

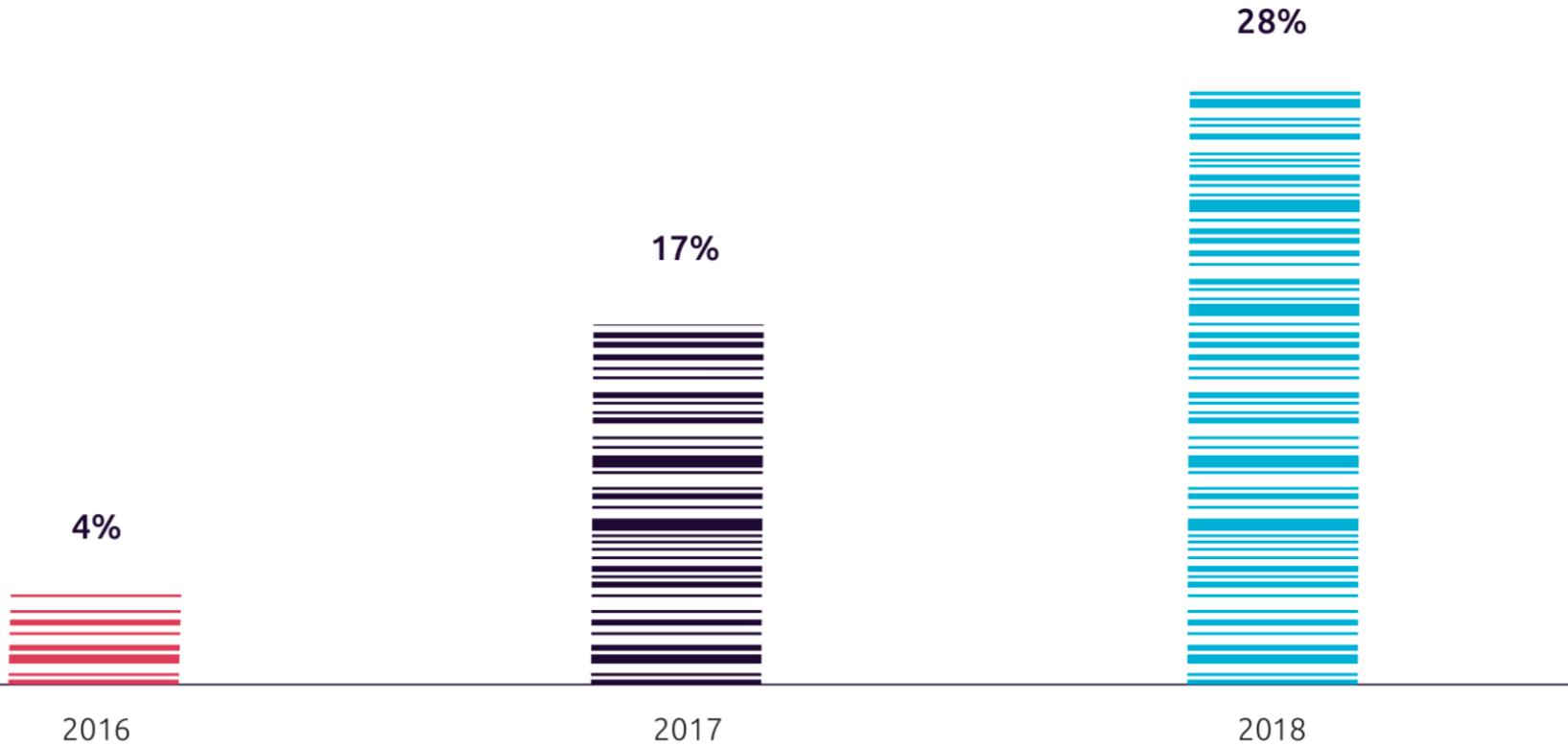
AI for Retail

“As of 2018, 28% of retailers are utilizing AI in some form, a 600% increase compared to 2016.”

“About 26% of AI technology in retail directly interacts with customers – the remaining 74% is being used for operations tasks.”

By 2023, an estimated 95% of supply chain vendors will rely on AI learning.

