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LOOKING TO A FUTURE OF RETAIL

How Kantar Consulting Sees Smart Homes and Smart Stores
Coming Together



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Retail in the Future will be as complex and financially challenging as today. It will still be over 90% in brick-and-mortar stores, though the line between the physical and the virtual will blur. The big shift will be the expanded matrix of connections between all the touchpoints of retail, shopper, vendor, and influencer and the speed and depth of data movement across the whole of this new ecosystem.

Kantar Consulting studies the future and how it is coming together. We are seeing all industries facing the next decade of sudden change by investing into almost any emerging solution that might be of impact. But retail in the view of Kantar Consulting is different: retailers have to operate 24/7, 365 days a year—at full speed and with narrow margins—and cannot simply discard existing infrastructure. The retail industry will enter this unknown future with existing systems that are made far more effective with incremental technology, information-enhanced employees, and pervasive data management across the whole organization.

This paper is a brief review of the variables of the future that retail is facing, with indicators of how best to face them leading up to 2030

In more detail there are three areas that will emerge as a synergy of digitally engaged shoppers and employees, new technologies and processes within the retail company, and the changes that will emerge in the everyday shopping trip. They can be grouped to Shopper, Technology, and Leveraging Core Assets. Collectively, these become the new Smart Spaces of Home and Store.

SHOPPER-ENABLEMENT

- **Delivering a totally seamless trip** will require match the capabilities of the digital-engaged shopper that has full and constant access to cloud-based integrated information and AI systems during pre-shop, transit, and then in-store. The retailer of the future will need to enable shoppers and flawlessly meet their needs as they plan a trip, complete ordering from home or work, and even interact while the shopper is in transit. Multiple dynamic fulfillment options will be provided to the shopper in a reliable, flexible, and seamless manner. **The retailer of the future cannot—and should not—attempt to separate the store or the shopper from the digital world.**
- **Linking the store to product authenticity, quality sourcing, and food safety**—informing and improving product assortment and selection with references to health, wholesomeness and quality, as well as connectivity back to “the farm”—the store must embrace its role of communicating and ensuring quality sourcing and product reliability. Educated, curious, and risk-averse shoppers will want to validate the health benefits of products; be informed of possible recalls or threats in real time; and be assured of a level of wholesomeness, consistency, and ethics on a variable “scale of judgment.” This relationship must be two-way and interactive—think ratings and reviews—not a one-and-done advertising program. The store of the future must **enable the education and informed judgment of shoppers and take a position of being a meaningful advocate and local resource** for an increasingly concerned—but also adventurous—community eager to experience new things without risk.



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- **Packaging up the total food solution—whether a single meal solution or a week’s worth of dinners**—the store will become a meaningful resource for loyal shoppers. The store of the future will need to communicate effectively, guiding the shopper to relevant rewards, healthy diet choices, and product usage. When the shopper asks, “What’s for dinner next week?” the store of the future needs to answer, incorporating a more complete understanding of the individual shopper, history, preferences, health concerns, and similar purchase decision factors. Moreover, future 3D printing of new food ingredients will open the door to increasingly customized flavors and textures not currently known.

