

IoT+AI in Retail

“Creating Unique Experiences Through Innovation”

Brick & mortar retailers are strapping on the “tech” gloves
Fall 2022

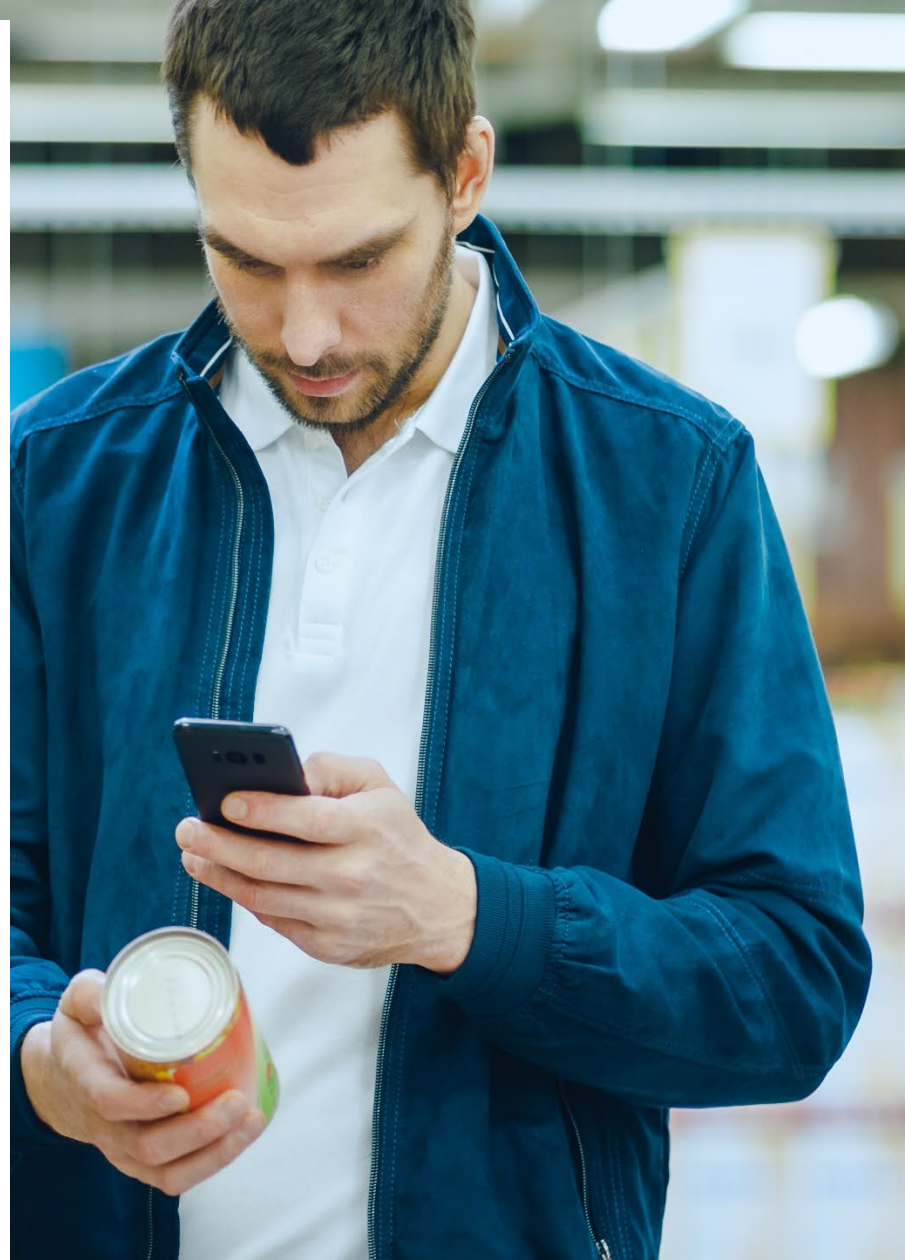


IoT+AI in Retail

Brick & mortar retailers are strapping on the “tech” gloves

Dramatic declines in consumer foot traffic and rising operational costs have punched brick & mortar retailers straight to the gut, leading to the increase in “Going Out of Business” signs in store windows across America. Who can blame consumers for opting for the “smiling” boxes speedily delivered ‘same day’ to their doorsteps over the all-to-common brick & mortar experience filled with inventory shortages and painfully-long price checks called in by fewer and fewer overworked cashiers. It’s also hard to blame any retailer for turning off the lights when trying to keep employees from chasing the next dollar in a hyper competitive labor market while dealing with disruptive supply chain issues and seemingly uncontrollable shrinkage.

