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HOW MODULAR TECH HELPS RETAILERS STAY AGILE AND RESILIENT WHILE INNOVATING

SPEAKERS

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Retailers across segments — specialty, hospitality & food service, and convenience — are under increasing pressure to innovate quickly while staying nimble in the face of evolving consumer expectations and operational complexity. In this dynamic environment, time is always of the essence, and 44% of retailers prioritize faster rollouts of in-store tech, according to research conducted by Incisiv in collaboration with Toshiba.

In a recent Toshiba- and Intel-sponsored Retail Dive webinar entitled *"Break the Mold: How Modular Tech Sparks Fearless Retail Innovation,"* retail commerce and technology leaders Mariya Zorotovich, general manager of consumer industries at Intel Corporation and Fredrik Carlegren, vice president of marketing & communication at Toshiba Global Commerce Solutions delved into the evolving role for technology in helping retailers boost agility and resilience.

They discussed:

- How industry trends and retailers' pain points are accelerating the need for adaptable, modular systems
- How Toshiba and Intel's collaborative approach supports optimal construction, simplified service, and future-ready design
- How retailers in specialty, convenience, hospitality, and food service are building tech stacks that balance the needs of today with the goals for tomorrow

MODULARITY: THE KEY TO REIMAGINING THE RETAIL TECH STACK

Amid rapid shifts in technology trends and consumer preferences, retailers know they need to be “ready for anything” to succeed in today’s market.

“Retailers are dealing with a challenging environment: Not only to always focus on those ever-changing needs or demands of the customer, but to adapt to new cost constraints or skills shortages within the talent market,” said Zorotovich. “This is where you see forward-thinking retailers investing deeply in capabilities that will become the differentiators for their brand and for service.”

Increasingly, they’re shifting away from monolithic, relatively inflexible tech stacks and seeking out modular solutions that can power that agility. Modular components are technologies that can be reused in different ways, said Carlegren, and they’re also designed to be compatible with other technologies — including, but not limited to, other modular solutions within the same ecosystem. As a result, modular solutions allow retailers to more easily “mix and match” technologies to meet their evolving needs.

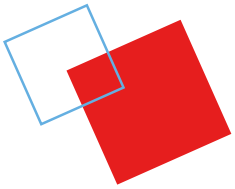
A retailer looking to deploy new computer vision use cases, for example, can plug in product identification or loss prevention technologies, whether it's adding other sensors to shelves or in-aisle to boost real-time inventory visibility, without the upfront capital required to rip and replace entire monolithic solutions within their tech stack.

The advantages of modular technology:

- **Greater agility**, as retailers can deploy new modular technology on an as-needed basis, without the IT lift and capital expense of a new end-to-end system
- **More flexibility** to adapt the tech stack to the unique needs of the organization, as well as the unique needs of individual retail locations (e.g. flagship store vs. pop-up vs. boutique)
- **Little or no vendor lock-in**, since retailers can select brand-agnostic modular technologies and curate their tech stack with best-in-class solutions

The impact on retailers:

- **Faster time-to-market** as retailers can “plug in” and roll out modular technologies
- **Less financial risk** as companies can invest in — and measure ROI from — incremental improvements rather than large-scale replacements



ALSO MISSION-CRITICAL: A STRONG DATA STRATEGY

While selecting flexible modular technologies is key to staying agile, Zorotovich and Carlegren both emphasized the importance of an innovative data strategy to maximize ROI.

"You need to ask yourself: What is the bigger data strategy? A critical piece to [deploying modular solutions] is having a plan for the data you'll unlock by integrating different modular technologies into your tech ecosystem. It's not just about the experience you're looking to deliver and the system you're using to enable it, it's about leveraging the insights you'll gain from that data," Zorotovich shared.

Facial recognition technology could unlock new opportunities for personalization — for example, by making upsell recommendations at checkout or informing future promotional communications. But only if it's able to integrate with the organization's CRM or other datasets. As a result, robust integrations across modular technologies provide their own value-add to the organization, said Zorotovich, further boosting ROI.

LOOKING AHEAD TO THE AGE OF AI

Finally, Zorotovich and Carlegren shared key technological innovations on the horizon and discussed the potential for AI to help retailers unlock further innovation. Overall, Zorotovich points to the trend of leveraging online and mobile datasets to enhance the in-store experience.

"Stores have traditionally been data-starved, but technological innovation is creating new opportunities to capture data signals and use the data in real time to provide a better customer experience," she said.

Key technologies to watch:

Agentic AI

Agentic AI tools are technologies that can perceive and analyze their environment, then take action without the need for manual intervention. Carlegren pointed to agentic AI as an exciting tool to deepen relationships with loyal customers and enhance the customer experience.

- **Example:** Facial recognition software perceives a shopper approaching a locked retail locker → Identifies the shopper as a loyal customer → Unlocks the retail locker for uninterrupted shopping.
- **Example:** Customer scans a discounted food item nearing its expiry date during self-checkout → Agentic AI detects the expiry date and adjusts the price accordingly → Customer can continue self-checkout without the need for a manual price adjustment.

Generative AI (GenAI)

Access to GenAI can help enhance the customer experience, says Zorotovich. For example, GenAI tools within self-service kiosks can help shoppers find detailed product information and inventory levels. Or, when accessed from an associates' device, these insights can power more helpful interactions with customers.

True edge computing

As innovative tools like AI expand what's possible, hardware and software innovations can help retailers reduce latency when deploying modular tech, explained Carlegren. "True edge computing is becoming a game changer in this space," he said. "The opportunity to eliminate latency in some of these use cases transforms how associates or customers interact with your tech."

TAKING A STRATEGIC APPROACH TO MODULAR TRANSFORMATION

Finally, Zorotovich and Carlegren shared the importance of taking a holistic approach to innovation — one that aligns investment closely with business objectives in order to deliver value.

"We understand that retailers are going to make decisions based on their own business situation and requirements, and you don't go from monolithic to modular overnight," said Carlegren. "So it's about taking things one step at a time and looking at how we can start putting modular solutions in place to move them forward."

Zorotovich recommended starting with an unflinching look at the organization's priorities — and the ability of your current tech stack to support them. "Understanding your key strengths as an organization helps you identify the capabilities you'll truly need to create core differentiation for your brand."

In-store assessments can play a pivotal role in identifying opportunities for innovation, advised Carlegren. These assessments can help retailers identify points of friction across the experience and the operations sides of the location, and help leaders identify incremental capabilities that are in play that should be part of the roadmap, he said.

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THE BOTTOM LINE

The retail landscape is changing rapidly, and so is retail technology.

"The industry is moving in a direction where you need to be able to do more with less, get more incremental value from your investments and really think critically about how you solve the core challenges of the day, whether that's labor shortage, shrink or something else entirely," said Carlegren. "A modular mindset allows you to conduct the experimentation you need to drive value for the business and get to your end point more efficiently."

For more insights

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