TECHNOLOGY DEPLOYMENT

- **Effectively using and expanding the role of Financial Technology (fintech) to shift shoppers’ focus from price sensitivity to value created by a frictionless experience.** Shoppers will always care about managing their money, but increasingly they’ll care more about saving time. As greater investment brings down the relative cost of things like automatic payment, home delivery, and auto-replenishment, shopper expectations will continue to rise. Offering a good price will always matter – but that will become the cost of entry, rather than the driver of shopper loyalty. **Technology will be deployed to readily identify, validate, and assist shoppers throughout the shopper journey into, throughout, and while exiting the store - delivering a frictionless experience.**
- **Providing an interactive shopping experience and leveraging digital and augmented reality in the store** for both the shopper and the employees. The store of the future will have a wide range of technology available including heads-up verbal/audio interfaces for employees, integrated in-store robotics to improve operations, and interactive information and navigational support for shoppers. **Technology will enable a higher level of responsiveness,** connecting inventory management, customer service, resource deployment, merchandising, and marketing.
- **Effectively deploying integrated digital fixtures in the center store** will be critical to expand shopper awareness. Flat signs and intrusive shelf-talkers must evolve from what they do today. As smartphones increasingly offer active, colorful, and even augmented reality, the store must be enabled to interrupt the flow of competing communications **to reach shoppers even while they are in the aisle.** This capability should also morph regularly to incorporate evolving media types to help keep the experience fresh, but also reliable as an enhancement of benefits to shoppers as they visit the store over time.
- **Providing more options and new interfaces to converse with shoppers** to sense, respond, and engage further. Merchandising, AI/robotics, and employees will be integrated such that when working with shoppers they can sense shopper needs sooner, respond more creatively, and drive a longer conversation. That, in turn, creates new metrics for measuring how these work to create a range of outcomes, especially increased total spend and return engagement. The store will be measured relative to the success of that conversation over time.



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- **Enabling frictionless transactions to complete the sale**, while providing for payment security and speed. Face and motion recognition, along with the expanded norms of electronic signatures, offer additional areas of retail technology that will improve transactions, individual identification, and speed of interaction. Proper implementation will enable real-time management, monitoring, and improvement, **reducing the friction currently inherent in completing the sale**. At the same time, identification and verification layers will help reduce shrink in a range of new ways.

LEVERAGING CORE ASSETS

- **Improving the (critical) interdependencies between Employee and Manager**—staffing with real people will matter in the future retail—but not in the same ways we think about today. With just a few exceptions, most retail staffers are divided into a large pool of replaceable workers—characterized by minimal formal training and separated from key skilled positions by pay scales, experience, and longevity. Retail in the future will have fewer of the former and a lot more of the latter—and they will need significantly more new capabilities and skills than they currently possess. **The retail store of the future will allocate more time and investment in training, which will enhance overall job satisfaction and retention rates.** New operational processes will be needed. They will incorporate new and better applications throughout the store as they become more sophisticated to cope with complex requests—as the norm rather than the exception during other work flows. Good design will enhance food service, for example, to address both the shopper benefits and experience of in-store fulfillment.
- **Leveraging the store to guide total business operations, including key performance indicators (KPIs)** - financial planning and KPIs will evolve to measure success. Such changes will create the operational store of the future, but will also require new means and metrics for managing and directing the enterprise at all levels. The future business will generate far more data than is the current norm. This will lend itself to **more dynamic and more situational KPIs** such as collective shopper time engaged with merchandising, successful hand-offs of employees to robots in meeting shopper needs, and the effectiveness of new forms of transactions to reduce liabilities and increase asset turns.

When we consider the above three areas, what emerges is the Smart Space via Complex Automation and AI. When functioning as designed, it is nearly invisible—but is neither simple nor linear in execution. The supply chain is a good example of how automation has become a complex series of actions that are recorded as transactions (the loading of a truck), signals (a message that the loading is done), and response (confirming the truck has left the warehouse). The greater the volume and quality of data that is moving and reacting with a supply chain, the lower the costs incurred. Such a system also brings increased reliability of predictions, like being in-stock. Automation brings ongoing improvements, and the addition of AI means that the whole signal-and-response process now links to a range of additional variables.

In simple terms, **AI describes leveraging the speed of computing to assess the statistical relationships in data.** In business terms, AI describes a system that is actively assessing the relationships of disparate data sets to better understand results. **Data Density and Integrity** is the parallel requirement for all of this to work in this omni-reality. Everything described to this point is generating huge volumes of



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transactional and status data from shoppers, stores, channels, external sources (cities and weather), and the employees and management. All of this represents an integrated 'density' of data to be leveraged throughout the organization to make the store of the future a profitable and functional entity either in-store, online, or the synergy imagined. But this mass of deep data requires routines, processes, and validation in real-time to ensure that it is not only integrated but has the high-degree of 'integrity' in usage to create reliable and actionable results.

