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WHAT RETAIL ECOMMERCE WILL LOOK LIKE IN 2050

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Although it seems that retail eCommerce has been part of our daily lives for a long time, in fact, it is a relatively recent phenomenon evolving over just the last 20 years. The internet was opened to commercial use in 1991, and was becoming accepted by the public by the mid-90s. Retail eCommerce expanded through the 90s as retailers recognized customers were eager to purchase online as well as in stores.

The viability of eCommerce became apparent, and it continues to grow to the present day. According to the U.S. Department of Commerce, retail eCommerce rose from 5.1% of retail sales in 2007, to 14.3% in 2018. In 2018, eCommerce grew at 15% while total sales growth was 3.0% in the U.S. (https://www.digitalcommerce360.com/article/us-ecommerce-sales/) According to Internet Retailer, global eCommerce sales grew even faster, at 18%. (https://www.digitalcommerce360.com/article/global-ecommerce-sales/)

Figures over the past ten years indicate relatively steady evolutionary growth rather than revolutionary jumps in spending. This steady advance lends credence to the sustainability of retail eCommerce growth.

Several factors have fueled the expansion of eCommerce's share of retail. These include increased consumer confidence, channel buy-in by traditional brick and mortar vendors, and increased speed and lower cost of delivery. From a consumer point of view, if you know what you want, you can shop for the lowest price and get it delivered to your door, all from the comfort of your living room. So why not take advantage of that convenience?

What will fuel the continued growth of the sector over the coming years? That question is the subject of this paper: What will eCommerce look like in 2050?

The future of eCommerce

We believe that eCommerce will change in four significant ways over the next 30 years. It will become more:

- **Experiential**
- **Automated**
- **Secure**
- **Global**

Each of these areas has evolved or been predicted to develop as part of the fabric of retail eCommerce since the 90s. In this paper, we will examine how these four trends might develop in order to envision how eCommerce could look 30 years from now. Some of the technology and data infrastructure necessary to deliver the requisite capabilities are still evolving. However, we believe these capabilities could be commercially available by 2050.

While we will examine each of these factors individually, it is essential to realize that it is the synergy among them that is likely to drive consumers to use the channel in increasing numbers.

More experiential

As any salesperson or marketer will tell you, one of the keys to bringing a purchase to completion is getting the consumer to picture themselves owning the item. Whether the target is a house, a car, an article of clothing, or a new brand of coffee, the closer we can convince the customer to imagine experiencing it, the closer they are to buying. Get the customer to try on the dress, taste the coffee, or go for a test drive, and they are closer to completing the purchase. These are techniques that salespeople have used for years.

Companies selling services delivered over the internet have frequently used free trials to get the customer to commit. In some cases, eCommerce has eliminated their brick and mortar counterparts because they could deliver the experience without the store. Gone, for example, are record and video stores. Video streaming services will let you try for free. If you're not sure whether the service will perform better than your current cable or satellite service, take advantage of the trial for a week or two and find out.

The free trial works very well for services delivered online. However, for hard goods — cars to be driven, the fit of clothes, the comfort of a sofa or its look in a room — the situation is different. How do we duplicate the experience of walking around the mall online? While it is unlikely that all these experiences will be supplanted by virtual technology in the next 30 years, it is easy to foresee an evolution in which technology becomes integrated or embedded into our daily lives.

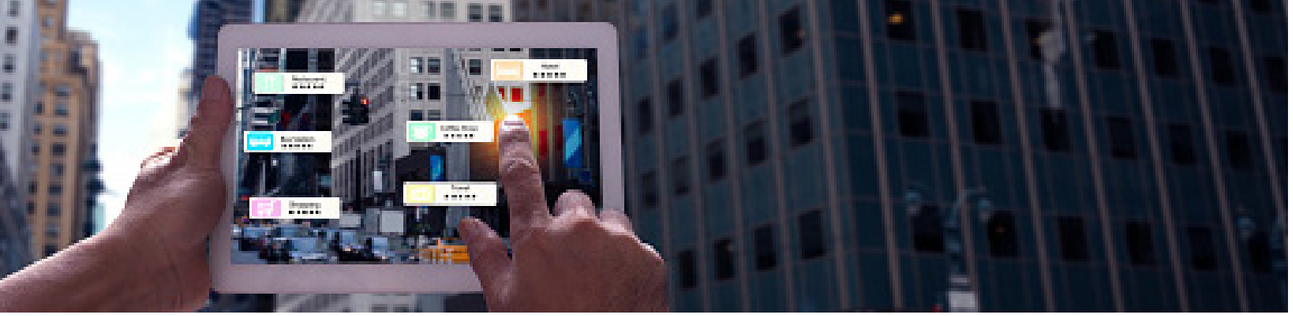
Take something as personal as shopping for clothing. After we consider the more physical and general visual aspects of an item, such as the feel of the material and how it looks on the mannequin, we want to know how it will look on us. Today we need to physically try it on, whether at the store or at home after ordering online.

