Insight Report

Shaping the Future of Retail for Consumer Industries

A World Economic Forum project in collaboration with Accenture

January 2017
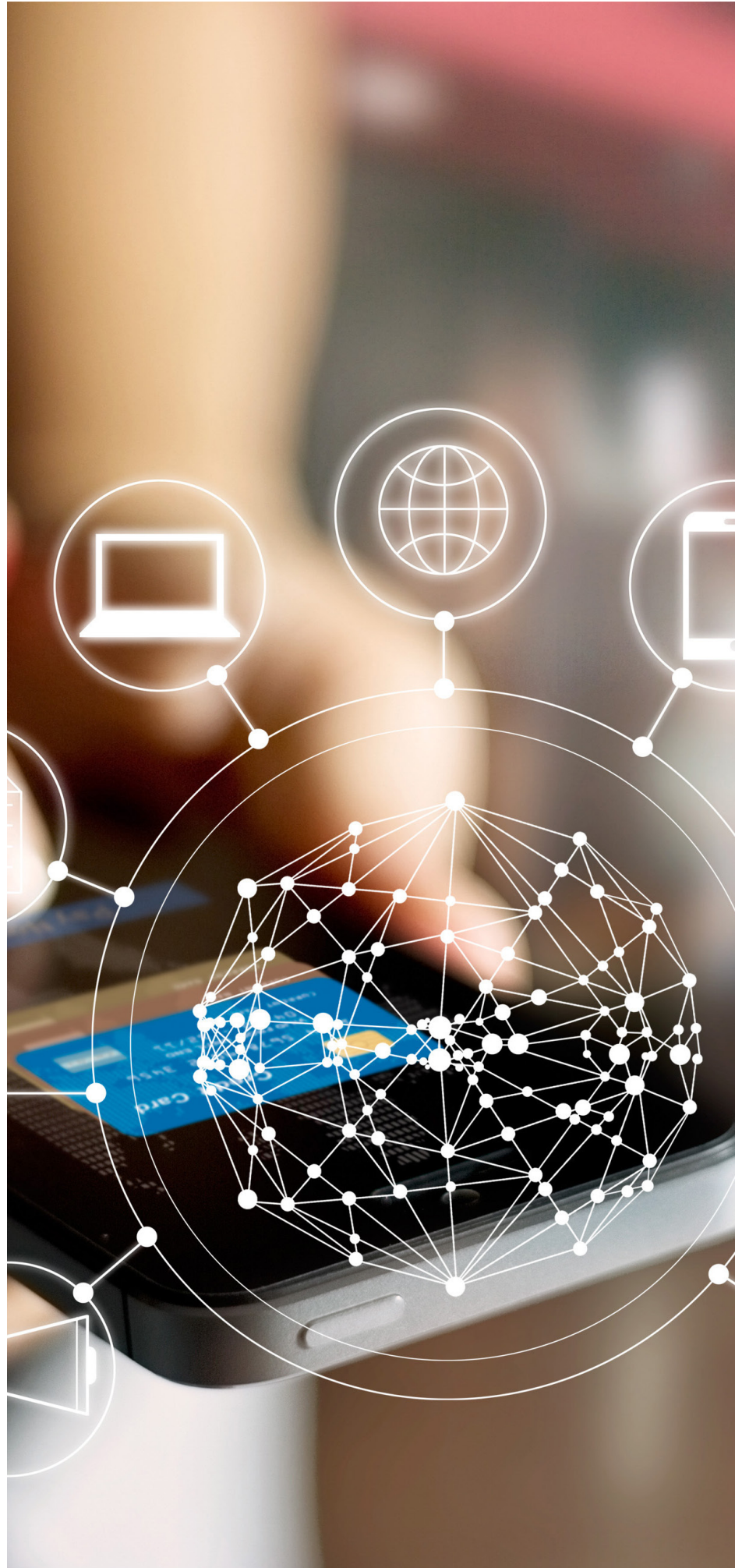
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Executive Summary

The next decade is expected to be the golden age of the consumer, with shoppers having more choices and control than ever before. They will be presented with a growing array of products and services, often personalized to their specific needs and wants. Consumers will continue to demand price and quality transparency along with a wide range of convenient fulfilment options. Overall, the retail experience is poised to become more inspirational, exciting, simple and convenient, depending on the consumer's ever-changing needs.

The evolution in consumer demand, combined with transformative technological innovations, will continue to drive fundamental changes. The boundaries of "retailer" and "manufacturer" will continue to blur, as companies evolve to meet their customers' needs. These forces will cause the retail and consumer packaged goods (CPG) landscape to change more in the next 10 years than it has in the past 40 years.

The key drivers of success over the next decade will be centred on building a deep understanding of and connection to the empowered consumer, promptly incorporating disruptive technologies, embracing transformative business models in both the offline and online space, and establishing key capabilities. With this transformation, there will also be challenges to solve by pro-actively readying organizations for change and implementing the required technologies to address issues related to store closures, employment (job loss/reskilling) and potential adverse environmental impacts.

This insight report focuses on digitally developed markets and represents a call to action to stakeholders across the private and public sectors. Retail and CPG incumbents need to address the accelerating opportunities and challenges to their current business strategies and operating models. Moreover, in collaboration with policy-makers, regulators, and in some cases, educators, it is critical to take clear positions on the societal implications of the industry's transformation to ensure positive outcomes.

Drivers of success

To succeed over the next decade and beyond, both retailers and CPG organizations will need to:

1. Build a greater understanding of and a stronger connection to increasingly empowered consumers

Empowered by technology, the hyperconnected consumer is redefining value. The traditional measures of cost, choice and convenience are still relevant, but now control and experience are also important. Globally, consumers have access to more than 1 billion different products offered by a wide range of traditional competitors and dynamic new entrants, all experimenting with new business models and methods of customer engagement. As choice increases, loyalty becomes more fragile, and the consumer becomes more empowered. Businesses will have no choice but to remain agile, and constantly innovate and disrupt themselves by embracing new technologies to meet the high standards and expectations of consumers.

2. Rapidly adopt game-changing technologies

Technology will be the key driver of this industry transformation. Industry participants will only succeed if they have a relentless focus on using technology to increase the value added to consumers. They must, however, do so with a realistic assessment of their costs and benefits. The following eight disruptive technologies are critical for transformation: the Internet of Things (IoT), autonomous vehicles (AV)/drones, robotics, artificial intelligence (AI)/machine learning, augmented reality (AR)/virtual reality (VR), digital traceability, 3D printing and blockchain. Over the next 10 years, all of these technologies will come of age in the retail and CPG industries, creating an unprecedented level of disruption. In particular, IoT, AVs, drones, robotics and AI are predicted to be most transformational for retail and CPG industries due to their widespread applications, ability to drive efficiencies and impact on labour.

3. Unlock the power of transformative business models in physical and digital spaces

Over the next decade, the line between online and offline will continue to blur. Emerging business models will continue to proliferate, gaining scale and momentum. With slow-growing incomes in most digitally developed countries and a shift in consumer spending from products to services, the retail industry is likely to see greater value migration (from one company or business model to another) than value addition. In the future, e-commerce penetration is projected to grow from approximately 10% today to greater than 40% in 2026. Averages, however, can be deceiving, and some product categories are likely to register penetration rates of 50% or more, while others may not grow beyond 20%.

Despite growth in e-commerce, the physical store will continue to be the channel that contributes the most revenue for the majority of large multichannel retailers until at least 2026. However, its value proposition will evolve from being a distribution channel to that of a platform for discovery, engagement, experience and interaction. This will be done through leveraging technology for differentiated customer experiences, developing new technology-enabled frontline engagement with shoppers and new collaborations to repurpose the stores and hubs for social interaction.

At the same time, the shift to e-commerce will drive a reduction in physical retail footprint, whether the sheer number of stores and/ or their respective size.

While re-imagining physical retail, it will be critical for retail and CPG companies to continue to innovate and embrace new digitally enabled business models, such as the next-generation sharing economy (rental and secondary markets), personalization economy (curated subscriptions), on-demand economy (auto-replenishment or smart reordering), and services economy ("Do it for me"). Leveraging the value-at-stake methodology to quantify the impact of this digital transformation over the next decade (2017-2026), it is estimated that there is $2.95 trillion of potential value for the industry and consumers. The industry will capture 32% of total value at stake primarily from value migrating from brick-and-mortar to e-commerce. Consumers will benefit by capturing 68% of total value at stake, which represents consumers' cost and time savings. The consumer will greatly benefit from these digitally enabled business models, and as an industry player, the focus should be on capturing the value migrating to these new models.

4. Redefine and build key future capabilities
In this new world – where personalization no longer simply tailors assortments, but predicts the needs of individual consumers – companies will need to dramatically enhance their capabilities to keep up with the accelerating expectations of consumers. To effect this transformation, retail players will need to form ecosystems or "coalitions of the willing" to both provide full consumer solutions and secure key capabilities.

There are three must-have capabilities for retail and CPG organizations:

– **The partnership mindset.** To keep up with the rapid pace of technological change, all participants will have to develop a culture of collaboration and pursue intra- and extra-industry partnerships, rather than just rely on building their own capabilities.

– **Last mile delivery.** For e-commerce to become cost-effective, eco-friendly and consumer-responsive, last-mile delivery challenges will have to be solved for innovatively, likely through establishing macro-aggregators, investing in containerization, and rethinking how costs are split between retailers and consumers.

– **Advanced data sciences.** Businesses will have to accelerate the journey from simply collecting consumer data to using it to scale and systematize enhanced decision-making across the entire value chain. While focused on their business goals, industry players should not lose sight of the impact that future capabilities and transformative business models may have on society.

Challenges

Great opportunities for businesses over the next decade will be accompanied by challenges that must be addressed if the industry's transformation is to be successful. They include:

1. High cost and difficulty of implementing new technologies
The capital and capabilities required to implement new technologies are substantial. Incumbent organizations often have legacy technologies that can represent, in some cases, expensive barriers to innovation. Transforming an organization and the skillsets of its people to support a new, highly digital infrastructure may also not be straightforward.