Enabled by smart technology and AI, the store of the future becomes an active rather than a passive operating environment. The store will be an active collector of transactional and observational data that is managed to integral use and storage.

The intelligent management of data including the process of governance will be far more complex in the store in 2030. In part, this will be due to the rise of standards of cloud extensions of information architecture. These will reflect major advances in the speed and size of data packets in motion via post-5G standards that are common in both wireless and physical communications. **The standard governance questions are even more important** to who owns the creation, transformation, movement, and multiple areas of secure storage of data and derived information. Both are important, given the tremendous amount of data captured, and more difficult due to the demands of transparency by the shopper, employee, and other third parties such as commercial real estate and governments. As the value of that information grows to all parties, **its security must be foremost**. Given the volumes expected small intrusion that would have absorbed a million points of information in a month will do so in minutes—wrecking not only confidence but also company futures.

The smart store will recognize the shopper at the entrance, or even better, outside the store using behavior movements signaling intent to enter the store. Recognition software for vehicles is already in place, and facial recognition is now hitting its stride with increasing reliability. It is perfectly feasible for the store to recognize repeat shoppers and link to their purchase history or preferences, to classify the type of trip they are on based on their movement and interaction with merchandise. The technology already exists to recognize a shopper's emotional state via types of movement and expressions as they move through the store, leading to opportunities to expose the shopper to products of interest or head-off potential negative issues that might be arising, such as waiting too long for services, frustration due to not finding an item, or even searching for a lost child.

All of this will improve **the management and strategic positioning of labor**. The present scheduling of store space for online order fulfillment along with the frontend and exterior pickup points for BOPIS (Buy Online, Pickup In-Store) will be improved with the flow of information. Labor in the more complex store of the future will be actively moved into the ideal place for maintaining the store and provide service to the shopper. They will be **'plugged' into the AI of the store** via sound and video keeping them informed of those needs before they become critical. Those same insights will re-design the store to be easier space to merchandise, shop, and discover with the ideal being a frictionless trip for both shopper and employee.

Frictionless will be a competitive requirement for these stores. The early examples of Amazon Go and Bingo Box may struggle as effective retailing, but they will be part of a larger set of influences to shopper expectations for the free movement in and out of stores. **Visual validation**, not just of face but also of



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movement and biometrics, is already creating a more pervasive environment for the shopper to pick-up, inspect, select and transaction the purchase while moving out of the store. More importantly, it represents a **technology that can be retrofitted** to remodeled stores, renewing the value of existing assets.

The expanded world of the store and the shopper are not limited to walls or even the retail touchpoints. The expansion of everyday social media usage means that the profile of the shopper has many more facets to it than today. This data will be far more nuanced in causal factors such as location, time, companions, and state of health. The combination of trending topics, depth of interest, and situational data makes for not only a better means of meeting the shopper's intended needs; it effectively expands the retailer into additional channels of engagement and transaction. Again all of this places more emphasis on the large scale of derived information and its placement into the best area of the company to realize sales and shopper loyalty.

The shopper's experience will be personalized accordingly. For example, the embedded screen in the specialty cheese case "knows" he or she likes bold-tasting cheeses, the deli case "remembers" a preference for smoked turkey and might suggest another item with a strong affinity (such as Swiss cheese); meanwhile, the floral department can issue a friendly reminder of important dates (*tomorrow is your anniversary*) and make recommendations to types of arrangements along with when and where to deliver at the optimal time during the day. The store's AI will project new needs such as the flurry of activity each year for the beginning of the school year or a trip to a valued relative. Recommendations will not need to call this out directly, but make suggestions of services and products that are most likely to be needed.

