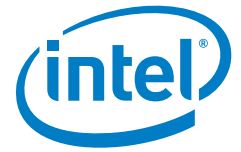


## SOLUTION BRIEF

Future Retail Technology  
Retail Industry



# Envisioning Technology's Role in Transforming Retail's Future

A team of Intel futurists and The Store WPP retail experts contribute insights to "The History of Retail in 100 Objects" presentation.



"Let's imagine what it will feel like to be a consumer and shop in the future. Let's ask ourselves what kind of future we want. Can we challenge ourselves to imagine a radically different future to what we have today? Can we see a more prosperous, sustainable, and mindful tomorrow?"

—Brian David Johnson, Intel Futurist, in "The History of Retail in 100 Objects"

## Overview

Developments in technology keep accelerating, and few industries are being pressured to change as quickly and completely as retail. The astounding speed and power of shoppers' computing devices are turning shopping into a constant, instantaneous activity. Meanwhile, merchants are relying on new technology to meet customer expectations and to strengthen their businesses – or at least help them to keep pace.

As thought leaders, Intel is collaborating with The Store WPP to imagine what the future of retail will look like. Our team's futurists analyze big data and constantly exchange ideas with leading retailers, scientists, and solution developers around the world. They model future customer preferences and behaviors, examine new forms of retail infrastructure, and determine the resulting impacts along the supply chain.

One thing is certain: retail will look a lot different.

We know the store of the future will literally adapt to shoppers. This level of intelligence will happen by integrating computing and sensory feedback to create deeper levels of personalized retail experience.

Stores will promote products according to the individual shopper's preferences and where those products are located in relation to the shopper. If technology proceeds along the

path Intel predicts, shopping will become less frustrating, retailers will be more efficient, and marketing will be more effective.

Some vital future technologies already being used in retail today are only in the early phases. However, the data and the trends suggest that in the not-too-distant future, many more amazing retail innovations will be added.

## An Exercise In "Futurecasting"

For millennia, retail has constantly changed as merchants have sought to improve the shopping experience. Retail's evolution is accelerating rapidly due to new technology advances. David Roth of The Store WPP recently said, "The retail industry is expected to change more in the next 10 years than it has in the past 50." That statement was from a recent insightful virtual presentation entitled "The History of Retail in 100 Objects,"<sup>1</sup> which was compiled jointly by Intel and the worldwide marketing communications conglomerate WPP. It explores the retail industry from ancient times into the present, with Intel futurists providing a view into retail's future.

The Intel Futures Team created their vision using futurecasting.<sup>2</sup> "It's a mix of social science, technical research, economics, statistical data, global interviews and even a little science fiction to model what it will feel like to live and shop 10 to 20 years from now," explains Brian David Johnson, director of Futurecasting, Interactions and



Advanced holograms will help shoppers visualize items. These compelling 3D images will be displayed on countertops and even in large windows.



Personal viewing devices will be flexible and foldable, enabling shoppers to personally interact with store information. Retailers will use similar technology for promotional displays they can easily move to various store locations.

Experience Research at Intel. “The goal of the process is to create a realistic, fact-based vision for the future that we can then go and build.”

The Intel Futures Team, together with The Store WPP, envisioned several objects pertinent to retail in the coming years, or as Johnson describes them, “new models and frameworks to illuminate each part of the sometimes complex and varied shopping experience for the future.”

### Big Data, Big Changes

Big data is certain to change retail in big ways. Digital devices – whether handheld or components of in-store digital infrastructures – will be increasingly capable of processing huge amounts of product and customer data. And the ability to analyze and use this data will benefit the entire supply chain.

Retailers are realizing big data can make the shopping experience more efficient. By applying business intelligence to big data, retailers are seeing the enormous increase in data that can help them target their customers more efficiently, whether in promotional messaging or in the store aisle.

Purchasing patterns also will be recognized faster in the warehouse, where inventory can be adjusted to promote more sales, or even to discourage purchases from being made to reduce under-stock situations – helping curb costly inventory distortion. Data from numerous sources will be distributed instantly to pertinent parts of the supply chain, dramatically increasing efficiency.

### The Future On Display

Intel and The Store WPP see the shopping experience in the coming years being driven by existing technologies, as well as those that are not yet invented or commercialized.

For example, some retailers already have deployed Intel® technology-based intelligent shelving, and the sophistication of this technology will increase over time. Eye-catching digital displays located beside new products will increase awareness and encourage shoppers to try them. The merchant’s ability to easily update the display’s content makes intelligent shelving ideal for special promotions to move products approaching their sell-by dates, reducing inventory waste.

