40 BIG TECH PREDICTIONS FOR 2019

FORTY PREDICTIONS ACROSS MOBILE, DIGITAL MEDIA, PAYMENTS, E-COMMERCE, INTERNET OF THINGS, FINTECH, TRANSPORTATION AND LOGISTICS, AND DIGITAL HEALTH FOR 2019

January 2019

Business Insider Intelligence

BUSINESS INSIDER INTELLIGENCE

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INTRODUCTION

Nearly every industry has been disrupted by digital technologies over the past 10 years. And in 2019, we expect to see more transformative developments affect our businesses, careers, and lives.

Some of these major predictions include:

- The evolution of the smartphone
- An Alexa-powered car product
- Proposed regulation of tech platforms from all angles
- Acquisition of Snapchat by Amazon
- Assistant-enabled microphones in all devices around the home
- Private 5G networks for manufacturers
- Cameras equipped with artificial intelligence
- A full-scale payments or banking product by Amazon
- Acquisition of a warehouse robotics startup by UPS, FedEx, or DHL
- A digital health acquisition by Amazon, Apple, or Google

Here are 40 of our big predictions for 2019 across Apps and Platforms, Digital Media, E-Commerce, Internet of Things, Payments, Fintech, Transportation & Logistics, and Digital Health.

OUR TOP 5 APPS AND PLATFORMS PREDICTIONS

2018 brought widespread transformation across the apps and platforms space. The rise of emerging technologies like voice, immersive reality, connected devices, and 5G will alter consumer behaviors in the year ahead. The next phase in the evolution of the smartphone will begin to take shape, and developments to two platforms — voice and VR — will create a new battleground for app makers. Mergers will continue to shake up the telecom and media landscapes, and voice will continue to push into all aspects of consumers' lives. Based on our ongoing analysis, understanding of industry trends, and conversations with industry executives, here are our top five predictions for apps and platforms in 2019.

1.

The evolution of the smartphone is unfolding.

Smartphones are essential to consumers' daily lives; everyone owns one, it's where we spend most of our digital time, and it's the central hub of our lives. While we don't anticipate new technology to ever fully replace the smartphone, we do expect what we know of the smartphone to evolve. Phones have changed from bricks to slide-opens, and from QWERTY keyboards to rectangular smartphones, Blackberrys, and iPhones. And we believe that foldable phones — which have tablet-sized screens but can be folded to the size and shape of a typical smartphone — will be the next step in the smartphone's evolution. These devices will come to market in 2019 from an array of smartphone vendors including Samsung, Lenovo, LG, and Huawei, and they're expected to be a hit among consumers in the year ahead:

- **Consumers are quickly taking to smartphones with larger-sized screens.** Phablets — smartphones with a screen size of 5.5 inches and larger — are already the leading smartphone form factor. These devices are expected to account for two-thirds (67%) of all smartphone shipments in 2018, up from 43% a year earlier, and that share will jump to 88% of overall shipment volume by 2022. Moreover, smartphones with 6- to 7-inch screens became the most prominent smartphone segment for the first time in Q3 2018, and will continue to lead in the year ahead.

- **But there's a limit to how large screens can become, which is where foldable phones come in.** Foldable phones are a feasible solution to expanding screen real estate without making the device awkward to use: Consumers can use the entire screen to play a video game while on the train, and then fold it when on the go so it fits comfortably in their pocket. This capability allows vendors to expand screen sizes, without them becoming so large that they inhibit comfortable one-handed usage or sacrifice portability.

- **The devices are paramount to evolving consumer behavior.** Consumers are using their smartphones for digital activities more often, and they're doing so for richer activities, such as streaming video and playing more data-heavy games, which were traditionally done on devices with large screens like TVs and computers. As 5G comes into play, consumers will be able to do even more of these activities on their smartphones, making it essential to expand screen real estate without crippling the smartphone experience.

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LETSGO DIGITAL

2.

Amazon will launch an Alexa-powered car product similar to Apple's and Google's.