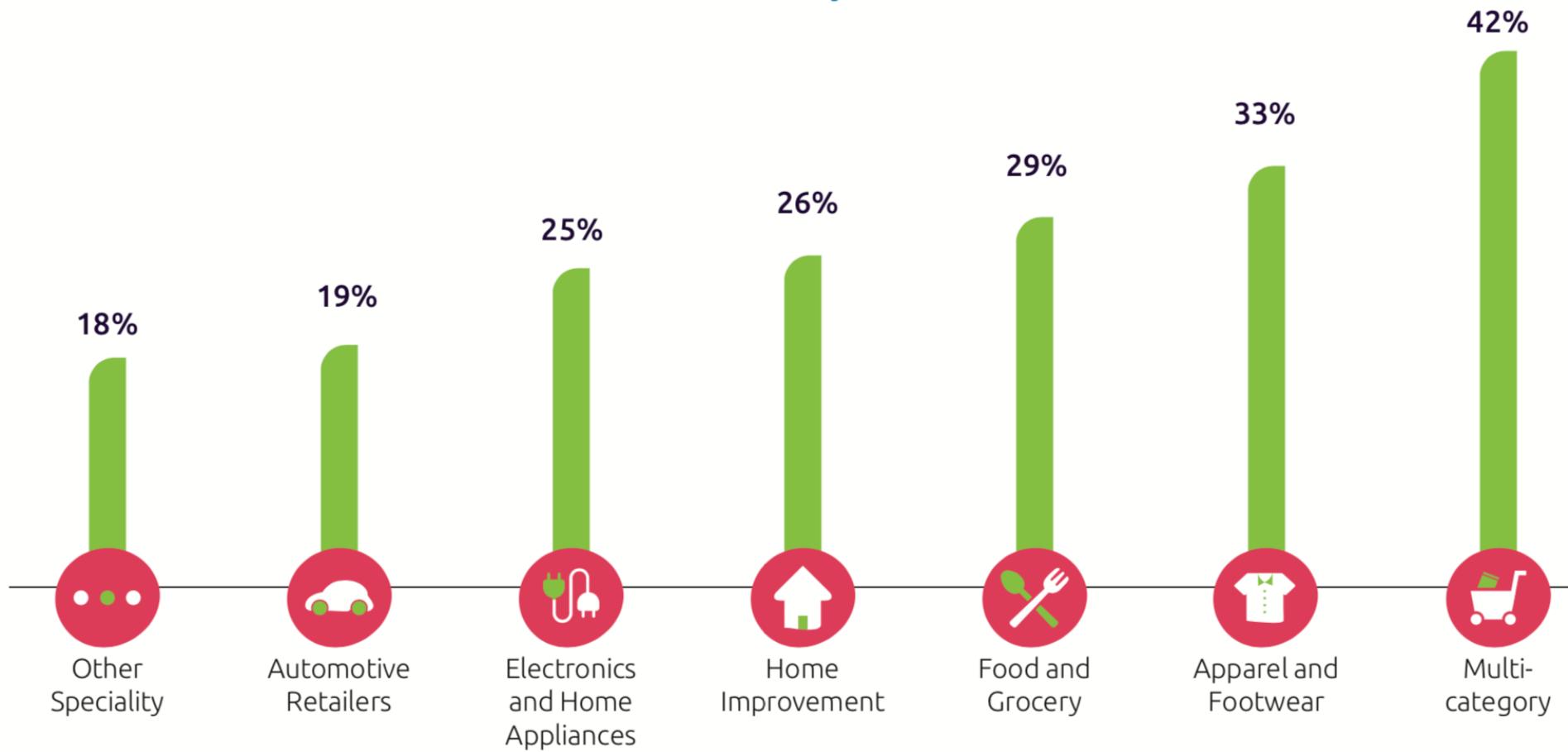
Number of Retailers Working on AI



Note: These are retailers that are working on AI at any stage of maturity: pilot, multi-site deployment, and full-scale deployment.

Source: Capgemini Research Institute analysis; Analysis of Top 250 retailers based on 2017 revenue from Bloomberg, October 2018.