Today the Smart Home is an integration of a smart phone with several in-home devices. The doorbell is also a video monitor, the thermostat can be programmed, and music can be selected and played via the phone. This integration now syncs to voice commands on Apple's Siri and Google Home, but in most instances home devices are managed via smart phone. What all these actions have in common is a 1:1 set of actions triggered by the user. Few, if any, in-home appliances or devices communicate or respond to each other—though they often have some (limited) capability to do so.



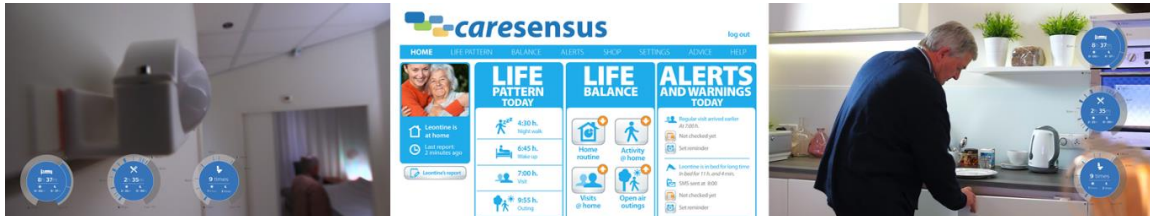
Apple's "HomeKit" takes advantage of the broad portfolio of home, computing, and media products that are now integration-enabled. The interface can stream media, act as a touchscreen input, control a range of approved devices or be voice-enabled via Apple "Siri" AI app. Source: Apple

The model that's emerging focuses on protecting and serving those residing within the home. This requires linking all occupants to the surrounding monitoring and evaluation tools—enabling the system to act proactively and evolving from today's "command and respond" model. First-mover companies working in this arena focus on home security, motion and sound detection, fire and gas alarms, heat



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sensors, and entry alerts. Integrating and using them as a single system requires a software solution; speed of improvement has become a competitive issue with most providers moving to independent cell and power systems. So it is the integrated home, not the smart device, that is managing appliances, lighting, climate controls, and media either on command or in reaction to members returning home, or lowering the heat when there are more people than normal in the house.



Philips “Caresensus” is one of the integrated home systems that are rapidly emerging to address the requirements for “aging in place” at home. The system includes a range of different monitoring devices that track patterns of activities and home status to ensure that the occupants are safe. It can contact family members via the AI-enabled interface to ask if they are having issues in the kitchen, check if they’ve forgotten to eat breakfast and go for a walk, or prompt a visit to the store to pick up a few groceries. Source: Philips Home Electronics

Retailers and manufacturers alike have recognized this opportunity. Many are studying **how to enable the integrated home while managing the flow of requests and data resulting from it**. Home Depot and Lowes have created variations of the “total home” integrated solution. Some believe the most useful aspect of in-home integration is remote monitoring of aging family members who lack a nearby helper; solutions can be provided by trusted “connected” stores, responding to prompts for grocery replenishment, medication or prescription refills, or repair services for home appliances or medical devices.

Enabling “aging in place” will be a strategic goal for connected retailers in the future. It also means the enabled Smart Home that is caring for them is now another shopper and influencer in the eyes of the Smart Store.

For the retailer, enabling aging in place is highly desirable since a shopper can be active both in-store and online. But once aging shoppers move to assisted living and extended care facilities they effectively cease to spend in retail. Enabling the retiring Baby Boomer population to age in place will remain a key planning consideration for retailers, not the least of which are the requirements of marketing to the Smart Home that is caring for them.

Robotics is AI in motion: For the near term, robots are likely to be restricted to areas of the store where shoppers and robots cannot interact. This is both emotional (some shoppers may be uncomfortable with robots) and practical (robots cannot effectively navigate unpredicted shopper movements). This will change quickly, and within the next decade we will see mobile robots moving out of secured areas or backrooms and onto the store floor occupied by shoppers.