2. Slow pace of cultural change
Unprecedented and simultaneous advances in technologies are redefining the world of retail. The rate of

change is outpacing the ability of businesses to keep up. Adopting a new or evolved business model requires, in most cases, a new level of operational agility, which impacts, at a minimum, an organization's structure, capabilities, culture and decision-making.

3. Limited public-private partnerships to address social implications directly

Although critical to success in a rapidly changing business and regulatory environment, public-private partnerships to mitigate societal impacts are very rare in the retail and CPG landscape. As a by-product of this transformation, there will be significant disruptions, and potentially negative implications for society that must be addressed proactively and mitigated.

There are three societal impacts which will be critical to solve for as their ramifications are significant:

– **Impact of physical retail evolution on communities:** With an increasing number of retail stores downsizing or closing each year driven primarily by the increasing penetration of e-commerce, it will be important to solve for the challenge of mitigating impact on communities. There are opportunities for businesses and local governments to establish economic development strategies and partner with communities to repurpose these physical spaces as hubs for experiences, leisure and lifestyle activities so as to continue to provide the foundations for vibrant communities.

– **Impact of new technologies on the workforce:** Emerging technologies will drive efficiencies in store labour and long-haul trucking, among others. This increased productivity will likely lead to job losses and change the nature of the industry's workforce. As the retail workforce evolves, industry leaders and policy-makers have to focus on reskilling the workforce, developing partnerships with educational institutions and developing new social contracts or benefits for the workforce of the future.

– **Impact of last-mile delivery on sustainability:** Meeting the consumer demand for "what I want, when and where I want it", will need to be done with minimal environmental costs especially those related to CO_2 emissions and cardboard and packaging. Business, regulators and policy-makers will have to stay focused and drive innovation in packaging, as well as establish the infrastructure and governance framework around systemic recycling initiatives.

The next great transformation in retail has already started. By 2026, how people buy products and engage with sellers will have changed dramatically. Consumers will have access to a seemingly unlimited choice of products, price transparency, bespoke experiences and convenient fulfilment options. New technology-driven business models will rapidly evolve, but will have wider implications, such as the impact of a reduction in the size and number of stores on the industry's workforce. Technology will drive transformation and develop new capabilities – whether it is new approaches to employment or the creation of effective and efficient delivery systems – which is likely to underpin the development of a new logistics ecosystem. While there will be impacts on society, both positive and negative, as a result of these transformations, they can be managed through focused cross-sectoral and public-private partnerships to shape positive outcomes.

Retail Industry Vision 2026

This is a World Economic Forum and Accenture vision on the possibilities of the future of retail a decade from now based on executive interviews and secondary research.

It is 2026 and consumers are truly the epicentre of the retail and consumer packaged goods (CPG) industries. Their lives are simplified and their lifestyles have improved due to technological advancements. Technology is embedded into their daily lives, which means hyperconnectedness is the status quo. Sensors and digital devices are everywhere – throughout homes, in clothing, in appliances – and the data that is collected drives a highly personalized consumer experience in the journey to purchase a product. Consumer preferences are immediately understood, which means companies provide hyperpersonalized product and service offerings. In fact, a consumer's current emotional state is identified and factored into an interaction. In addition, consumers have an exponential amount of control and choice in every step of their journey and influence everything, from personalizing products to instantaneous delivery.

By 2026, the high street has been transformed – shopping in-store is no longer a chore and about merely a product purchase, but is a rich, engaging and specialized experience driven by innovative business models. Retail is reimagined and shopping is an experience full of discovery and excitement. Stores are destinations to interact with the product, talk to product experts and provide an ambiance which encourages consumers to stay and keep coming back. They are technology enabled, which means a consumer's digital device is integral to providing an engaging experience. In addition, activities that do not drive value to the consumer experience, for example stocking shelves, checking out, etc. are automated. Robots work alongside a highly skilled human frontline workforce to drive this highly personalized and interactive shopping experience. The frontline workforce in retail has been transformed, for the better of consumers, the business and the workforce.

Product purchases with low mind share, which are routine purchases, are delivered automatically via auto replenishment, saving consumers time and simplifying their lives. Routine purchases primarily occur on digital channels with a cadence dictated by the consumer. Retail interaction with consumers is divergent with high-engagement product categories (e.g. hard lines, consumer electronics) purchased in extremely interactive, experiential stores, while low-engagement products (e.g. home and personal care) purchases now are automated and hassle free.

Concurrently, by 2026, retailers and the related industries have leveraged the transformative power of technology to innovate and created new economic value. As a result, they have improved daily lives of consumers, whether it is how they live, work, or relate to one another. Businesses have also addressed the capabilities needed not only to "go digital" in terms of how they communicate with consumers or customers, but have become truly digital enterprises, "end to end", hence, operationally, effective and efficient. They have successfully solved the challenges which were identified a decade ago as a result of digital disruption.

Workforces are prepared more than ever to operate in end-to-end digital environments. Employees have benefited from new methods of education and/or have been retrained. The establishment of a new and sustainable last-mile delivery ecosystem has been addressed. The industry and local governments have partnered with one another to repurpose physical retail real estate of the years past, creating dynamic new environments for their respective communities. Data privacy and security are the issues of the past. The industry has determined how to leverage data as an asset without breaching trust.

Also by 2026, business leaders, policy-makers, educators and other relevant actors have addressed these issues head on through cross-industry and public-private partnerships. In doing so, they have pioneered new frameworks in terms of how future transformations can be managed effectively to ensure sustainable economic benefits for business and equally important, contribute to the betterment of society.

Trends Driving the Future of Retail

Three trends will shape the future of retail: the empowered consumer, disruptive technologies and transformative business models.

(1) The empowered consumer

A new breed of consumers is shaping the industry's future, where incumbents must adopt disruptive technologies and business models to cater to them. Increasingly empowered consumers will have ready access to information, which means they will make decisions differently. They will use technology, especially mobile devices, in day-to-day decisions and tasks. They will also be hands-on, creating and controlling unique, personalized experiences. To better understand how this premium on experience is going to reshape retail and the CPG industries, three areas need to be considered:

(i)   The expanded consumer equation
(ii)   Low- versus high-engagement experiences
(iii) Consumer influence on the value chain

Studying these three areas reveals what the consumer will want, how their journey will rapidly change – in terms of channels, players and touchpoints – and how product type will impact expectations along the way.
The expanded consumer equation

Historically, the consumer equation has had three dimensions – cost, choice and convenience – and each has comprised a small spectrum with a limited number of options. New technology is expanding this equation and making it more complex. Control and experience will be critical additional dimensions, and the cost, choice and convenience continuums will be greatly expanded. This will translate into an unparalleled proliferation of permutations for consumer value.

(i) The consumer equation

Historical equation:
Consumer Value = Cost + Choice + Convenience

Future equation:
Consumer Value = Evolved Cost + Evolved Choice + Evolved Convenience + Control + Experience

Consumer value: This is defined as the sum of tangible and intangible (e.g. emotional) benefits the consumer receives from making a purchase, relative to what is given up to make the purchase. Consumer value differs among consumers, and the numerous technologies, channels and business models developing across the industry will make it even harder to identify a specific consumer's value equation. To meet expectations and delight the consumers of the future, retailers and CPG companies must keep up with and shape all the different dimensions that contribute to consumer value appropriately.

– *Evolved dimension: cost.* This will continue to be a broad spectrum – at one end, premium pricing, typically for high-quality products, at the other, economy pricing to attract the most price-conscious consumers. What will be new is the unprecedented level of data that connected consumers will use to compare prices across products and retailers.

– *Evolved dimension: choice.* The choices consumers expect to make are changing dramatically. These choices can include the product assortment and selection, personalization and related services. Technology will be the catalyst in companies' ability to tailor these factors to individual consumers, reflecting individual tastes and occasions – and spanning not just the product, but the entire consumer journey.

– *Evolved dimension: convenience.* Consumers now want what they want, when and where they want it. Instant gratification has now become the expectation, rather than the exception. Retailers are increasingly required to provide it in the learning, consideration, purchasing and receiving stages (e.g. compressed delivery times) of the consumer journey. That journey will only become more convenient, with artificial intelligence-enabled digital assistants able to seamlessly and automatically find, order and deliver the ideal option to the consumer.

– *New dimension: control.* Consumers want to control, influence and shape their entire purchasing journey. Digital channels will offer a two-way channel for their voice to be heard, whether through sharing opinions via social media or making last-minute updates to an order or delivery preference via an app. Through these conduits, consumers will be empowered to provide the exact experience they want.

– *New dimension: experience.* This is the aggregation of all interaction points with the consumer. It will become the most critical dimension, especially in physical stores – everything from the layout, ambiance, staff and product selection will affect a consumer's experience. The more companies can deliver differentiated and positive consumer experiences in store and online, the greater their advantage.

Spotlight: The evolved dimension of choice[1]

The proliferation of choice is startling. Across every retail department measured, there were over 114,000 new products introduced to the market through the first three quarters of 2016. There are 11% more items available in the average grocery department today than in 2012. Many departments are growing their depth of assortment

far faster than they are growing revenue. This choice explosion has not only disrupted many categories, but has also empowered consumers to determine which of these seemingly endless choices is right for them. For retailers, they will need to edit their in-store assortment appropriately and then leverage online platforms to present their larger selection of stock-keeping units (SKUs). For this to happen, more than ever, retailers need to develop a highly nuanced understanding of consumer preferences at an individual level and plan their choice offering strategy accordingly. *Source: Nielsen data and analysis*

(ii) Low- versus high-engagement experiences

All products are not the same, and the ways in which they are purchased are also diverse. At one end of the scale, there are low-engagement products: routine, frequent purchases that require minimal decision-making and product interaction (e.g. toothpaste, laundry detergent). At the other end, there are high-engagement products: consumers have highly personal preferences, and purchases require extensive decision-making and product interaction (e.g. luxury apparel, consumer durables).

As e-commerce penetration increases, and the delineation between high and low engagement becomes more pronounced, the key for retailers will be to tailor the appropriate business model to the desired consumer engagement level, so as to optimize costs and profitability. High-engagement products will revolve around positive personalized experiences, which mean using relevant technologies and best-in-class employees. For low-engagement products, speed, efficiency and price will be critical, so there will be a skew to more commoditized management through automated channels.