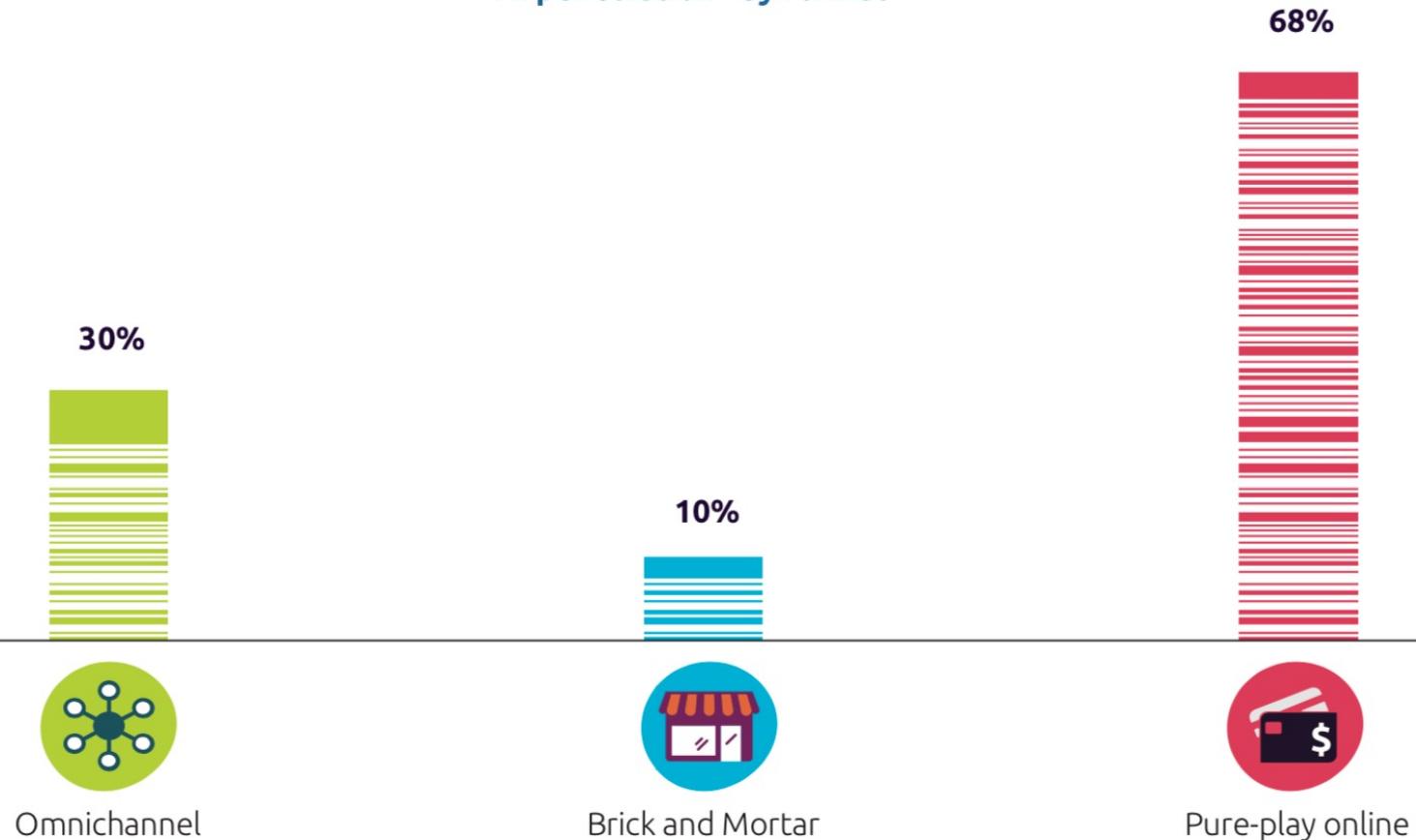
AI Penetration-By Subsector



Note: AI penetration represents the share of retailers that are working on AI at any stage of maturity – pilot, multi-site deployment, and full-scale deployment in the respective subsector.

Source: Capgemini Research Institute analysis; Analysis of Top 250 retailers based on 2017 revenue from Bloomberg, October 2018.

AI penetration - by format



Note: AI penetration represents share of retailers that are working on AI at any stage of maturity – pilot, multi-site deployment or full-scale deployment in the respective format.

Source: Capgemini Research Institute analysis; Analysis of Top 250 retailers based on 2017 revenue from Bloomberg, October 2018.

THE CUSTOMER VALUE: EMPOWERING PERSONALIZED & INFORMED SHOPPING

“53% of customers will abandon an online purchase if they can't find a quick answer to their questions. AI powers presales services to educate buyers, minimizing purchasing errors and buyer's remorse.”

*How AI Will Transform Customer Service.
Forrester, 2017*

70% of U.S. millennials appreciate a retailer using AI tech to show more interesting products.

Frontierless Retail. JWT Intelligence, 2016

By 2019, about 40% of retailers will develop a customer experience architecture supported by AI, with such platforms providing up to a 30% conversion increase and a 25% revenue bump due to hyper-micro personalization.

IDC Retail Insights. International Data Corporation, 2016

“Brands that create personalized experiences by integrating advanced digital technologies and proprietary data for customers are seeing revenue increase by 6% to 10%—two to three times faster than those who don't.”

*“Profiting From Personalization.”
Boston Consulting Group, 2017*



85% of retail and 79% of consumer products companies plan to be using intelligent automation for supply chain planning by 2021



79% of retail and consumer products companies expect to be using intelligent automation for customer intelligence by 2021