Instead, picture a situation where our personal fit information is stored along with the dimensions of the item of clothing. It is not a huge leap to envision being able to project the dress onto an image (2D or 3D) of ourselves and see how it looks, rotating the picture and examining it from all angles.

Consider the power of integrating this process with a trip to the mall, where we could either buy the item or choose to take the specifications home after seeing and touching the item. We could store the information on a mobile device and "try out" the item virtually at home. We could take our time and adjust the lighting to see the real color. In the case of clothing, we could see how it would look on us if we were to lose (or gain) a few pounds. We could even share what we've found with another person to get their opinion.

The integration of technology with the physical experience adds another dimension to shopping, potentially allowing us to experience the item and make buying decisions with more confidence and with greater convenience.

A variety of products could fit into this purchasing paradigm. Furniture can be placed in a dimensionalized picture of the customer's room, with the lighting adjusted to simulate the room's lighting at different times of the day. Technology has the capability of bringing together different physical worlds — the store where the sample is located, the choice of style and fabric, and the customer's home where the item will reside. This brings the customer closer to the experience of owning the furniture than they can get today.



Visual and auditory information are relatively easy to capture and duplicate without the physical item. Tactile, olfactory, and taste experiences are more difficult to replicate without a physical presence or additional devices. So let's stick to the easier ones for now and leave the door open for technology advances in other areas.

Our everyday experiences can also suggest opportunities to make purchases without going to a store. For example, we walk past an Italian restaurant and our nose tells us that would be good for dinner tonight — but it's 10 AM, not dinner time. We take a picture of the restaurant, have our digital assistant bring up the menu, select the item we want, and have it delivered at 6 PM.

Alternatively, if we're going to cook, our digital assistant can order the groceries we need so they will be available for pick up at our local market or perhaps delivered to our home. We could even shop around for the best prices for items we want. Too expensive? Too time-consuming? Select a different menu or a different recipe, and repeat as necessary.

These scenarios are evolutionary, not revolutionary — they depend on the development and integration of data and technologies that are either already available or will be soon. In short, the technology and the marketplace will evolve in tandem, as will the willingness of the public to take advantage of these new channels and sellers to invest in them. It is crucial for vendors to understand these trends and future-proof their technology investments.

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More automated

In the world of purchasing, some items are special purchases while others we purchase repeatedly, almost without thinking. Some repeat purchases include products like milk, coffee, bread and similar items we use every day. Other items in this category are replenished every few months. The key is that we know the specific thing we want to buy. The only question is when we want it and what price we will pay.

Amazon and other vendors have already made inroads into this area by giving discounts for subscription purchases. Let's take that idea further. Suppose your refrigerator could sense when certain staples such as milk were about to run out or pass their freshness date. It could check dozens of different items, such as butter or coffee, and determine whether you needed more. It could shop stores by price and learn which store offers the best market basket price, or if you are willing to make multiple stops, where to go and how much you would save.

In short, based on consumption, purchasing patterns and other preferences, your shopping trip could be optimized based on either time or price. Delivering items that aren't time critical from a non-store source is also an option.

The sensors necessary for this scenario exist, but are not pervasive. However, as history tells us, price, convenience, and profitability all drive the deployment of technology. Once selling smart refrigerators is profitable, they are likely to grow in popularity and replace our current devices.

Again, this is an evolutionary change. The data technologies needed to support this automation already exist. The development of the databases, access and software is more of an investment challenge than a technical one.

Other issues include whether people are willing to give up privacy for savings and convenience. Can smart-home commodity sensors save more than they cost? How would businesses make a profit from them? These are questions that still need answers, but if smart thermostats and doorbells are indications, we can expect the presence of eCommerce automation technology to continue to grow.

With the automation of eCommerce, the ability to obtain and analyze the data will take a lot of the guesswork out of buying decisions.

Suppose you are shopping for an energy provider. If you know more about your energy consumption, including its timing, you can select the optimal energy plan. However, most of us don't have the data and analytics capability to choose the optimal plan.

The penetration of this type of analysis to the consumer market is certainly within the realm of possibility. The barrier at this point is not technology, but the availability of the data and the ability to market the analytics profitably. History has shown that if the ability to gain a competitive advantage exists, someone will develop the service and it will eventually become table stakes for doing business.

More secure

Having the customer feel secure in making a transaction has always been vital for eCommerce. The initial hurdle for eCommerce was getting consumers to post their payment information over the internet. As eCommerce became more pervasive, so did security issues. The increase in money flowing through the system and the number of channels through which it flows creates the opportunity for bad actors to take advantage of vulnerabilities.

Businesses today — including eCommerce — must balance simplicity with security. Consumers want the payment process to be as easy as possible, without worrying about financial information being compromised. Merchants, on the other hand, want to know that once they make a sale, they will get their money.

However, the prevalence of multiple, varied devices, combined with numerous channels, creates vulnerabilities.