Case study: Bonobos – Boosting engagement for men's apparel purchases[2]

Founded in 2007, New York-headquartered Bonobos positions itself as "the largest clothing brand ever built on the web", designing and selling a new type of smarter

men's apparel. It is disrupting the menswear market by providing high-engagement in-store shopping experiences to supplement its e-commerce presence. In 2012, it opened physical stores in response to online customers' desire to try on clothing before ordering, and now has almost 20 stores in major cities across the United States. These "guideshops" act as product showrooms: they have items in every colour, size, fit and fabric available to try on, but keep no product in stock for immediate purchase. These stores provide high-touch, highly personalized experiential components that cannot be replicated online. Upon entering, a guide (style assistant) provides a one-on-one service to help customers find the items with the best fit and style, which are then ordered and delivered directly to their home. Appointments can last up to 45 minutes, and there is a lounge area with free beer, soda and water. Moreover, the trial of clothing before online purchase minimizes the chance returns, as it is known that e-commerce purchases typically have a 30% return rate; a greater portion of new customers come to Bonobos through the guideshops than online.

(iii) Consumer influence on the value chain

Across the value chain, the consumer has traditionally been involved in purchasing the product and follow-up servicing. That is now changing as the consumer takes on new roles, actively participating in every step of the journey. Consumers will soon be involved in:

– The creation process for companies (R&D, financing), as well as marketing content and product sales (marketing and sales) and products (sales)

– Personalizing their own products (innovation, manufacturing)

– Working as contractors for companies (distribution, store execution)

As a result, companies will need to open up their value chains (see Figure 1) and find ways to partner that further enhance the dimensions of the consumer value equation.

Figure 1. Consumer integration across the value chain

	CROWDFUNDING	OPEN INNOVATION, PERSONALIZATION	CONTENT, COMMUNITY	MAKE AT HOME	SOCIAL COMMERCE	LAST-MILE PARTNERS	CONSUMER INTIMACY CONSUMER AS EMPLOYEE
	R&D FINANCING	INNOVATION	MARKETING	MANUFACTURING	MARKETING AND SALES	DISTRIBUTION	STORE EXECUTION
	BREWDOG	ModCloth	DARBY SMART	SOMABAR	Etsy	POSTMATES	FIELD AGENT
Company Description	Scottish craft beer company	Online retailer of vintage inspired women's clothing	Online DIY marketplace with innovative ideas and projects that customers can browse, share, shop	An app controlled robotic bartending appliance used in homes	Online marketplace for handmade and vintage items	Logistics company that operates a network of couriers who deliver locally	An app to help retailers monitor their store operations
Value Chain Integration	The world's first ever crowdfunded brewery	Identifies community feedback (blog comments, product reviews, social media) as source data for refining its collection.	Community connects novice crafters; very active online community	Somabar enables a cocktail to be mixed in seconds from a home kitchen	Enables online users to buys and sell products	Its network of couriers are independent contractors, who could also be customers	App users (real customers who get paid) can assist with store audits (e.g. planogram compliance)

Source: Accenture/World Economic Forum analysis

Considerations for business, regulators and policy-makers

As the retail and CPG industries revolve around the empowered consumer, organizations will have to focus on certain critical priorities:

– **Consumer-first mentality.** Companies must embed a consumer-first mentality even deeper into their corporate cultures. Consumers must be the focus as business strategies and initiatives are developed. Organizations must understand their end consumer in terms of demands, expectations and pain points. They also need to know how their products and services meet these demands and expectations, while solving the pain points.

– **Agile consumer experience.** Companies must stay on top of rapidly changing consumer preferences and expectations. They need to be agile in order to continue shaping and enhancing consumer experiences.

Successfully understanding the future consumer and enabling a competitive consumer experience means incorporating new, disruptive technologies throughout the value chain. These technologies will provide both the data to develop consumer insights and the direction to optimize consumer experiences. They will be a critical means to attract, engage and retain consumers.

(2) Disruptive technologies

Eight new technologies are expected to disrupt the retail and CPG industries, offering unprecedented opportunities. They will be adopted at different rates, but each will fundamentally change some aspect of the end-to-end value chain and redefine the core operations of the retail and CPG industries.

The eight technologies are:

1. Internet of Things (IoT)
2. Autonomous vehicles (AV)/ drones
3. Artificial intelligence (AI)/ machine learning
4. Robotics
5. Digital traceability
6. 3D printing
7. Augmented reality (AR)/ virtual reality (VR)
8. Blockchain

To better understand how and when these technologies will impact the industry, there are three things to consider:

(i) Business benefit – What can each technology do for the business?

(ii) Readiness level – What is the maturity of each technology, now and going forward?

(iii) Transformational effect – Which technologies will be truly game-changing for the business?

Evaluating the business benefits, application across the value chain and time to maturity for each of these technologies will help contextualize how and when they will revolutionize the retail and CPG industries.

Business benefits

To identify the value that each technology can unlock for a business, their applications are mapped across the value chain and the highest-impact benefits are noted below (see Figure 2). Four of the eight technologies have applications across each step in the value chain, but this does not necessarily correspond to a bigger overall benefit to business. Autonomous vehicles, for example, have a relatively small range of applications, but they will undeniably transform how goods are moved. The specific level of business benefit will differ from organization to organization, but, for any of these technologies to fulfil its potential, it must become an integral part of the organization's overall business and financial strategy.

Figure 2: Eight disruptive technologies: Value chain applications and key benefits

TECHNOLOGY	RETAIL AND CPG INDUSTRIES VALUE CHAIN			
	MANUFACTURE / PLAN AND BUY	DISTRIBUTE / MOVE	SELL	AFTER SALES
INTERNET OF THINGS (IOT)	Automated reordering via sensors; connected clothing	In-transit visibility	Automated ordering; connected devices	
	• Enhanced customer experience via personalized service offerings that adapt to individual needs • Device data can provide a 360-degree view of the customer • Revenue-generating opportunities by selling data as a third-party vendor through partnerships with companies that desire a rich and deep understanding of customers • Enabling new purchasing channels by automating product purchase via subscription refill and/or providing new channels to discover, research and purchase products directly			
AUTONOMOUS VEHICLES / DRONES		Self-driving trucks	Last-mile delivery: self-driving trucks / drones	
	• Reduced operating costs in transporting people and goods • Enhanced productivity from continuous operations • Increased fuel efficiency and use of alternate energy sources, specifically for autonomous vehicles			
ARTIFICIAL INTELLIGENCE / MACHINE LEARNING	Trend and volume forecasting	Predictive staging	Predictive recommendations; predictive deliveries	After-sales service
	• Foundational technology for disruptive trends (e.g. autonomous vehicles) • Removes need for human involvement in routine and predictable tasks • Greater precision, accuracy and speed when conducting tasks			
ROBOTICS	Robotic manufacturing	Robotic picking	Robotic picking; automated sales assistants	Automated customer support
	• Reduced operating costs through the automation and optimization of commoditized tasks • Increased utilization by operating up to 24 hours a day, seven days a week • Enhanced customer-service experience by allowing store staff to focus on customers • Speed in performing simple and structurally repetitive tasks at faster rates via software bots			
DIGITAL TRACEABILITY	Product source tracking; inventory replenishment	Supply-chain product traceability	Merchandise tracking; product authenticity mapping	Product usage and warranty
	• Increased accountability on supplier quality, as all product elements are traced back to suppliers • Quicker responses to food-safety situations, drastically reducing the risk of consumer backlash • Real-time analytics enables timed offers and circumstantial pricing, which can lead to revenue uplift			
3D PRINTING	Prototyping		In-store product printing; real-time manufacturing	
	• Moves production closer to the end consumer, minimizing movement of commonly available raw materials and increasing product customization • Reduces response time to shifting consumer preferences by enabling on-demand production • Creates new retail and at-home business models based on capability to manufacture flexibly at a small scale • Enables product customization, from appearance and packaging to flavour and nutritional content			
AUGMENTED REALITY / VIRTUAL REALITY	Planogramming; product design		Virtual retail locations; VR demos	AR / VR engagement
	• Alternative purchase channels provide a new way for customers to discover and evaluate products • Ease of access for customers via on-demand shopping, helping them avoid physical-store trips • Limitless access for experiencing products through 'endless aisles'			
BLOCKCHAIN	Authenticity verification	Supply-chain verification	Online wallet	Transaction verification
	• Secure, decentralized digitization of assets and transactions • Complete audit trail for purchased products and/or materials • Process digitization/automation, e.g. instantaneous settlement • Risk mitigation in settlements, counterparties, operations and points of failure			

Source: Accenture/World Economic Forum analysis

Readiness level

These eight technologies stand at different levels of readiness today. Over the next decade, each will take a different trajectory in terms of advancing to maturity at different rates (see Figure 3). For example, digital traceability could be implemented today within an organization using Radio Frequency Identification (RFID) tags, but converting a trucking fleet to autonomous vehicles is at least five years away due to the technological advances and regulatory changes that are needed. As organizations assess the benefits of these technologies to their business, the pace of adoption should be a critical consideration.

Figure 3. Current readiness levels of disruptive technologies and key enablers to reach full readiness
NOTE: White portion of Harvey ball indicates readiness

TECHNOLOGY	READINESS TODAY	TIME TO FULL READINESS	KEY ENABLERS FOR FULL READINESS
INTERNET OF THINGS		2-5 years	• Advanced capability to synthesize data, identify insights and act on them on an ongoing basis across the organization • Global standards for data collection • Advances in data security to ensure protection of consumer information
AUTONOMOUS VEHICLES / DRONES		Autonomous vehicles: 6-10 years Drones: 6-10 years	• Technology needs to mature (e.g. autonomous vehicles need advanced features to accommodate all road types in all weather conditions; drones need improved battery life, the ability to carry heavier items) • Regulatory frameworks for use
ARTIFICIAL INTELLIGENCE/ MACHINE LEARNING		2-5 years	• Advanced capability to synthesize data, identify insights and act on them on an ongoing basis across the organization • Advances in data security to ensure protection of consumer information
ROBOTICS		2-5 years	• Advanced features needed (e.g. dexterity and battery life) • Development of smarter bots
DIGITAL TRACEABILITY		2-5 years	• Advanced capability around predictive and preventive analytics • Common digital language for supply-chain traceability within industry
3D PRINTING		6-10 years	• Advanced features needed to improve speed, multi-material capabilities etc.
AUGMENTED REALITY / VIRTUAL REALITY		2-5 years	• Component parts (e.g. chips) must be affordable to sell AR/VR devices at scale • VR headsets need to become wireless while retaining processing power
BLOCKCHAIN		6-10 years	• Ability to perform high-volume transactions in a secure way • Regulatory frameworks for payment application

Source: Accenture/World Economic Forum analysis

Transformational effect

Four of the eight technologies are projected have the greatest impact on the industry: Internet of Things, autonomous vehicles/drones, artificial intelligence/machine learning and robotics. This is based on three criteria:

1. **Widespread application.** Technologies were assessed to see which would have the broadest reach and adoption across the consumer and related industries. Within the consumer industries, the impact across the value chain was considered to understand the breadth of use. A widespread impact is important, as it will drive both a faster adoption rate and advances in the technology itself, which, in turn, will make it more critical to business operations.