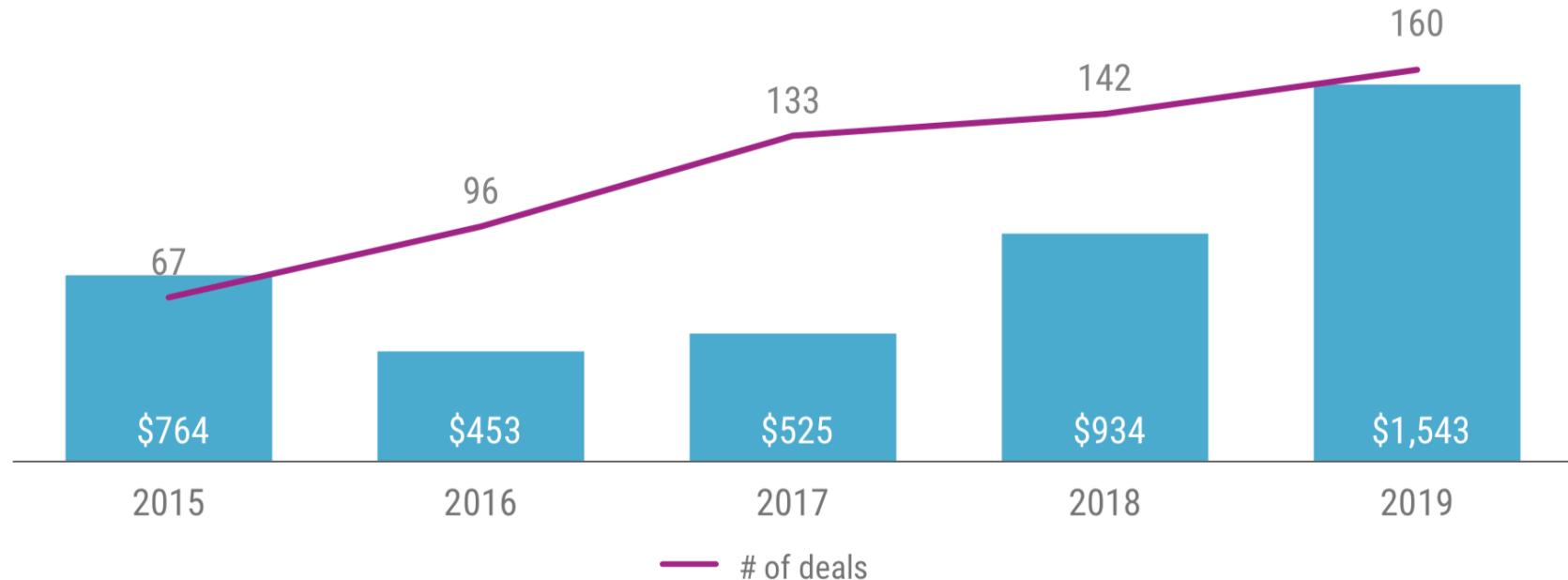
Retail and consumer products executives project that intelligent automation capabilities
could help increase annual revenue growth by up to 10%

Forecast on AI Adoption in Retail by 2021



Funding for retail and CPG AI accelerates

Annual retail and CPG AI company deals and financing (\$M), 2015-2019



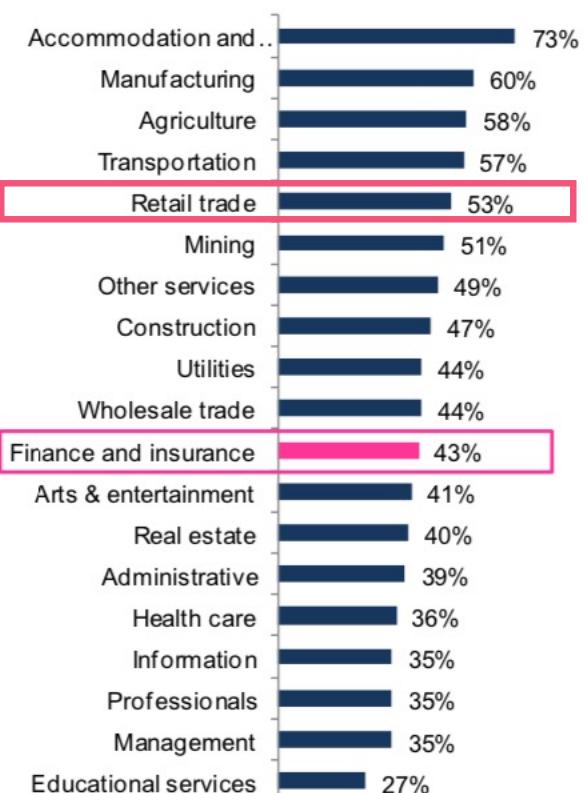
Scale

- Our bottoms up analysis is consistent with other studies about the expected size of the impact from Artificial Intelligence on financial services
- Bain sees a potential \$5.4 trillion shortfall in GDP by 2030, which would translate to \$1.1 trillion of associated GDP in the financial sector
- Accenture sees AI adding \$1.2 trillion in financial services value by 2035

Productivity Gains from Automation (Bain 2018)