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The strengths of the Amazon Robotics (Kiva) system include its flexibility of use that leads to innovations in product storage, integration with upgrades in warehouse software, and adapting to hybrid work environments that can continue to evolve with human interaction. Source: Amazon

This is a logical response to some of the groundbreaking capabilities that Amazon began developing several years ago with its purchase and deployment of the Kiva robot system, now known as Amazon Robotics. Amazon purchased Kiva in 2012 and began deployment in 2014. **The competitive advantage of this capability has less to do with the core technology and more with integration into warehouse and fulfillment software**—the result enables a better model for humans and robots to work effectively in an automated environment. Amazon has made robotics part of its core fulfillment center strategies. In the coming decade, all competitive retailers will need to do the same.

Robotics development is a major investment for retailers, involving process redefinition, capital, and time. The returns are expected to be increased shopper satisfaction and shifting of costs from the P&L to the balance sheet.

New, ongoing labor costs will emerge as humans provide support for the robots themselves.

Monitoring, maintenance, and updating will all be technical tasks performed in much the same way as the invention of the personal computer created needs for software programmers and IT support. Whether this will be at the store, district, or chain level—or outsourced entirely to a third party—is hard to predict, but at least some level of technical expertise will be required in the individual store. At the very least, store management will need trained staff to ensure proper robot operation and place calls for help as required.

Integration, integration, integration is the core of the store of the future and will require a robust approach to building the infrastructure for flexibility. Change will only be bemoaned more rapid and the lack of a well-defined framework of physical and cloud-based services will doom a store's information technology to being either limited to aging solutions, or legacy software as the 'lowest denominator' in the overall system. Reflecting all that has been said above, the demands of 'smart' homes, stores, employees, and shoppers will require a constant re-evaluation of the whole texture of the retailer's solution to the market. Designing for change will be the one constant for 2030.

RECOMMENDED NEXT STEPS

This white paper has tried to briefly address a broad range of the needs and challenges for retail in 2030. Given the uncertainties of the pace and sequencing that will impact the industry, recommendations of tools to move on first are difficult to say the least. But there are some early frameworks of enablement to consider as you explore your companies state of readiness for going forward. Some frameworks and standards that currently exist that you should consider are:



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- **SD-WAN**, or a software-defined (SD) wide-area network (WAN), which is a specific application of software-defined networking (SDN) technology applied to WAN connections such as broadband internet, 4G, LTE, or MPLS. An example to consider today would be Cisco's SD-WAN solution group. It can be stated as a managed and monitored network of networks or a cloud of clouds framework. It utilizes the internet or a cloud-based private network; not that the network is most likely to be the one a company will experiment and leverage the new 5G standards in the next few years. Why this is important, looking to the future, is it a framework that is (by definition) one that can handle a range of types of network standards, IT infrastructures, and 3rd party software-as-a-service (SaaS) providers. In short, the future will require this type of flexibility that already exists.
- **High Speed WiFi Management**, of which the leading example is Cisco Meraki. The present business requirement already demands a means of WiFi networking offices with high-speed routers and controllers, along with the ability to provide core IT management over this network, such as software update, security monitoring, and data access protocols. If there is not one already in place, there is a clear present need—but looking to the future, the physical spaces are going to be more fluid, and rapid integration of changing 'smart' tools will mean that this is an area worth investing time to understand and prepare.
- **Indoor Location-Based Tracking and Service**, or fixing the physical space and needs within the cloud. Almost all solutions coming into retail in the next few years require an identification and tracking of product, fixtures, tools, employees, and shoppers so that services can be realized to their fullest. GPS-based services excel externally, but once inside a tight space, they are of very limited use. The need for integrating existing devices already found within many stores like RFID readers, infra-red scanners, motion detection, visual recognition and sound identification is already occurring with solutions like Cisco DNA Spaces. Moving outward another decade, it will be the bedrock of how the store operates.

***Thank you!** This is but a quick introduction to some of what Kantar Consulting is seeing for the future of retail. There are far more factors to contend with to move industry into enter a profitable future.*

For more information to the broader world of retail insights and information we provide, please visit us at <https://consulting.kantar.com/>

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