Amazon's been making a concerted effort over the past few years to infuse Alexa into as many facets of a consumer's daily life as possible. Although Alexa benefits from Amazon's expansion of its own Echo smart speaker product line, its staying power will come from integration into more connected devices, as that will keep Alexa at the heart of the consumer's journey — from the home, to the car, to the smartphone when leaving the car. In the year ahead, Amazon will seek to broaden its Alexa-enabled network in the connected car market because the car is most likely to become the next big digital platform. And invading the connected-car market will be crucial to expanding the scope of the voice assistant:

- **Voice assistants are already seeing more usage in-car than on smartphones.** Among US consumers who have used a voice assistant in the car or on a smartphone, 68% do so monthly in cars compared with 61% on smartphones, according to Voicebot. The car is a prime environment for voice usage since consumers can use the tech to accomplish tasks without taking their hands off the wheel.

- **Entering the atuo space can help crack the Apple-Google duopoly.** Apple's CarPlay and Google's Android Auto — the companies' connected car operating system extensions — rely heavily on voice control, via Siri and Assistant, respectively, to operate a car's connected system. CarPlay is currently available across nearly 60 different car manufacturers' models, while Android Auto is available across over 70, and Apple and Google continue to extend them to new manufacturers.

Creating a connected car operating system extension similar to Apple's and Google's would be the only viable option to set the company on an even playing field with its rivals. Currently, Amazon only has a few partnerships with car companies to infuse Alexa into their car models' operating systems. It's also launched Alexa Auto, which is a device that brings Alexa into the car through a Bluetooth connection or physically with an auxiliary jack. However, Alexa's true power in the car will come from being natively embedded into its operating system, like Apple's and Google's voice assistants are, since consumers would be more likely to rely on their car's native assistant than one through a Bluetooth connection. It'll be crucial for Amazon to enter the market in 2019, as CarPlay and Android Auto were already available in over half (52%) of all new car models shipped in Q1 2018, giving them an early lead.

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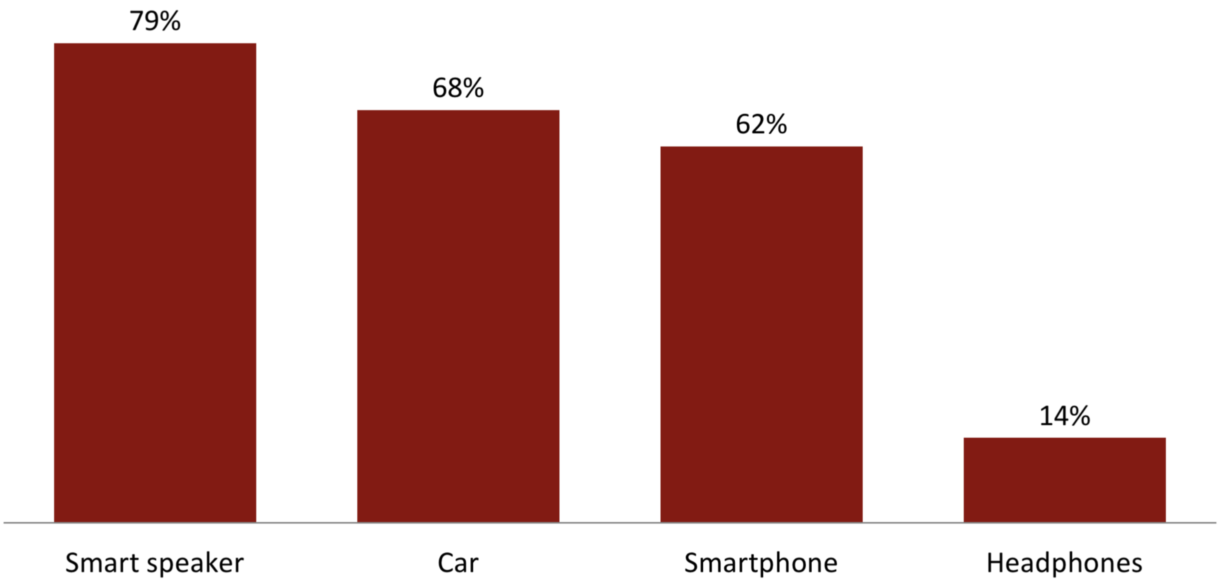
Monthly Voice Assistant Usage, By Device Type

Share of US adults who use voice monthly on each device



Source: Voicebot.ai, Pullstring, and RAIN, n=1,040, 2018

3.

