptive digital fabric as a layer that improves your existing technology by connecting strands of customer data and delivering insight in real time. To learn more, **contact** Centific.

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