Smart brick & mortar retailers are fighting back and driving traffic back into re-invented stores outfitted with IoT+AI solutions. These technologies are fundamentally altering retail operations in ways that dramatically increase store efficiency, drive more productive, happier store staff, and create a better, more personalized shopping experience for customers. From cloud-based planogram management and spot inventories completed by computer-vision shelf scanning to cashier-less checkouts to the metaverse melding the online and in-store shopping experiences, the excitement around IoT+AI is driving significant investor interest back into physical retail.



IoT+AI is Rapidly Transforming Retail

Retail technology is moving from working in silos with limited cross function to automating end-to-end retail operations and altering the customer experience. Retailers are implementing AI-enabled IoT technology to collect data on customer consumption habits, manage inventory levels, enhance product placement, and dramatically alter the customer experience. As brick & mortar retailers make the shift to integrated IoT and AI technologies, a whole new shopping experience is becoming available to consumers.

Where we are



Retail technologies working in silos with significant dependence on store staff to complete primary functions



Lack of availability of real-time customer preference data restraining store manager decision making



Inventory data gathered by staff with barcode scanners walking the aisles



Omnichannel structure that allows consumers to browse both the online and physical store channels

Where we are going



Integrated IoT, AI, and ML technologies to automate retail operations efficiently



AI-enabled IoT solutions generate real-time insights around customer buying preferences



Robots and image recognition monitor inventory levels, predict demand, and insure adherence to planograms



The metaverse blurs the boundaries between the online and in-store shopping experiences

Retail Before Implementing IoT+AI

Brick & mortar retailers have seen decreased foot traffic and customer loyalty in recent years as the in-store shopping experience has fallen behind online shopping in important ways. Combine this with spiking increases in labor costs and supply chain challenges, many retailers are coming to the realization that the traditional retailing operating model and customer experience has to change.



Faulty Planogram:

The misplacement of products on store shelving leads to confused shoppers



Long Checkout Lines:

Poor operational efficiency leads to longer wait times for customers



Unfriendly and Overworked Staff:

Staff are overwhelmed and do not provide a quality customer experience



Incorrect Pricing:

Shoppers are irritated with the mispricing of products due to human error



High Labor Costs:

Required staffing levels result in high operating costs, pay levels for hourly employees skyrocket



Shrinkage:

Shoplifters impact retailers by reducing inventory, decreasing revenue, and increasing prices to deter shoplifting

Retail IoT+AI in Action

Emerging IoT+AI technologies are poised to reinvent the in-store retail world by streamlining operations and redefining the customer experience. From deeper visibility into supply chains and inventory management, to more efficient deployment of smaller in-store employee teams, retail operations are being transformed. The customer is the ultimate beneficiary of this revolution in retail technology. Not only will recent pain points be eliminated but the in-store experience will be smoother, personalized, and faster.

Automated In-Store Operations



Computer vision and cloud-based image recognition solutions allow retailers to monitor store inventory and adhere to the planogram



Robots automate audits, avoid under or overstocking, analyze price accuracy and planogram compliance, and optimize staff utilization



Self-checkout or frictionless retail automates billing processes, enabling store managers to optimize staff utilization



Enhanced In-Store Customer Experiences







RF sensors placed throughout the store provide real-time consumer behavior pattern analysis, helping store managers optimize product placement and provide customized offerings to individual customer preferences



Smartphone-based applications and automated POS systems enable customers to learn more about products, receive special offers, and pay for goods

Select Technology Use Cases in the Retail Space

Technology providers are continuously upgrading their portfolios to capitalize on growing demand for technology in retail. These providers are just a few of the innovative companies focusing on further developing the smart retail market. IoT and AI providers are focusing on implementing solutions to further drive efficiency within brick & mortar stores that will reduce operational costs while positively increasing the customer experience.