2. **Resulting efficiencies.** Each technology will drive improvements and efficiencies to varying degrees across organizations. The focus should be on those that will yield the greatest gains, whether in the form of cost savings (e.g. autonomous vehicles and robotics) or efficiencies that generate revenues (e.g. Internet of Things and artificial intelligence).

3. **Impact on labour.** The workforce will evolve as these technologies are adopted and jobs will be put at risk as automation occurs throughout the value chain. When the total impact was assessed, attention was paid to the technologies that will drive disruption in the future workforce.

Based on these criteria, the four technologies that will have the greatest impact on the retail industry are discussed below.

– **Internet of Things** will drive a high business value as it secures proprietary consumer data to create personalized experiences in connected stores, and delivers cost efficiencies in inventory-management. It will revolutionize the in-store experience for both consumers and organizations, providing unparalleled insights based on the data collected.

- **Autonomous vehicles/drones** will bring cost savings from automated long-haul trucking of goods and last-mile delivery. These developments will also increase utilization, make deliveries faster and improve road safety.

- **Artificial Intelligence/machine learning** can increase revenues through a deeper understanding of consumer behaviour, while saving costs associated with supply chain optimization. In-store pricing and assortments will be optimized and, when combined with predictive recommendations, will clearly benefit consumers and the organization itself.

- **Robotics** will drive cost savings through operational efficiencies, primarily in warehousing and distribution. Software bots can also work faster to complete simple and repetitive tasks. Robotics will enable higher utilization, greater flexibility, improved accuracy and faster transaction times.

Case study: Carrefour – Leveraging Internet of Things via iBeacon to collect consumer data[3]

French supermarket chain Carrefour is one of the first retailers to extensively pilot iBeacon networks across its stores. Customers can use mobile phones or tablets attached to shopping carts to receive in-store routes and personalized promotions. As customers are guided around the store, the beacons collect data about their behaviour and purchasing patterns, which the retailer uses to continuously improve operations and store layout. With more than 600 beacons deployed across 28 supermarkets, Carrefour has seen a 400% increase in its digital application's engagement rate and a 600% increase in app users.

Considerations for business, regulators and policy-makers

As organizations weigh investments in some of these new technologies, they should consider the following:

- **Strategic fit of technology.** Organizations should understand how each of the eight technologies fits into their overall business strategy, if at all. A technology may help generate efficiencies or value by itself or in combination with one or more other technologies. Furthermore, leaders will have to determine the level of investment and the trade-offs in other investments they will need to make over both the two-to-five-year and six-to-ten-year timelines.

- **Regulatory considerations.** As technology advances, it must adhere to existing regulations and, where applicable regulations do not exist, regulatory bodies must modify or add criteria to help bring these disruptive technologies into the mainstream. Considerations here include insurance, safety standards and testing, consumer privacy, and workforce redeployment. There will need to be proactive and ongoing dialogues among regulators, technology developers and those businesses adopting the technologies at a large scale, to ensure constituents are aligned on mitigating potential risks to consumers, employees and communities.

New technologies will create unrivalled efficiencies for businesses and also shape the fluid online/offline experience that will become the hallmark of every consumer journey. Business models will transform accordingly, both through an evolution of the current brick-and-mortar model and the adoption of one or more high-potential new models for the retail and CPG industries.

(3) Transformative business models

A range of new business models have already blurred the boundaries between online and offline retail. Over the next decade, as new models proliferate in the online space, physical stores will continue to exist, but will require an evolved value proposition for consumers.

For large multichannel retailers, the brick-and-mortar store will continue to make the largest revenue contribution until at least 2026, partly thanks to evolved value propositions that include offering services outside their traditional scope (e.g. healthcare or financial services). However, stores will transition from distribution channels through which they merchandise products, convey information and process purchases, to places that tell stories and are platforms for discovery, engagement, experience and interaction.

At the same time, digitally enabled models will emerge that can be adopted into current business models – both offline and online – to better serve consumer needs and create the next frontier of digital retail.

From stores to stories: The evolution of physical retail spaces

Retailers will place a premium on personalized services and experiences that requires high levels of interaction with products and staff. Stores of the future will be smaller, carrying streamlined inventories that mix in-stock product and the ability to manufacture customized products on site. This transformation has three key enablers:

1. Differentiated customer experiences.
Tomorrow's physical stores will offer rich, dynamic interactions and virtual experiences. They will become more like media platforms or flagship showrooms where consumers go to interact with products and expect hyperpersonalized services. For example, by combining IoT and data analytics with AR/VR, "smart fitting rooms" can predict consumer preferences using knowledge of the customer gathered through previous interactions. This innovation helps customers envision (digitally) how items of clothing will look on them via interactive screens.

Case study: Rebecca Minkoff – Developing connected stores[4]

Rebecca Minkoff partnered with eBay and Magento to create a digitally connected store, which uses "connected glass shopping walls" and digital fitting rooms to guide shoppers through the experience, while collecting data about customer preferences and trends. Within six months of implementation, Rebecca Minkoff saw a six to sevenfold increase in ready-to-wear sales, which it attributes to enhanced in-store experiences.

2. A new frontline workforce.
Many of retail's traditional human interactions will be taken care of by a digital workforce. This will further differentiate and enhance the customer journey from discovery to purchase. For example, customer interactions could be through IoT-enabled personalized messaging and promotions throughout the store, or robotics-enabled shopping assistants and payment processing.

Case study: Amazon Go – A check out-free shopping experience[5]

In December 2016, Amazon introduced Amazon Go, which is a 1,800 square foot grocery store in Seattle, Washington (USA) with the most advanced shopping technology so customers can shop and then walk out with their products without waiting in lines or checking out. Shoppers use the Amazon Go app and the store is enabled with their "Just Walk Out" shopping experience, which leverages multiple technologies such as computer vision, sensor fusion and machine learning. The virtual shopping cart tracks items and when leaving the store, the shopper's Amazon account will be charged.

3. New collaborations to repurpose physical stores as hubs for social interaction.
Physical retail spaces will be centres for community building and communal experiences. To appeal to local communities, stores will have a strong local flavour, complementing their core business proposition with ideas, themes and events designed for the local consumer base. In addition, stores can be repurposed to serve previously unimagined dual business and social needs, e.g. offering lifestyle services, do-it-yourself training classes and health check-ups. This will help differentiate in-store experiences, supplementing the product exploration and experimentation component.

Case study: The Mall of the Emirates in Dubai – An experiential lifestyle hub[6]

Majid Al-Futtaim's Mall of the Emirates in Dubai is one of the first "next-generation" malls. It is a multi-level, luxury shopping mall that goes beyond shopping to provide stimulating, one-of-a-kind customer experiences. Beyond its 630 retail outlets, more than 100 restaurants and cafes, 80 luxury stores and 250 flagship stores, there are

entertainment options including a cinema, indoor ski resort and snow park, community theatre and arts centre, and Magic Planet – one of the Dubai's largest indoor family entertainment centres. The mall hosts special events, including celebrity concerts, luxury fashion shows and even a life-sized Monopoly game, which created a unique customer experience while raising money for charity. For those who need more than a day to cover its 2.4 million square feet, there are a number of hotels available on site.

E-commerce's next frontier: Emerging business models

Over the past five years, new players with different models, fuelled by emerging technologies, have challenged what and how goods and services are consumed, disrupting the industry's demand and supply sides. For traditional retailers – both offline and online – there are key elements in these transformative models that could be merged with current business models to better serve the needs of the consumer and reach the next frontier of e-commerce.

Four new business models, in particular, show the strongest potential to take the retail and CPG industries to the next level. They can add value for the end consumer across the dimensions of price, assortment, convenience and experience. These four business models are directly related to new models of consumption that have emerged over the past three to five years (see Figure 5):

1. Next-generation sharing economy (rental and secondary markets)

2. Personalization economy (curated subscriptions)

3. On-demand economy (auto-replenishment or smart reordering)

4. Services economy ("Do it for me")

The business models will impact the CPG industry's subcategories to varying levels, mainly due to consumer trends and differing consumption patterns of high- and low-engagement products. For example, home and personal care will be directly impacted by auto-replenishment/smart reordering whereas apparel and hard goods will be the two sub-industries primarily impacted by the rental and secondary market model. For industry players, depending on which sub-industries they participate in, it will be critical to consider how components of these newer models can be leveraged to create business value.

Case study: REMA 1000 VIGO initiative[7]

REMA 1000 is a multinational supermarket chain operating in Norway and Denmark. In September 2016, it launched their VIGO initiative ("VI'" meaning "community and trust" and "GO" meaning "on the go". VIGO leverages digitization and the services economy to create better, faster and cheaper access to daily shopping and revive the sense of local community. VIGO is a mobile sharing economy

platform, specifically a peer-to-peer community model app, enabling grocery delivery from the local store by a fellow shopper. VIGO platform/app users create cloud-based shareable shopping lists and then fellow shoppers, who are already in the store usually shopping for themselves, can buy and deliver these groceries directly to the platform/app user. From the platform/app user's perspective, there is a fee, which is the compensation the shopper/delivery person receives. In the first four weeks of VIGO's launch, 18,000 people signed up for it. Today, it has over 25,000 users. The initiative is an innovative way to leverage these emerging business models, specifically the services economy via a peer-to-peer platform to solve for last mile-delivery and drive social cohesion in communities.