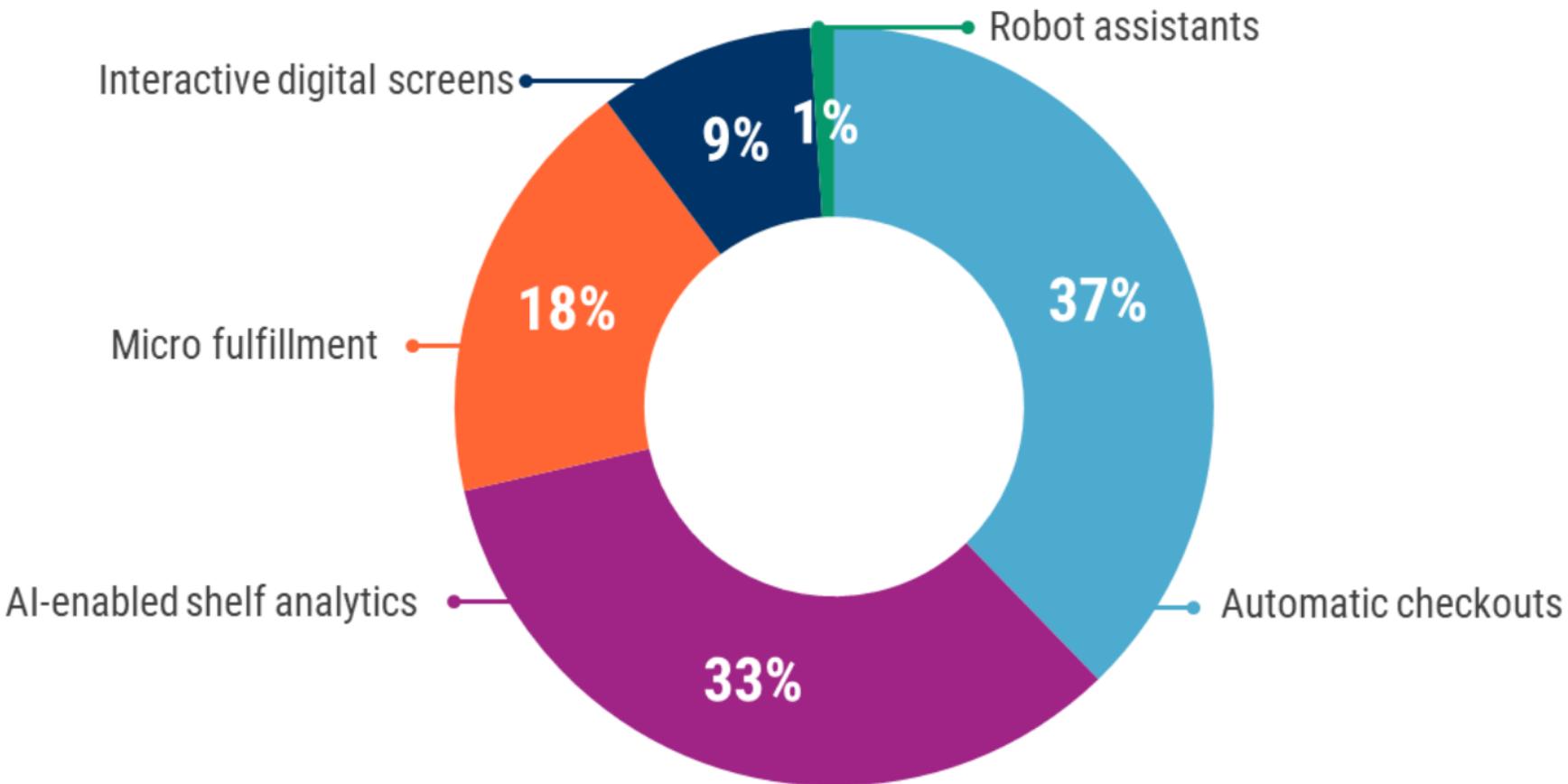


Automation Potential of Industry (McKinsey 2017)





What technology will transform stores the most in 2020?



Industry Trends on AI Applications for Retail



Build brand loyalty through consistency

Transform your organization through personalization in retail to deliver a unified and enhanced brand experience across all customer touchpoints.



Design delightful customer experiences

Differentiate your business through digital reinvention. Utilize existing technology to build and deliver an exceptional retail customer experience.

→ Reimagine your potential with IBM iX



<https://www.ibm.com/industries/retail-consumer-products/customer-experience>

REAL-TIME ENGAGEMENT

Accustomed to the instant access of e-commerce, customers are looking for opportunities to skip the line and have direct communication channels to ask, troubleshoot and, of course, shop.

DIFFERENTIATED PERSONALIZATION

Always on the move and constantly tethered, today's consumers shop where, when and how they please. They expect retailers to keep pace with their mobility and provide consistent personalization no matter where they're shopping.

RELEVANT RECOMMENDATIONS

Customers are exchanging their personal data, like location, purchase history and day-to-day use, for the promise of progressively relevant experiences. Shoppers anticipate that retailers will offer them services and products that are needed in the moment, and change depending on why and how they're shopping.

LONG-TERM BRAND RELATIONSHIPS

Frustrated with the hassle of re-engaging a retailer or resubmitting preferences, customers expect brands to compile personal shopper profiles

CAPTIVATE CONSUMERS

With a plethora of innovative competitors providing shoppers with immersive shopping experiences, traditional retailers need to engage customers in a personalized and relevant manner that is unique and inspiring across all touchpoints.

CREATE EXCITING PRODUCTS

To drive continued interest, retailers need to differentiate their products and offer consumers compelling service and experiences. By integrating predictive analytics to gather more market insight, retailers can lead with innovation rather than react to change.

VALUE-ORIENTED SHOPPING

With convenience already a baseline shopping expectation, consumers are looking for retailers to improve their purchase confidence or empower their decision-making—which will reduce the amount of time spent later returning or exchanging products.

CREATE INSIGHTS FROM DISPARATE DATA

Faced with an onslaught of information from all aspects of their business from supply chain to stores to consumers, retailers need to filter through the noise to transform these disparate data sources into consumer-first strategies.