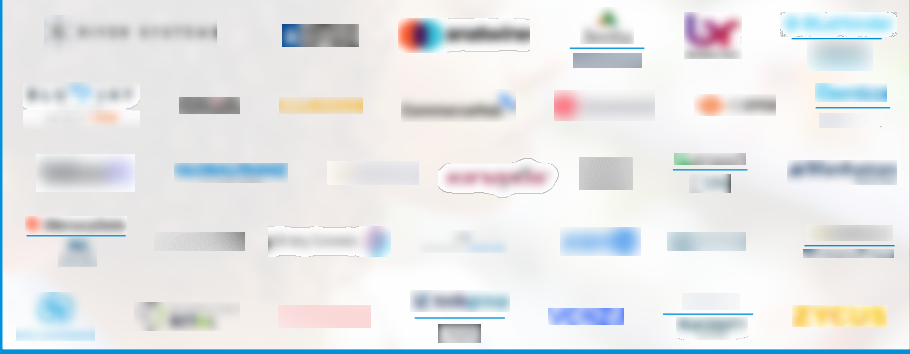
 <p>Intelligent Automation Solution</p>	 <p>Self/Cashier-Less Checkout</p>	 <p>Smart Cart</p>	 <p>Smart Dressing Room</p>
<p>Zebra's SmartSight</p>	<p>Vision Group's InstaGnG</p>	<p>A2Z's Smart Retail Cart</p>	<p>MySizeID's Smart Mirror</p>
<p>Intelligent robotic solution that enables retailers to automate store operations</p>	<p>Transforms coolers and kiosks into an automated vending solution using edge AI based image recognition and its IoT platform</p>	<p>Enables self-checkout with on-cart payment systems and offers customized promotions catered towards customer buying behavior</p>	<p>Interactive, mirror-like touch displays that provide size recommendations and offers contactless checkout</p>
<p>Integrated Technologies: IoT, computer vision, AI, and ML</p>	<p>Integrated Technologies: IoT, computer vision, and AI</p>	<p>Integrated Technologies: AI, edge computing, and computer vision</p>	<p>Integrated Technologies: AI and IoT</p>
<p>Benefits:</p> <ul style="list-style-type: none"> Automates shelf audit Avoids under or overstocking of products Analyzes price accuracy and planogram issues Optimizes staff utilization 	<p>Benefits:</p> <ul style="list-style-type: none"> Reduces shrinkage and staffing costs Improves customer experience Increases sales opportunities 	<p>Benefits:</p> <ul style="list-style-type: none"> Helps customers avoid long checkouts Customizes offers and advertisements to individual customer behaviors Anti-fraud system that controls shoplifting 	<p>Benefits:</p> <ul style="list-style-type: none"> Improves the customer experience Integrated with third-party POS systems Offers style and size recommendations based on inventory availability and shopper preferences

IoT+AI in Retail Landscape

KPMG CF is in regular dialog with leading global IoT and AI providers as well as emerging companies bringing new technologies and introducing unique business models. For a deeper discussion on these spaces and the companies participating, let's schedule a call.