Product-display devices will be even more stunning as holograms become viable. Advancements in 3D technology, powerful computations, new compression algorithms, and faster broadband will make holographic displays more beneficial to shoppers and retailers alike. Holograms will range from a few centimeters high on countertops to several meters high in windows and other in-store displays, helping retailers create visually compelling virtual environments.

Handheld personal devices – flexible, foldable, and easily deployable by shoppers when personal visual interaction is required – will significantly enhance the future’s immersive shopping experience. The same technology will also be possible on lightweight, movable screens merchants can use to display compelling promotions throughout stores.

“The unique combination of the technology skills of Intel and the consumer understanding and retail skill of WPP makes this a potent partnership for any retailer wanting to stay relevant to their rapidly changing consumer.”

–David Roth, CEO of EMEA and Asia, The Store WPP

## The Future Is Local

Together with The Store WPP, we are envisioning retail networks, infrastructures, and supply chains that will reflect unprecedented innovation and efficiencies. For example, a future trend now in its very early stages involves the ability to localize production processes such as printing and selective manufacturing, enabling consumers to purchase items from a retailer, but have the items created elsewhere.

Advances in 3D printing and other fabrication and distribution technologies will dynamically change the relationships between creators, producers, and consumers. In some markets, creators will sell designs without producing or manufacturing a thing. This means design can be localized, even to the degree of being designed or redesigned by the consumer. Distribution systems created for concentrated centralized production will be optimized for faster delivery of products produced around the corner, instead of around the world.

In the future, packaging will include embedded intelligence such as GPS technology and digital displays instead of printed shipping labels. This will enable packages to “know” their destinations and communicate their locations and status as they flow through the supply chain.

Even airborne drones will find extensive civilian use. Their small size and flight flexibility will be useful for monitoring stock levels in warehouses as well as for “last-mile” personal deliveries to customers. With their substantial computational intelligence, drones will be integral in several key stages of the retail supply chain.

## Making Retail Smarter

New forms of computational intelligence will help to make retail smarter and more responsive than ever. Retailers will deploy algorithms to help them better understand every stage of the supply chain, from design, production, and storage to marketing, display, and delivery.

With the growing popularity of Internet-based social networks, retailers will enable their own data to interact with customers’ social-network data for better informed, more personalized shopping experiences. Data will connect shoppers to people they might not even know, but who have similar tastes. Amassing and analyzing consumer data will even enable retailers to identify potential buying pools of shoppers, where special promotions can benefit retailers and shoppers alike.

In summary, data will interact across all stages of the shopper’s experience, and retailers will engage with this data to optimize selling and marketing opportunities, irrespective of time or place.



Future packaging will contain GPS technology to help track delivery, whether to various points along the supply chain or to a customer’s home.

“It’s a mix of social science, technical research, economics, statistical data, global interviews and even a little science fiction to model what it will feel like to live and shop 10 to 20 years from now.”

—Brian David Johnson,  
Intel Futurist, in “The History of Retail in 100 Objects”



## For More Information

- **Modeling the Future of Retail**, a video featuring Brian David Johnson, director of Futurecasting, Interactions and Experience Research at Intel: [www.retail100objects.com/#briandavidjohnson](http://www.retail100objects.com/#briandavidjohnson)
- **Technology Advances the Retail Experience**, a video featuring Joe Jensen, general manager of the Retail Division at Intel: [www.retail100objects.com/#joejensen](http://www.retail100objects.com/#joejensen)
- **Big Data, Big Future for Retail**, a video featuring Steve Power Brown, chief evangelist and futurist at Intel: [www.retail100objects.com/#stevepowerbrown](http://www.retail100objects.com/#stevepowerbrown)
- **Transforming Retail Spaces into Experiences**: [www.intel.com/content/www/us/en/retail/retail-overview.html](http://www.intel.com/content/www/us/en/retail/retail-overview.html)



A PDF version of “The History of Retail in 100 Objects” is available at [www.retail100objects.com/History-of-retail-in-100-objects.pdf](http://www.retail100objects.com/History-of-retail-in-100-objects.pdf)

Audio podcasts of “The History of Retail in 100 Objects” are available at iTunes: [itunes.apple.com/gb/podcast/history-retail-in-100-objects/id665098597](http://itunes.apple.com/gb/podcast/history-retail-in-100-objects/id665098597)

<sup>1</sup> The History of Retail in 100 Objects, [www.retail100objects.com](http://www.retail100objects.com)

<sup>2</sup> The Intel Futures Team for this project included Joe Jensen, Brian David Johnson, Jose Avalos, Maroun Ishac, Adrian Whelan, Steve Power Brown, and Megan Bednarz.

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