SYNCHRONIZE OFFLINE & ONLINE RETAIL

Digital and physical shopping channels typically operate under a different set of initiatives and approaches, but treating these channels as distinct business units adds friction to customers seeking a seamless shopping experience and leads to operational inefficiencies.



Cognizant



Product Development,
Sourcing, Supply Chain

Demand Prediction,
Inventory Management

Store Management

Marketing/Promotions

Buying Experience

Customer Service

Product Development,
Sourcing, Supply Chain

OPERATIONS

Demand Prediction,
Inventory Management

Store Management

Marketing/Promotions

Buying Experience

PERSONALIZATION

Customer Service

Top Applications of AI in Retail

Product Development, Sourcing, Supply Chain

Product Development, Sourcing, Supply Chain

- Historical purchase data can be used to better forecast the new product features and replenishment of existing products
- Computer vision systems can be used to identify defects in the product
- Predictive maintenance can reduce problems in manufacturing
- Potential supplier disruption can be predicted based on weather forecasts

Cost Analysis of Implementing AI

	Operating cost in \$ billion for the global retail sector (2022)	Average cost savings from AI (From survey data)	Average cost savings in \$ billion from AI at scale
Procurement	\$206.9	7.9%	\$16.34
Supply Chain	\$1,886.7	7.6%	\$144.15
Logistics	\$597.7	6.9%	\$41.36

The Supply Chain & Logistics Tech Market Map



Digital Freight Shipping



Supply Chain & Logistics Analytics



Trucking Marketplace & Fleet Management



Warehousing



Enterprise Resource Planning



Sensors & Asset Tagging



Inventory Management



Blockchain



Food Supply Chain



E-Commerce Logistics



Autonomous Trucking



Last Mile AV & Drones



Last-Mile Delivery Services



Demand Prediction and Inventory Management

AI for Demand Prediction and Inventory Management

- Demand Prediction can be improved by using historical data, future events, weather data, and other trend data when predicting demand
- Inventory requirements based on store location, hours of operations, and historical data can be used for making inventory more efficient
- Social Trends can be mined to better predict demand for groups of customers

New solutions for in-store inventory management



Pensa Systems

Total disclosed funding: \$17M

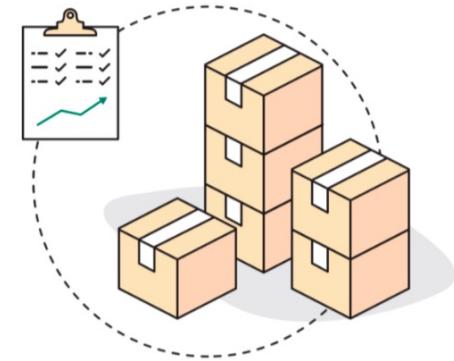
2019 funding stage: Seed

Pensa developed an indoor flying drone that uses cameras to provide live inventory visibility for brands and retailers.



Inventory planning solution

Take control of your inventory with RELEX's inventory planning software. Our solutions cut the time you spend on order placements, reduces inventory levels, and maintains 99+% availability.



RELEX Solutions

Total disclosed funding: \$224M

2019 funding stage: Growth Equity

Relex offers AI-powered inventory planning software to retailers that aims to minimize inventory and help optimize sales.



Image recognition graduates from recommendations to forecasts



Optimize product assortment

Detect trends and optimize assortment to transform your products into long-lasting successes



Forecast product quantities

Leverage real-time and future market signals to forecast quantities more accurately

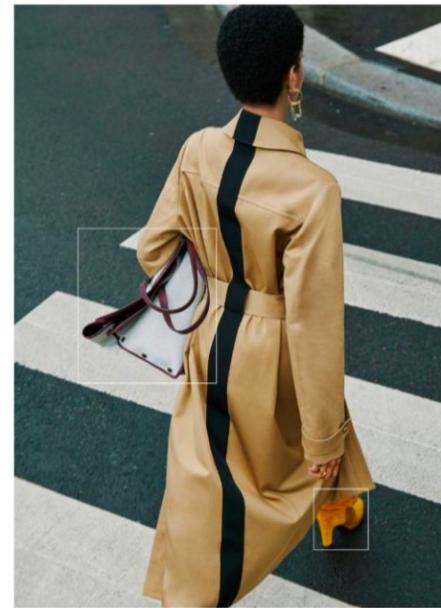
Total disclosed funding: \$6M

2019 funding stages: Incubator/Accelerator, Seed, Series A

Heuritech, based in Paris, uses image recognition technology to track fashion trends on social media. Brands can then use the data to forecast their assortments.



heuritech



The Retail Store Tech Market Map

Digital Displays



AR / VR



Guest Wi-Fi



In-Store Analytics & Marketing



In-Store Financing



Omnichannel Services



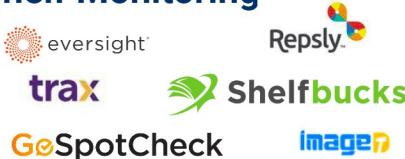
Automated Checkout



Inventory Management



Shelf Monitoring



Loyalty



Smart Dressing Room



Smart Shopping Carts

Payment Technologies



Workforce Tools



Real Estate



Store Management

AI for Store Management

- Robotic systems can be used to continuously scan the shelves to find errors in labels and inventory
- Robotic systems can be used to identify the best layouts and shelf spacing for product management
- Advanced robotic systems can shelf the products
- Shelves with cameras can identify customers and recommend or highlight products in the shelf

Store productivity measurement gets more precise



Total disclosed funding: \$373M

2019 funding stage: Series D

Trax uses computer vision to offer a broad range of services to help retailers run their stores (including store execution monitoring and inventory tracking). In 2019, along with hitting unicorn status, Trax acquired **Planorama**, a France-based image recognition company focused on retail.