Figure 5: Four emerging business models in retail

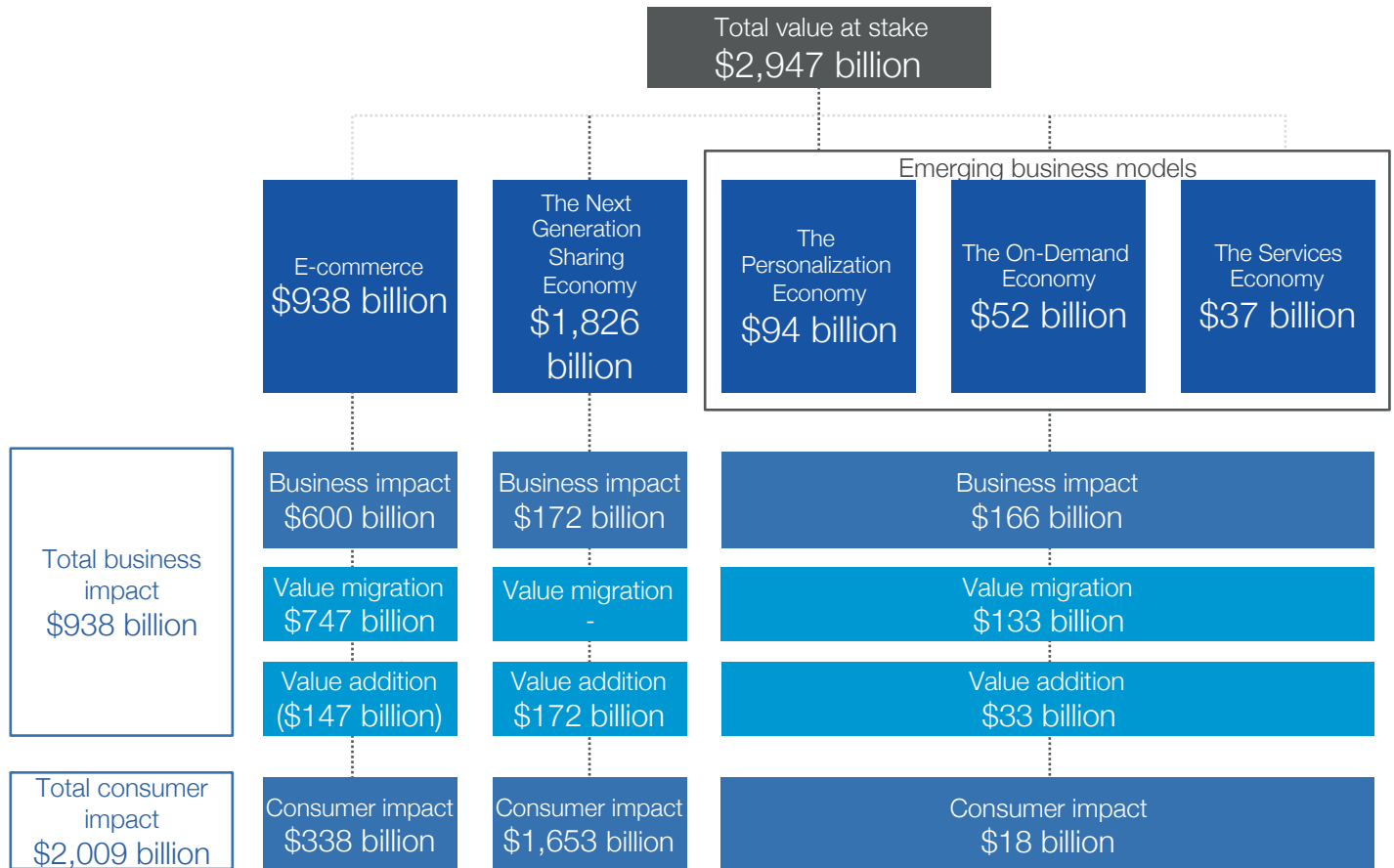|	THE NEXT GENERATION SHARING ECONOMY *Rental and Secondary Market*	THE PERSONALIZTION ECONOMY *Curated Subscription*	THE ON-DEMAND ECONOMY *Auto Replenishment*	THE SERVICES ECONOMY *'Do It For Me'*
HOW IT WORKS	Product rental for a fraction of the retail price, in lieu of ownership; in addition, includes resale of used goods.	Expertly curated products, based on an individual's preferences, are automatic ordering and delivery are on on a consistent schedule.	Automatic reorder (e.g. via sensors, replenishment program) of a product when the level is low.	Instead of a basket of products, customers buy a service that meets their basic or aspirational needs.
WHO IS DOING IT ALREADY	Rent the Runway, an online service providing designer dress and accessory rentals.	StitchFix, an online subscription and personal-shopping service that sends individually selected clothing and accessories	Amazon Dash Replenishment allows connected devices (e.g. washing machines) to reorder products automatically.	Glamsquad, an on-demand, in-home beauty service that provides hair, makeup and nail services.
WHY CONSUMERS LOVE IT	Consumers, especially millennials, are moving away from product ownership towards product access and utility. This model typically works for high-value and/or low-utilization products.	Customization and personalization drive the success of this model. Typically, it is better with high-engagement goods in which customers appreciate the surprise and delight element.	Consumers value seamless transactions, especially for low-engagement products. Auto reordering will trigger an order based on pre-defined criteria.	Consumers are spending more on services and experiences, and less on goods. Instead of 'do it yourself', emerging businesses are providing 'do it for you' services.
TECHNOLOGY ENABLERS	Online platforms that emphasize trust and authentication of products; services enabling convenient rentals.	AI / machine learning and IoT-enabled data sciences will lower the cost to serve and drive accuracy in personalization.	AI / machine learning and IoT connects data to drive purchases.	IoT enabled data science will indicate when a consumer needs a specific service.
IMPACT ON BUSINESS	Potential for decrease in revenues if consumers utilize rental and secondary markets in lieu of purchasing new products. Retailers should consider how the sharing economy can be incorporated into existing business models.	Potential for increase in revenues due to commissions and margins as a result of the personalized service element. Smaller brands can also leverage model to gain consumer exposure.	Potential to disintermediate retailer due to the automated nature of direct order from a CPG company. Removes ongoing consumer decision-making, thus making initial consumer acquisition critical.	Potential for increase in revenues due to higher prices services command. Could drive additional value to industry that typically resides in 'entertainment' or other value pools. Retailers and CPG companies should consider how to boost value-added services to existing products.
POTENTIAL HIGH IMPACT SUB INDUSTRIES	• Apparel, accessories, lifestyle products • Hard goods • Consumer electronics	• Food and beverage • Apparel and accessories • Personal and home care, beauty	• Personal and home care • Food and beverage	• Food and beverage • Personal and home care, beauty

Source: World Economic Forum/Accenture analysis

Value framework for business models

For the purposes of this research, a unique value-at-stake framework has been developed to support a consistent approach to measuring the impact of these business models on the industry (business impact) and consumers (consumer impact). This framework helps enterprises, policy-makers and regulators better understand the value that each business model in the retail sector can generate for both the industry itself and consumers. The analysis projects that e-commerce and the four emerging business models – sharing economy, smart replenishment, curated subscription, and "do it for me" services – could unlock $2.95 trillion in value for the industry and consumers over the next decade. Consumer benefits account for 68% of this value and industry benefits account for 32% (see Figure 6).

Figure 6: Value at stake for the retail industry

Total value at stake $2,947 billion					
	E-commerce $938 billion	The Next Generation Sharing Economy $1,826 billion	**Emerging business models**		
			The Personalization Economy $94 billion	The On-Demand Economy $52 billion	The Services Economy $37 billion
Total business impact $938 billion	Business impact $600 billion	Business impact $172 billion	Business impact $166 billion		
	Value migration $747 billion	Value migration -	Value migration $133 billion		
	Value addition ($147 billion)	Value addition $172 billion	Value addition $33 billion		
Total consumer impact $2,009 billion	Consumer impact $338 billion	Consumer impact $1,653 billion	Consumer impact $18 billion		

Source: World Economic Forum/Accenture analysis

Methodology: How the value of digital transformation in retail was calculated

The value-at-stake methodology aims to assess the impact of key, transformative business models on industry and customers in digitally developed economies. Value at stake comprises two primary levers:

– **Business impact:** This is comprised of value addition, or operating profits generated by transformative business models, as well as value migration, or operating profits shifting to these business models from traditional brick-and-mortar operations.

– **Consumer impact:** This is comprised of a consumer's cost savings, time savings and productivity gains owing to the new business models

Value at stake: Key findings

Value migration from offline to online of $805 billion represents a substantial opportunity for business.

Value for the retail industry over the next decade will come primarily from value migration from traditional brick-and-mortar to online ($880 billion) as opposed to value addition ($58 billion). With median household incomes in digitally advanced markets projected to largely remain flat, it is unlikely there will be an influx of spending into the industry. Given that the value of the industry will be relatively fixed, retail players should consider capitalizing on the value migrating to these key business models, most notably pure play e-commerce, which is expected to be responsible for around $747 billion in value migration. Retail organizations should also seek opportunities beyond the industry's boundaries, such as in services, to provide incremental value to customers and drive additional business value.

The rapid growth of e-commerce will continue and represents $938 billion of value at stake for business and consumers.

E-commerce will continue to accelerate with penetration rates predicted to reach 40% in 2026. Value migration ($747 billion) is driven by the shift in profits from offline to online. Value addition (-$147 billion) is negative due to lower online operating margins initially, although it is anticipated that over the next decade, margins will reach parity in offline and online channels. Consumers will benefit from the shift to online through time savings, valued at $338 billion, assuming the time saved is used productively. Because e-commerce will be instrumental in the future of retail over the next decade, industry players should consider continuing to prioritize and build e-commerce businesses to capitalize on this trajectory of unimpeded growth. While the initial transition may yield lower operating profits, as the industry advances, a strong e-commerce business will help companies profit from future opportunities.