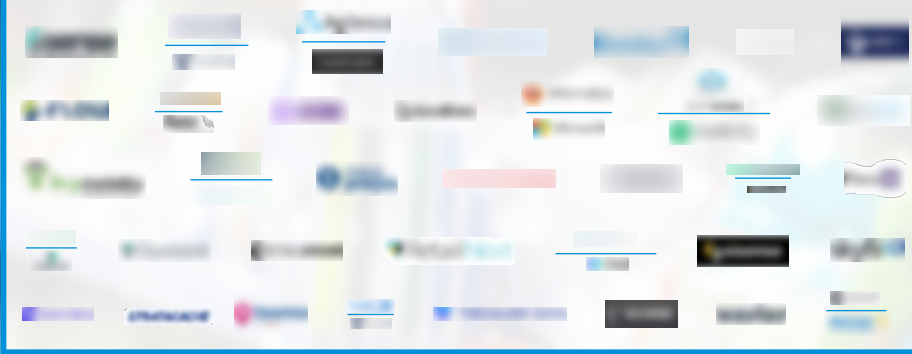
Supply Chain Management

6 River Systems BlueYonder opentext project44



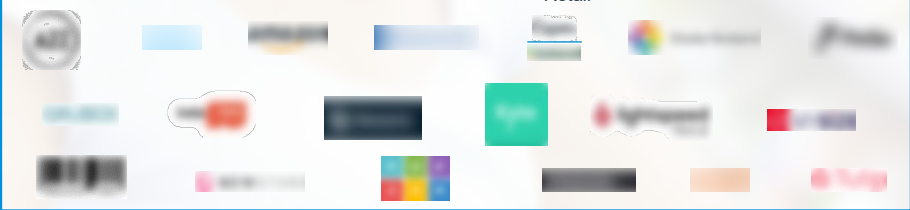
Retail Analytics

6sense Maxerience MicroStrategy RetailNext TIBCO



Smart Checkout

amazon FinGo lightspeed Retail Standard Ai



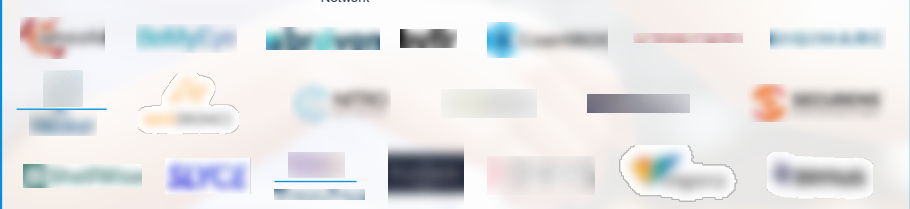
Inventory Management

Antuit.ai bossanova CIN 7 ZEBRA TECHNOLOGIES



Smart Image Recognition

DIGIMARC NITRO Network trax XOVIS



Retail Workforce Management

Jolt Reflex's WorkJam Zipline



Recent IoT+AI in Retail M&A Activity

The M&A market has been flourishing as retail giants and private equity firms strategically invest in technology providers implementing IoT and AI solutions that streamline the operational efficiency of neighborhood brick & mortar stores.

<p>BeMyEye</p>	<p>Digital Alpha Advisors</p>	<p>Instacart</p>	<p>Cuadrilla Capital</p>
<p>Acquired</p>	<p>Acquired</p>	<p>Acquired</p>	<p>Acquired</p>
<p>Metaliquid</p> <p>Provides AI-enabled video and audio analysis and data discovery SaaS for the retail sector</p>	<p>DTiQ Technologies</p> <p>Provides AI-based video intelligence, analytics, and surveillance and loss prevention SaaS</p>	<p>Caper AI</p> <p>Offers AI-based autonomous integrated retail systems</p>	<p>Agilence</p> <p>Provides AI-based retail data management and analytics SaaS</p>
<ul style="list-style-type: none"> • May-22 • Deal metrics not disclosed 	<ul style="list-style-type: none"> • Dec-21 • Total Deal Amount: \$200M 	<ul style="list-style-type: none"> • Oct-21 • Deal metrics not disclosed 	<ul style="list-style-type: none"> • Oct-21 • Deal metrics not disclosed
<p>“Leveraging Metaliquid’s real-time Computer Vision capabilities will take our clients’ in-store execution to the next level, significantly boosting their market share.”</p>	<p>“The use cases of IoT solutions and intelligence to help DTiQ customers are unparalleled. Digital Alpha brings key expertise and supportive capital and we are pleased to support DTiQ and its customers.”</p>	<p>“We’re excited to bring Caper’s leading smart carts and smart checkout platform to more retailers around the globe, as we all reimagine the future of grocery together.”</p>	<p>“Retailers continue to be faced with lower asset turnover, higher costs and more competition than ever before, and are accelerating digital adoption to navigate this challenging operating environment.”</p>
<p>Luca Pagano, CEO, BeMyEye</p>	<p>Rick Shrotri, Founder, Digital Alpha</p>	<p>Fidji Simo, CEO, Instacart</p>	<p>Eric Hinkle, Operating Advisor, Cuadrilla</p>

Recent IoT+AI in Retail M&A Activity

































Retail giants are racing to implement IoT+AI technologies to develop a unique shopping experience for their customers and build brand loyalty. Strategic private equity investors are contributing to the growth of the IoT retail market and are looking forward to the societal adoption of a shopping experience that efficiently implements AI, IoT, and ML.