Total disclosed funding: \$36M

2019 funding stage: Series B

SKUPOS' analytics platform caters specifically to the growing convenience store channel. The company partners with stores, distributors, and brands to provide real-time sales analytics, demand forecasts, and consumer insights for personalized promotions.





Bossanova

The Retail Store Tech Market Map

Digital Displays



AR / VR



Guest Wi-Fi



In-Store Analytics & Marketing



In-Store Financing



Omnichannel Services



Automated Checkout



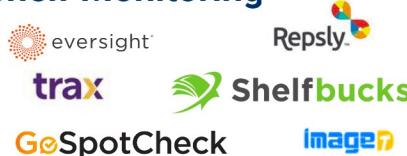
Inventory Management



Bots & Chatbots



Shelf Monitoring



Smart Receipts



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Created by You. Powered by



Marketing

AI in Retail Marketing

- AI can personalize messages that resonate with customers in scale
- Smarter Ads: AI in conjunction with a CDP (Customer Data Platform) can personalize ads
- Individual recommendations: Reinforcement learning systems can adapt based on the customer's interaction with the system allowing for personalized recommendations
- Personalized promotions and discounts can be discovered based on micro customer segments

Subscription services move beyond recommendations to one-on-one connection



Total disclosed funding: \$49M

2019 funding stage: Series B

Farmer's Dog sells human-grade dog food by subscription. Owners build a profile for their dogs that is used to create a meal plan with personalized contents and portions.

Your Personalized Serum. Created for You Each Month

[GET STARTED NOW →](#)

Atolla

Total disclosed funding: N/A

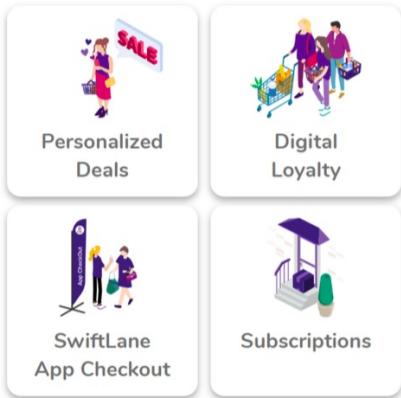
Funding stage: N/A

Atolla uses a home skin test kit and AI to formulate personalized skin serums for customers. Users get a new skin analysis kit every month to track their skin's changes.

Personalizing pricing to tailor the experience & drive profits



How Swiftly Helps Your Store



Total disclosed funding:
\$16M

2019 funding stage: Seed

Swiftly offers supermarkets an app that uses machine learning to create personalized deals and coupons for shoppers. The app, which bills itself as an “operating system for grocery stores,” also offers mobile checkout capabilities that integrate AI and computer vision to monitor shrink*.

*“Shrink” refers to shoplifting, other forms of theft, or other inventory losses in-store.



Punchh Acquire

Supercharge your customer acquisition by optimizing omnichannel marketing and analytics



Punchh Offers

Get a competitive edge, with an end-to-end, consolidated view of the entire offer lifecycle – in real-time



Punchh Loyalty

Build customer lifetime value with all-inclusive programs that turn brand loyalists into superfans

Total disclosed funding: \$63M

2019 funding stage: Series C

Punchh is a marketing and loyalty company that uses AI to target key customers with rewards to help elevate online and in-store conversion.

The Retail Store Tech Market Map

Digital Displays



AR / VR



Guest Wi-Fi



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In-Store Financing



Omnichannel Services



Inventory Management



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Real Estate



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Buying Experience: Smart Mirrors/Displays & Auto Checkout

AI with Smart Mirrors/Displays and Auto Checkout

- There are many applications of AI in improving buying experience of the customers
- Smart Mirrors allow the customers to see the fit and style on oneself without having to wait in line to change into the clothing item(s)
- Auto checkouts can speed up the process for customers by eliminating the need to checkout at a register before leaving a store



HIGHLIGHT #1: THE AMAZON GO EFFECT

Autonomous checkout picks up speed



AiFi

Total disclosed funding: \$15M

2019 funding stages: Series A

Deployment: Ahold Delhaize's HQ
"NanoStore," Amsterdam's Schiphol Airport,
autonomous convenience stores in
Campbell, CA, and Shanghai