While the sharing economy holds the most value, other emerging business models should not be overlooked. The sharing economy, defined as both the rental and used-goods markets, represents $1.8 trillion of value at stake. It will greatly benefit consumers by offering cost savings to the buyer and, in the used goods market, economic value to the seller too. Value for industry will be generated through commissions on transactions.

The three emerging business models of smart replenishment, curated subscription, and "do it for me" services will collectively unlock $166 billion of value for business. Each of these models is inherently better suited to certain industry segments; e.g. smart replenishment will be more prevalent in home and personal care than anywhere else. Industry players should therefore focus on the model(s) that fits their business best, even though each model presents a significant opportunity to capture operating profits over the next decade.

Considerations for business, regulators and policy-makers

As organizations evolve their business models, it will be critical that they have the appropriate foundational capabilities in place to serve new models. These capabilities will require willingness for companies to innovate, collaborate and disrupt themselves. In particular, companies will have to consider the following:

- **Reimagining the physical store.** Businesses will have to evolve the retail space ecosystem to optimize the return on asset, and to maintain shopper loyalty. Retailers should think about repurposing their physical stores, and collaborating with CPG companies to enhance the pleasurable, social aspect of shopping in order to redefine the value of the physical asset from a revenue standpoint. Innovation and collaboration will be key here.

- **Strategic fit of offline-online models.** Businesses will need to determine which one – or more – of the various new offline-online models best fits their strategic priorities and will help them maintain a competitive edge. Even within the same product categories, different models might be better for different companies, depending on the individual organizational capabilities that exist or could be developed in the short to medium term. Again, it will be vital for companies to be collaborative and open to disrupting themselves when necessary.

Future Capabilities Required

To thrive over the next decade, businesses in the retail and CPG ecosystem will need to develop critical capabilities including a partnership mindset, last-mile delivery and advanced data sciences.

(1) The partnership mindset

Partnerships provide an alternative to the traditional "build or buy" approach to developing capabilities. To meet consumer needs and demands effectively, businesses will have to embed a partnership mindset and culture of collaboration throughout their organizations.

In the next decade, partnerships will take a completely new form, as they evolve rapidly and become much more complex. Dynamic, new partnership models, rooted in collaboration, will form across the consumer industries. For future growth opportunities to be realized, an ecosystem will need to develop around the industry. Instead of being rigidly grouped around a specific business or branch of manufacturing, ecosystems will draw together mutually supportive companies from multiple industries that collectively seek to create differentiated offerings and capture value they could not reach alone.

Two types of ecosystems are expected to emerge:

Intra-industry ecosystems. These partnerships bring together players within the same industry. In some cases, two companies might previously have seen one another as competitors, but find a strategic rationale to partner and present a united front to the market because of their specific capabilities and/or positions within the industry.

Extra-industry ecosystems. These partnerships and collaborations cross traditional industry boundaries to deliver an enhanced product, service, experience or value proposition to the consumer.

The two primary challenges in forming these ecosystems of partnerships will be a company's ability to balance its own strategy and priorities while managing its position in the ecosystem, and to maintain its identity as both an ecosystem player and a distinct company.

Considerations for business, regulators and policy-makers

To avoid the pitfalls of losing its strategic focus or distinct identity, an ecosystem participant should focus on:

– **A culture of collaboration.** Retailers and CPG players will need to embed a culture of collaboration throughout their organizations because collaboration will be a prerequisite of future success, whether within an organization itself, or in an intra- or extra-industry context.

– **Governance and resourcing.** Organizations should set up strong governance structures and ensure there is appropriate resourcing to drive continual collaboration between ecosystem partners. Once this has been accomplished, all ecosystem partners should align and execute on clearly established business targets. Control mechanisms will be needed to track accountability.

– **Market and consumer alignment.** Organizations need to ensure there is continuous alignment from the start about which consumers each player is targeting. If this changes because of growth or a strategic shift, the ecosystem partnership should be reassessed.

When these pieces are in place, a partnership can be an extremely powerful approach to gaining a competitive edge.

(2) Last-mile delivery

Last-mile delivery will be an industry-wide issue on which businesses will need to work together to solve. An innovative solution would create the optimal combination of cost, efficiency and consumer experience. To achieve this, logistics providers will need to be linked, distribution technologies weaved together, and aggregators or hubs created. Over the next decade, last-mile delivery will need to change. Imagine a future where the goods you order online are delivered to the customer's doorstep as follows:

– In a batched manner, once a day, rather than in separate deliveries.

– In a reusable, eco-friendly container that holds all of the goods. This container fits into a larger containerization system, unlike the cardboard boxes that predominate today.

– By an automated robot deployed via an "aircraft carrier model". An autonomous vehicle drives to a designated point, from which several robots disperse, including one to deliver the customer's single, consolidated container of goods.

– To meet customer expectations, a channel for two-way communication is provided for transparency and access to real-time information.

This future vision is not so far off if the current issues around last-mile delivery can be solved. Today, the last leg of delivery is particularly challenging, especially its cost – approximately 25% of the total delivery cost comes from the last mile. Consumer expectations are important here: consumers have come to expect free shipping, which then means a retailer's bottom line is impacted if delivery costs are not somehow offset. The second challenge is efficiency: with same-day and on-demand delivery becoming a requirement, delivery time must be collapsed, which means the speed and agility of distribution networks must increase. The third challenge is to manage consumer enquiries and meet demand for information during the last-mile delivery leg.

Considerations for business, regulators and policy-makers

The following initiatives will help organizations work together to solve the challenges that last-mile delivery presents:

– **Establish macro-aggregators.** A macro-aggregator, similar to the United States Postal Service, can sort and batch individual deliveries into reusable containers for delivery. It will play a critical role in the distribution network. When economies of scale occur, the macro-

aggregator will help make the economics of delivery more favourable.

– **Invest to put containerization at the heart of delivery infrastructure.** The containerization system is a concept that was revolutionary when it was introduced in the 1940s. It uses standardized, intermodal shipping containers for freight transport, which makes handling, stacking, loading, unloading and transferring goods more efficient. The same concept can be leveraged for last-mile delivery. All goods destined for a single customer can be consolidated into a reusable container, which is delivered and then returned with that customer's product returns.

– **Determine who absorbs the cost of last-mile delivery: consumers, retailers or both.** An industry-led effort will be needed to reset consumer expectations about delivery charges. As technologies such as autonomous vehicles, robotics and drones become more capable, delivery costs will fall.

The path forward will likely include a series of partnerships or ecosystems that combine multiple players, because the challenges of last-mile delivery will not be solved by a single player acting alone. A collective effort will be needed.

(3) Advanced data sciences

The future of retail will be built on insights derived from proprietary data – in particular, consumer data. Businesses must act now to reap the rewards of the consumer data gold rush by moving from simply collecting consumer data to using it to support, scale and systematize better decision-making.

Recent years have highlighted the importance of leveraging data science as a core capability throughout the organization to drive decision-making, yet it has not been adopted at the rapid rate that the industry requires. Analytics is becoming ever more sophisticated and its use within organizations is proliferating, which makes the speed of capability development crucial for retailers. Advanced analytics drives profits because it provides real-time responses to market shifts and can better inform innovation initiatives.

The primary obstacles preventing retailers from speedily developing these capabilities include the expense of developing an insights-driven organization, a lack of data scientists and the right talent to conduct analytics modelling, and infrastructure gaps that prevent action on the insights generated by predictive analytics.

Moreover, consumer relationships have become more difficult than ever to secure and maintain. This makes it imperative for predictive analytics to be applied throughout a retailer's end-to-end value chain and that this capability is continually upgraded to keep pace with industry demands.

Considerations for business, regulators and policy-makers

– **Data ownership.** As traditional consumer touchpoints are disrupted by disintermediation and new entrants to the industry, ownership of consumer data will be the key to success. Yet, because of this disruption, capturing consumer data will be challenging and could become polarized: some players owning disproportionately large volumes of proprietary data; others holding small, fragmented snippets. Over the next decade, as it is highly likely that natural monopolies will arise, regulators will have to plan for and address the consequences for those impacted, both business and consumers.

– **Data security.** As growing numbers of touchpoints, channels and players make the consumer relationship more complex, consumer data privacy will be critical to maintaining trust. Given the increasing role that digital plays throughout the retail industry, there is already a growing threat relating to cybersecurity (e.g. from data breaches) that could have extremely detrimental short- and long-term implications for retailer and consumer alike. Data security will be essential to prevent situations that could compromise consumer relationships. Over the next decade, as different technologies play increasingly prominent roles,

investing in data security will be non-negotiable table stakes.

– **Data-driven supply chains.** Real-time data will underpin just-in-time (JIT) models in supply chains, which can potentially lead to major efficiencies in the availability of materials, delivery schedules, manufacturing capacity and staffing considerations. As changing external factors (e.g. trending fashions) shape internal decisions, it will be imperative to stay ahead by making 'smarter' decisions. This will require critical data to be shared easily among manufacturing teams, from the factory floor to the executive suite.

If companies build up their capabilities – specifically by developing competitive ecosystems through partnerships, last-mile delivery and data science – they will be better placed to succeed in the dynamic environment of the future.
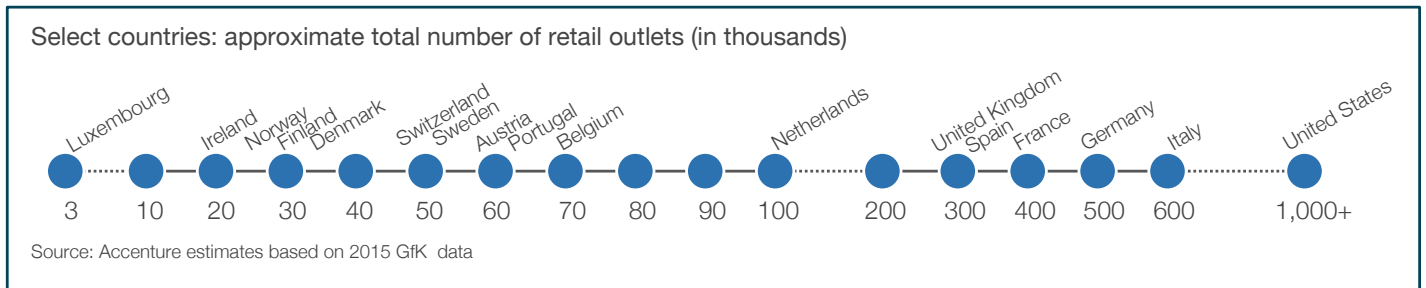
Societal Implications

The impact of digital transformation on the retail workforce, the environment and communities includes some potentially negative implications that will need to be mitigated. Responsible, responsive leadership and collaborative action through public-private partnerships will be vital.