A 2017 survey showed the average user has 27 different logins. (https://blog.malwarebytes.com/101/2017/05/dont-need-27-different-passwords/) Other studies estimate that business employees use close to 200. (https://www.securitymagazine.com/articles/88475-average-business-user-has-191-passwords) As a result, people commonly reuse passwords, creating security risks.

The line between business and personal use is blurring, and it may be unrealistic to expect workers to keep their business and personal lives separate. Google, Dropbox, GitHub, and LinkedIn are just a few examples where business and personal usage overlap. eCommerce vulnerability is not separate and distinct from business vulnerability—it is part of the entire security picture.

Part of the problem is the combinatorial explosion in the number of security sites, devices, and pathways to them. Part of the solution is storing critical information in a more limited number of highly certified locations, with added security such as biometrics and rolling randomized passwords. By decreasing the number of pathways and sites, we can focus on hardening the protection of the ones that remain.

Another issue is making access to security information by the authorized user easy. In all probability the migration will be from:

- **Something we know (passwords) to...**
- **Something we have (tokens or codes sent to mobile devices) to...**
- **Something we are (biometrics such as fingerprints or iris scans or geolocation) to...**
- **Something we do (how we scroll, type or hold a device)**

In each case, we are moving the point of vulnerability to something more unique and less knowable or duplicatable by bad actors. The question becomes how often or how seamlessly can we validate identification. Once the door to the security area is open, how do we prevent bad actors from slipping in, emulating or taking over an authenticated device?

Basing security on something we do provides the advantage of validating the behavior on a periodic (or even continuous) basis without disturbing the user. The user goes about their business of scrolling, keying or holding the device, and the background technology evaluates whether the behavior matches the user's profile.

years is still in question. However, the current, expansion of channels, devices and locations for storing sensitive information is unsustainable from a security perspective. We predict movement to fewer, more security-hardened vaults to store data, with access based on continuously monitored behaviors. “Something we do” security can let us create a more secure environment while easing the burden on the user.

More global

History shows that markets grow globally. eCommerce has advantages over brick and mortar stores in continuing that trend because sites do not depend on the investment in physical real estate and on-hand inventory. One location can serve a broader geographic area. Combined with the increase in both experiential and automation components, emerging global markets present the potential for eCommerce to grow beyond simply replacing brick and mortar infrastructure. To determine the best path for market penetration, factors to consider are the market, locations, and the availability of physical infrastructure.

In many cases, global expansion could require some brick and mortar stores, or at least warehouses. However, it is more likely that a hybrid infrastructure will emerge, taking advantage of both the physical infrastructure and advances in experiential and automation technology. Perhaps this will take the form of showrooms rather than traditional stores, where items can be presented and then purchased online. This hybrid approach would decrease the need to invest in physical infrastructure and stock on hand.

With globalization comes greater diversity of the customer base. Products that sell well in one market may not do well in another. The ability to bring more knowledge to what we market and how we market it to new audiences will require more analytics. eCommerce provides an increased opportunity for merchants to analyze shopping and buying behavior through the data generated by eCommerce processes. They can adapt marketing approaches through experimentation when expanding to a new area. Collecting and analyzing consumer behavior and feeding it into inventory practices can reduce costs. Of course, merchants will still need to fulfill orders in a timely fashion. Another key to globalization is the ability to navigate the increased number of payment, currency conversion, and tariff issues that come with operating in a global environment. Payment systems that solve these problems today will gain increased importance with globalization.

eCommerce will be an enabler of globalization, not only from a cost and ease of implementation perspective, but from an analytics-based point of view as well.

The drive to centralize and simplify the payments processes, funneling the hundreds, if not thousands, of combinations of payments channels, providers, currencies, and taxation entities into a flexible system, will provide significant opportunity to mine the data from these processes to feed increasingly sophisticated analytics and machine learning.

Conclusion

We’ve shown that experiential, automation, security, and global factors will be key enablers of eCommerce and will drive growth in both existing and new markets.

It’s likely that lines between eCommerce and traditional retail will blur to a point where we don’t even consider eCommerce a separate segment.

This will affect not only how items are purchased online, but also how customers interact with physical stores. A consumer may see, need, or want things and obtain them and pay for them without walking into a store. Alternatively, they may see something on a shopping trip and capture a link (whether a picture, RFID, or SKU), and shop for a lower price while they are standing in the store.

Experiential and automation advances could allow consumers to select the right item for them and have it delivered to their home. The security of the payment service will enable them to pay for their items seamlessly and without concern.

Experiential, automation, and security developments will likely enable rapid expansion of eCommerce into global markets. A significant barrier to global expansion has always been adapting payment systems to local currency, exchange rates, and taxes. As payment systems become more secure and cover more markets, these issues will be resolved within the payment system of choice, rather than by each vendor.

What will eCommerce look like in 2050? It will be bigger, more technology enabled, and more indistinguishable from the entire consumer landscape.

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