Nordic Capital	Zebra Technologies	Walmart	Humai Technologies
Acquired	Acquired	Acquired	Acquired
ProGlove	Antuit	Zeekit	Slyce
Provides IoT-based wearable and wireless barcode and RFID scanners for retail and e-commerce	Provides AI-based merchandising and planning SaaS for retailers	Provides virtual fitting rooms that allow shoppers to virtually try clothes	Provides white-label product image recognition and related applications
<ul style="list-style-type: none"> • Apr-22 • Deal metrics not disclosed 	<ul style="list-style-type: none"> • Aug-21 • Deal metrics not disclosed 	<ul style="list-style-type: none"> • May-21 • Deal metrics not disclosed 	<ul style="list-style-type: none"> • Nov-20 • Deal metrics not disclosed
<p>“ProGlove is a technology leader with strong competitive differentiation and a unique customer value proposition to enable smooth human-machine collaboration.”</p> <p>Andreas Nasvik, Partner, Nordic Capital Advisors</p>	<p>“Through its synergies with our retail store execution portfolio, the acquisition of antuit.ai will further drive our ability to bring the power of AI to our customers.”</p> <p>Anders Gustafsson, CEO, Zebra Technologies</p>	<p>“With the team’s expertise in bringing real-time image technologies, computer vision and artificial intelligence to the world of fashion, we’ll identify even more ways to innovate for our customers.”</p> <p>Denise Incandela, EVP of Apparel and Private Brands, Walmart U.S.</p>	<p>“ROI is immediate and measurable for the automotive and home improvement retailers that Slyce has a history of working with. We have formed a team that can achieve anything.”</p> <p>Philipp Descovich, CEO, Humai</p>

We Are One of the Most Active M&A Advisors in IoT+AI

The IoT sector team at KPMG Corporate Finance has become one of the most prolific M&A advisors in IoT+AI, having closed more than 20 M&A transactions. Through deep IoT+AI domain experience and global reach, our team has become a preferred advisor to industry leaders, financial sponsors, and emerging innovators alike.

Representative Transactions*

Active	 	 	 	 	 
Project Marina	Project Kent	Project Royal	Transaction Not Announced	iKIOSK <small>Information Systems</small>	
Sale of an cloud-based software automation solution for the consumer goods end market	Sale of an IoT-enabled AI digital transformation company for the retail end market	Sale of an IoT software solutions provider enabling tracking and monitoring of high-value assets	Advised on the sale of a vending management software company	has been acquired by POSIFLEX	
Retail Software			Retail Software	IoT / Automated Retail	
Active	Active	Active	Active	Active	
 	 	 	 	 	
365 retailmarkets	ACD TRADE DiversiTech	Cognizant	Ubisense	OSRAM	
has been acquired by  McCarthy Capital	a portfolio company of PERMIRA has been acquired by BEIJER REF	has been acquired by  Industrial IoT	has sold its Smart Space division to INVESTCORP	has divested LEDVANCE to IDG资本 MLS	
Point of Sale Retail Platform	IoT / Smart Building	<i>Technology Deal of the Year</i> <i>M&A Atlas Award</i>	Industrial IoT	Smart Lighting	
Active	Active	Active	Active	Active	
 	 	 	 	 	
TRS Technologies	CLIFFORD THAMES	3M	matrix <small>TELEMATICS</small>	Talis <small>CLINICAL™</small>	
has been acquired by TAYCA CORPORATION	has been acquired by OECConnection* a portfolio company of PROVIDENCEEQUITY	has divested its Smart Traffic and Tolling Technologies business to NEOLOGY	has been acquired by BRIDGES <small>Fund Management</small>	has been acquired by GETINGE	
Sensor Technologies	IoT / Connected Car	IoT / Smart Traffic	IoT / Fleet Management	Healthcare IoT	

*Represents the global Corporate Finance practices of KPMG International's network of independent member firms.

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