A company's primary focus is likely to be its business goals, but it should also be aware of the potential impact of digitalization on society. In a retail context, this impact is likely to manifest itself through changes to physical stores affecting communities, the impact of new technologies on the industry's workforce and last-mile delivery challenging sustainability. The societal impact of digital transformation may seem negative at the outset, but these risks for society can be mitigated and transformed into more positive outcomes. To achieve this, business leaders and policy-makers should collaborate to address and manage potential risks to society.

(1) Impact of physical retail evolution on communities

Malls and high streets have traditionally been seen as community hubs fusing social, lifestyle and entertainment elements. But an increasing number of retail stores are downsizing or closing each year, as e-commerce captures a higher percentage of sales. This decrease in retail square footage is expected to continue over the next decade and dramatically change those malls and high streets.

Select countries: approximate total number of retail outlets (in thousands)

Luxembourg		Ireland	Norway Finland Denmark		Switzerland Sweden	Austria Portugal Belgium				Netherlands		United Kingdom Spain France		Germany	Italy		United States
3	10	20	30	40	50	60	70	80	90	100	200	300	400	500	600		1,000+

Source: Accenture estimates based on 2015 GfK data

Trend to smaller format stores

In both the grocery and mass merchandiser channels, traditional large format stores are flat or declining, but there is growth in smaller format stores. In grocery, even within the traditional grocery supermarket sub-channel, the new supermarket stores that opened were smaller than existing ones – featuring an average selling square footage of 22,700 square feet, 5,000 square feet or 18% smaller than the average for all stores in the sub-channel.[8] In terms of the mass merchandise channel, recently opened stores were typically less than 40,000 square feet. (The average size of a conventional mass merchandiser is 83,600 square feet of selling space, the average size of general merchandise stores is 21,000 square feet, and dollar stores are 7,700 square feet.) Two implications of these trends for retailers include: additional pressure to tailor local assortment to get the right products on the shelf for the most valuable shoppers; and increasing pressure on price and promotion strategies to ensure customers see real value when they shop in a given store.
Source: Nielsen data and analysis

Store closures over the next 10 years

Store closures represent an opportunity for businesses and local governments to repurpose these physical spaces as hubs for experiences, and lifestyle and leisure activities, providing the foundations for vibrant urban communities.

With approximately 1,050 shopping malls around the country, the United States is particularly over-indexed with retail square footage among digitally advanced nations.[9] In fact, it has five times more square feet of retail space per person than any other country.[10] It is projected that 15% of these malls will close over the next decade[11] with the lower-grade malls (those with sales per square foot of less than $325) being worst affected. This means that the malls most at risk of closing will be in secondary or tertiary markets, and these properties are likely to remain abandoned, face demolition or be reconstructed for uses other than retail.

All of these three options – abandonment, demolition or reconstruction – have profound cultural and economic repercussions for the community:

– **Employment.** Local employment levels will be affected, which, in turn, impacts disposable income.

– **Local revenue streams.** Local governments, which depend on sales tax as an important source of

revenue, will lose that funding stream. This money is typically used to finance local projects such as road repairs, school developments and public services.

– **Neighbourhood character.** If a closed store sits vacant for years, it could become a place for crime and vandalism.

While the repercussions are potentially severe, they can be planned for and mitigated. Imagine a future where there is a shared community space in the centre of town for local residents. It is a multipurpose space where one could, for example, go to the office, gym, bank and grocery store all in one location. The proliferation of these large, mixed-use community spaces, developed with the needs of the local community in mind, is very plausible over the next decade, as traditional retail infrastructure is rapidly transformed.

Initiatives of this kind provide a great opportunity for the industry and public sector to get together to think creatively and plan strategically for urban transformation.

Case study: Collinwood Recreation Center redevelopment project (Cleveland, Ohio)[12,13]

A 66,000-square foot Big Lots located east of downtown Cleveland, Ohio, on a desolate strip of Lakeshore Boulevard, closed down and sat vacant for years before the city bought the property in 2006. Cleveland City Councilman Michael Polensek saw an opportunity and converted the space into the Collinwood Recreation Center, an eco-friendly, LEED Gold-certified building, which opened in November 2011. Thanks to an $11-million investment (backed by City Hall using bond financing for capital projects), the space now houses Cleveland's first indoor water park, basketball court, track, senior centre, fitness rooms, community room, computer centre and offices for city employees. The recreation complex links

to Euclid Beach State Park, which allows for walking or cycling by Cleveland's lakefront. The transformation has been a success, with the space delivering a range of benefits, from helping people get active to improving the environment by diverting storm water run-off.

Considerations for business, regulators and policy-makers
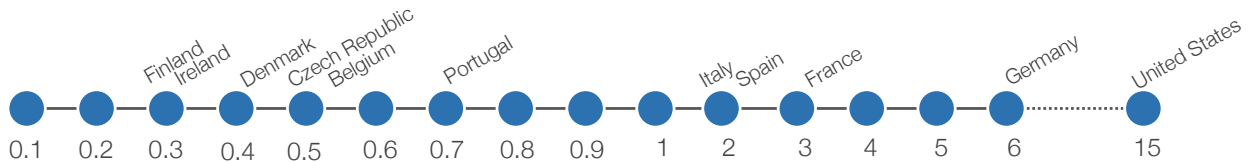
Private redevelopment of retail spaces is happening, but is not expected to be the norm. The question of ownership of a redevelopment will be one primarily for local government. With this in mind, both businesses and local governments should focus on two primary actions:

– **Community partnerships.** Business leaders and local governments will need to partner with the community to determine what the best use of a space will be. As retail closures occur, there is an opportunity to reassess the significance of these properties to a neighbourhood and understand what would be valuable for the community. It will also be important to collaborate closely with the community because public funds (e.g. tax increment financing) will most likely be used to finance the redevelopment.

– **Economic development strategy.** The redevelopment of spaces needs to be part of a larger, long-term economic development strategy. Redevelopment initiatives require big investments, so it is critical that they are thoughtfully planned and part of a larger, multi-year strategy for the community.

If business and public sector leaders focus on collaborating with the community to repurpose closed stores, and strategically incorporate them into their long-term plans, these spaces will prove to be assets that bring the community together.

Select countries- approximate number of employees in retail workforce (in millions)

Finland	Denmark	Czech Republic		Portugal			Italy	Spain	France			Germany		United States
Ireland		Belgium												
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	2	3	4	5	6	15

Source: Accenture estimates based on 2013 Statista data

(2) Impact of new technologies on the workforce

Emerging technologies will drive efficiencies in in-store labour and long-haul trucking, driving job losses while also changing the nature of the industry's workforce by bringing in new types of workers. As the proportion of shopping done online grows, and stores evolve from being primarily transactional to more experiential and technology-led, the composition of the retail workforce and the skills required filling major roles will change.

Today, retail is the largest private-sector employer in the world. The retail workforce in the United States (15.3 million workers) comprises 9.8% of the total workforce,[14] with retail salespersons, cashiers and stock clerks comprising the largest portion of the industry's workforce at 28% (4.3 million), 19% (2.9 million) and 9% (1.3 million), respectively. The deployment of autonomous vehicles and/or drones for delivery to retailers and for last-mile delivery will have an impact on truck-driving and doorstep-delivery jobs. There are 3.5 million truck drivers in the United States alone.[15]

There are three primary drivers that will impact the groups of workers described above:

– **Store closures.** As digital becomes more prevalent and sales shift online, brick-and-mortar stores will close as companies adjust strategies and downsize physical infrastructure. With 15% of retail stores anticipated to close over the next decade, this will displace the workers they employ, especially as the rate of new store openings is expected to be nominal.

– **Automation.** As technology is adopted and incorporated into day-to-day operations, tasks currently done by employees (e.g. stocking shelves, cashier work) will be automated. Once automation is fully incorporated, it is expected to put 30% to 50% of these positions at risk.

– **Employee efficiency.** In terms of sales per employee, there is an enormous disparity between the employee efficiency of online and brick-and-mortar retailers. One employee in online earns revenue equivalent to four to five employees in physical retail. Over the next decade, with the rapid growth of e-commerce, there will likely be pressure in brick-and-mortar retail to increase sales per employee and start closing this gap.

The impact of automation on stores

Stores in the future will:

– Be staffed with sales associates (people and potentially robots) who bring the in-store experience to life. They will have extensive product expertise, both about their own and competitors' products – and their role will be like a personalized consultant for each customer.

– Automate the checkout process using Internet of Things devices to drive a seamless customer experience.

– Robotize inventory and shelf-stocking tasks to track real-time demand and ensure correct inventory availability.

Delivery to and from physical stores and online marketplaces will:

– Leverage autonomous vehicles for long-haul transport.

– Use robots to automate loading and associated tasks.

These developments put the jobs of in-store personnel (specifically in cashier and shelf-stocking positions) and transportation personnel (especially truck drivers and the home-delivery workforce) at risk. The pace of this change, though, will depend on the investments required to incorporate new technologies into stores, the cost of adopting autonomous vehicles or drones, and the future level of wages and benefits for human workers.

Evolving in-store roles to put an emphasis on service

Human interaction is critical for retailers. As stores compete on and differentiate their experience, an enhanced skill set will be required for sales associates in the future. A large component of the job will be providing a personalized service to the client. The interaction must add value and not be centred solely on making the sale, as traditional sales associate roles have emphasized. Customers want to receive high-quality service, not just be sold to. Core skills and job elements will be:

– **Being personable and perceptive.** Associates must connect with customers and understand their true needs. A customer may not be aware of an alternative or additional product that may better fit than what they are seeking. The associate needs to communicate this

'better fit' solution to the customer without appearing pushy.