Grabango

Total disclosed funding: \$12M

2019 funding stage: Series A

Deployment: Pilot at Giant Eagle
supermarket



Zippin

Total disclosed funding: \$15M

2019 funding stage: Series A

Deployment: Checkout-free stores in San
Francisco and at Golden 1 Center (the
Sacramento Kings' arena)

The Retail Store Tech Market Map

Digital Displays



AR / VR



Guest Wi-Fi



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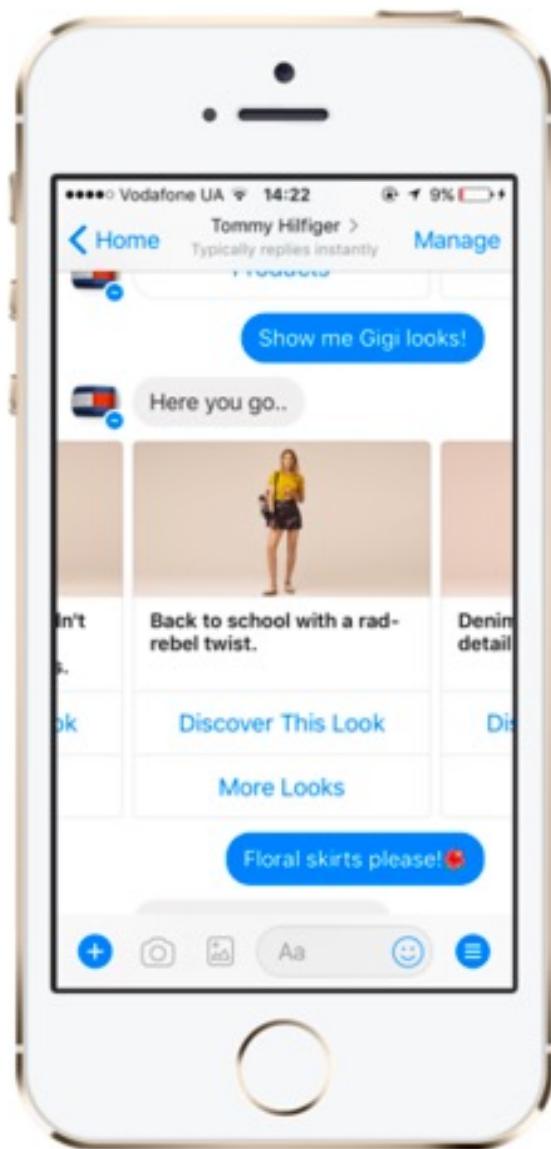
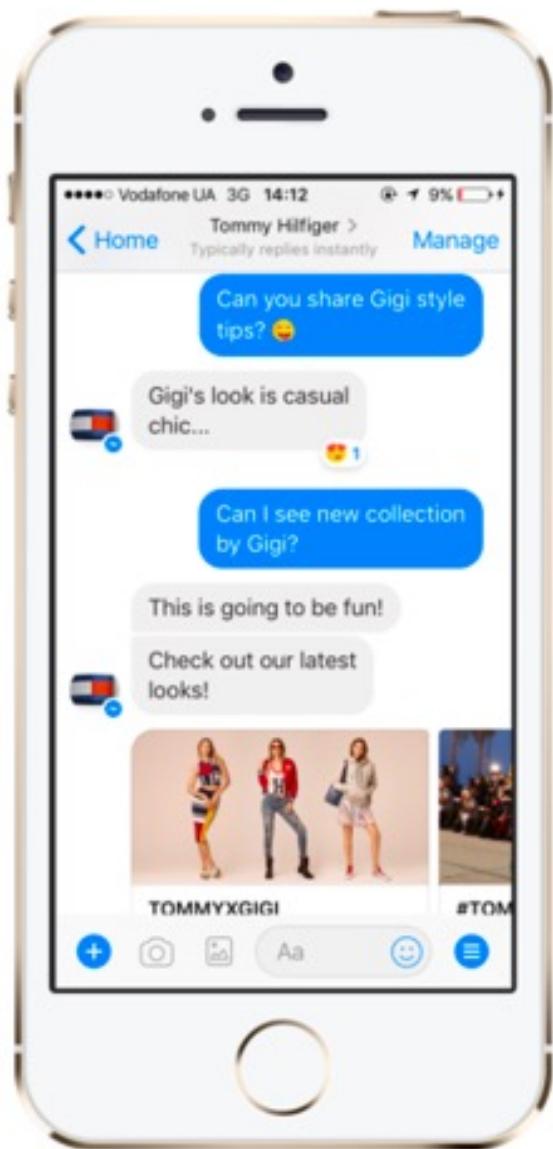
Real Estate



Customer Service

AI Customer Service in Retail

- Conversational Interfaces can help customers find products with ease
- Conversational Interfaces can reduce the time it takes to get support for returns, order problems, or other customer needs
- In-store customer service can also be improved using a face recognition system that identifies customer's preferences and purchase habits





The Retail Store Tech Market Map

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Challenges in Integrating AI in Retail

Challenges for AI in Retail

Data Silos

Outdated
Infrastructure

Data Quality

No All-
Encompassing AI
Strategy

Lack of AI Talent