- **Deep product expertise.** Consumers already have product information at their fingertips, so associates must add value by providing additional consumer education on the product, e.g. by communicating the pros or cons of an item through product comparisons or providing a deeper level of product knowledge as the consumer interacts with the product.

- **Tech savvy.** Associates must be early adopters of technology so that they are versed in the latest technologies and social platforms their customers use, and can also navigate in-store tools and systems effectively.

- **Brand ambassador.** Associates must be enthusiastic and passionate about the brand. They must embody the brand in their customer interactions to capture hearts and minds.

A greater emphasis on service will also be an important trend outside of stores over the next decade, leading to a positive impact on employment in retail-related services.

Out of stores: New labour models to drive employee efficiency

As the composition of the retail workforce shifts, putting jobs at risk, the nature of employment will change. There will be new models and sources of employment that potentially can absorb displaced employees, such as cashiers and truck drivers. As with Uber drivers and post couriers, these "employees" are technically freelancers or independent contractors. Four distinct workforce models are likely to emerge:

- **Employees**. A workforce comprised of core employees is the backbone of the traditional employment model, where full-time employees fill roles across all areas of the business.

- **Employment partnerships**. This model involves developing a collaborative employee exchange with a partner organization to provide a view of the external landscape and/or focus on a specific function. The partner is viewed as a counterpart in technology development and investments.

- **Freelance.** Freelancers or independent contractors perform tasks that require specific globally distinctive skill sets for a specified period. They bring external expertise to the task.

- **Consumers/customers.** They provide experience-led sales or marketing support as an extension of everyday activities.

These four emerging workforce models will change the future retail workforce and redefine employment as we know it.

Considerations for business, regulators and policy-makers

As the retail workforce evolves, industry leaders and policy-makers need to focus on three areas:

- **Reskilling the present workforce.** With brick-and-mortar stores becoming more experiential and service-oriented, frontline workers will require new skill sets. Policy-makers will need to work with the industry to lay the groundwork for successfully transitioning the workforce and equipping them with the skill set they will need in the future to close the skills gap.

- **Right-skilling the college graduates**. Business and policy-makers will need to partner with higher education systems, such as colleges and universities, to map the needs of future employees and adapt the curriculum in these education institutes accordingly. This will ensure there is a skills match with future workforce requirements.

- **New social contracts or benefits.** As new workforce models emerge in which workers are no longer technically employees of a company, it will be important to determine who will provide them with traditional benefits, such as insurance and retirement savings plans. Infrastructure will be needed to fill these gaps

to avoid the serious repercussions of a significant percentage of the population being uninsured and having no plans in place for their long-term financial stability.

If policy-makers can develop a system to provide holistic benefits to workers in new job types, and ensure that compensation in the retail ecosystem evolves as job requirements change, this will provide stability as the retail workforce transforms.

(3) Impact of last-mile delivery on sustainability

Increasing consumer demand for instant delivery is driving industry players to sacrifice some efficiency in order to enhance convenience for customers. This is directly impacting the environment.

This environmental impact takes two main forms: increased CO_2 emissions from more delivery trips being made and extra waste from more cardboard or packaging being used. Customer expectations are changing rapidly, with "on-demand" becoming increasingly synonymous with "instant", and this is driving the growth in emissions and packaging waste. As the industry transforms, it must address and account for this environmental cost.

CO$_2$ emissions

Two considerations are particularly important when comparing CO_2 emissions from traditional brick-and-mortar retail and e-commerce models:

– **Route and load optimization.** The traditional model has a streamlined supply chain: when deliveries are made from a warehouse to a retailer, there are efficiencies, both in terms of increased utilization of logistics capacity and route optimization. Because these deliveries contain many items of the same size, trucks can be packed with maximum volume of goods, leading to greater fuel efficiency and lower carbon emissions. These delivery routes are the result of years of optimization, further lowering carbon emissions. Moreover, because fuel efficiency is a high priority for major logistics companies, many have upgraded their fleets to incorporate hybrid electric and pure electric vehicles. E-commerce deliveries, in comparison, could involve single retailers transporting partial loads or scattershot deliveries without the refined route-optimization algorithms of the traditional model. Also, because a delivery to a customer may only include a single item, the frequency of deliveries may increase, meaning higher CO_2 emissions.

– **Consumer shopping behaviour.** From the consumer perspective, consumers can quickly add to the level of CO_2 emissions related to an e-commerce purchase. Due to the multi-channel nature of shopping, many times consumers will visit the store to view the product prior to purchasing online. In addition, with

approximately 30% of e-commerce purchases being returned, if the consumer makes a trip to the store to return an item, this too is increasing the carbon footprint. There are a number of variables to consider from the consumer perspective that will drive an increase in overall CO_2 emissions.

When looking at the top, major logistics companies, all have increased their average daily volume of deliveries as well as their fleet size as e-commerce has undergone rapid growth. It is clear that, from a retailer's perspective, increases in CO_2 emissions are being driven by e-commerce, given the on-demand nature and inefficiencies of the delivery process.

Cardboard and packaging

Convenience is a key selling point of e-commerce, so speed to fulfilment is a top priority. More frequent deliveries have led to increased demand for cardboard. The question of what happens to these materials after delivery is important. Consumers find it frustrating to break packaging down and can find it difficult to identify which materials are recyclable. According to the United States Environmental Protection Agency, containers and packaging accounted for 30% – or 75.2m tonnes – of total solid waste generated in the United States. There is a clear opportunity to improve the recycling rate with cardboard, and the case for change is compelling, as recycled cardboard can be used to make new paper products; and 24% less energy is required than when making cardboard from raw materials. A greater focus on recycling cardboard and packaging materials would unlock the dual benefits of minimizing landfill and reducing the resources used to produce cardboard.

Considerations for business, regulators and policy-makers

As the industry evolves, it will be critical that business leaders and policy-makers stay focused on mitigating its environmental impact:

– **Reinvent packaging.** Innovation will be needed to develop environmentally friendly packaging options. Recently invented biodegradable plastics help minimize the impact of packaging waste. These and other packaging innovation will have to be scaled. In addition, businesses will have to boost efficiency in fulfilment, and seize opportunities in the packaging process to reduce the amount of cardboard and other materials used.

– **Develop infrastructure for recycling.** If retailers were responsible for taking back delivery boxes, they would have an incentive to use less packaging. Infrastructure will also need to be built that at local and regional levels to make recycling the norm, for both business and consumers.

Conclusion

The research and quantitative assessment underpinning this report emphasize that digital transformation could unlock immense value for the retail and CPG industry over the next decade.

Consumers will be central to shaping the future direction of the industry. As their expectations around cost, choice, convenience, control and experience continue to climb, they will challenge the industry to keep up. At the same time, new and disruptive technologies will fundamentally impact the end-to-end industry value chain, benefitting both the industry and consumers.

Business models will also transform to accommodate these consumer and technological evolutions. The traditional retail model is quickly being replaced by brick-and-mortar stores with evolved value propositions and transformative business models in the online space. To thrive, organizations will need to aggressively pursue innovation and be willing to disrupt themselves.

Industry players will need to build the right capabilities to ensure they are ready for success in this new world. Societal challenges – such as the impact of physical retail on communities, the impact of new technologies on the industry's workforce and the implications of last-mile delivery on sustainability – need to be tackled head on. To overcome these hurdles, partnerships (intra-industry, extra-industry and public-private) will be critical.

Collaboration among stakeholders will also be crucial to ensuring that the digital transformation of retail benefits everyone: the industry, consumers and wider society.

Acknowledgments

World Economic Forum

Zara Ingilizian, Head of Consumer Industries

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Sarah Shellaby, Community Lead, Retail and CPG, Consumer Industries

Accenture

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Karen Fang Grant, Senior Principal, Global Products and Consumer Goods, Accenture Research

Anand Shah, Engagement Partner of Digital Transformation Initiative, Accenture Strategy

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Appendix

Accenture 2016 Global Consumer Pulse Research Survey

Key concepts and statistics from primary research conducted in support of the World Economic Forum Insight Report:

Over 25% of respondents would currently use new business models

In the Accenture Global Consumer Pulse Research Survey, a stunningly high number of consumers indicated they would use these new business models as a dominant or secondary form of purchase – this, despite the fact that most if not all have not been in existence for more than 3 to 5 years – and most consumers have never used or perhaps even heard of them. Respondents lauded these models' convenience, speed, product quality and exciting/fun experience. While consumers showed clear preferences for certain models over others, depending on the occasion, results demonstrated strong pent-up demand for all of these still nascent business models.

– 39% of consumers would like a service to automatically send them home and personal care products when they are running low; 35% would like the same services for food and beverage products

– 28% of consumers would use sharing economy models in consumer electronics and hard goods; 26% would rent clothing or purchase through consignment

– 28% of consumers would use subscribe to a curated selection of clothing, while 25% would purchase cosmetics or other personal care subscriptions

– 25% of consumer would use "do it for me" models for laundry, cleaning services or personal salon services; 24% would use them to have a personal chef or restaurant experience

Solving for the consumer trust equation has begun
We already see the surprising and unpredicted success of digital virtual assistants from a variety of companies; 14% of global consumers are already willing to trust intelligent automation to "think for them" and make purchasing decisions on their behalf – with an additional 35% also open to the idea.

Personalization will be critical
Already, 39% of consumers prefer to build their own pricing structure for a product or service – even if it costs more – to ensure they get exactly the features they most want. The sophistication of consumer demands has accelerated exponentially with the proliferation of data and the technology to enable hyperpersonalization.

– 54% of young consumers feel more loyal when they can personalize the products; 70% for high income young consumers

– Three in four mid-high income young consumers feel more loyal when they are provided with optimally-designed and personally-desired channels to interact

– 25% of consumers are more interested in subscribing to a service if it uses analytics or virtual personal assistants

Consumer influences are rapidly shifting

– Friends and family much more influential than celebrity endorsement/blogger on loyalty (43% vs 24%)

– 20% of 18-34 are willing to publicly endorse a company on social media to show their loyalty (21% of emerging markets vs 10% mature markets across ages)

– Social influences are a leading driver (73% of those shopping for experience products rely on opinions from friends/family/trusted experts; 65% for utility products)

Endnotes

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