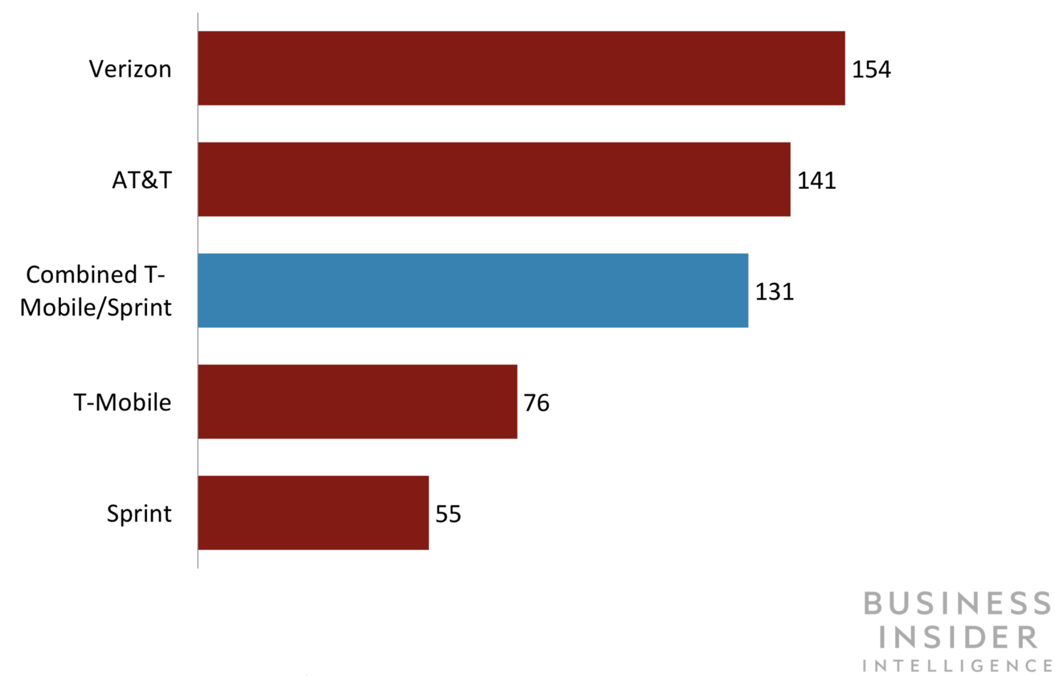
The T-Mobile-Sprint merger will shake the US wireless carrier market.

The third- and fourth-largest US mobile carriers reached an agreement in late April to merge under a new, combined entity that will take the name New T-Mobile. This is the third time in four years that the telecoms have explored the idea of joining forces. However, we expect this attempt to pull through, despite regulators generally being reluctant to shrink the US mobile carrier market from the Big Four to three players due to competition concerns. In fact, we believe that consolidation will actually boost competition when it comes to offering the best value, as it will transform the market from two strong players to three strong players.

- **New T-Mobile will leverage both companies' resources to offer lower price plans for consumers, according to T-Mobile COO Mike Sievert.** Moreover, merging Sprint's and T-Mobile's free content perks — including Netflix, Hulu, Amazon Prime, Tidal, and Pandora — would represent even more cost savings for consumers. This will enable the duo to better compete with AT&T, which is gearing up to launch a video service in its WarnerMedia unit. The lower prices and increased value to consumers will enable the merged firm to lure customers from Verizon and AT&T, prompting the competition to follow suit with the aim to retain customer loyalty.

- **The combined company will be able to build out a nationwide 5G network on a timeline closer to the competition.** A combined 5G network could leverage Sprint's 2.5 GHz holdings and T-Mobile's spectrum at 600 MHz to create the highest-capacity mobile network in the US to date. This would enable the carrier to lead 5G deployment, further catapulting the US ahead of the global race to 5G — an area the Trump administration is looking to lead. It will also motivate Verizon and AT&T to innovate, as they'll risk losing subscribers to New T-Mobile's 5G network, given its lower prices.

US Wireless Carrier Subscriber Bases
Millions



Source: Carrier announcements, Strategy Analytics, 2018

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4.

A "killer app" will emerge for the VR market and catalyze consumer adoption.

The VR market slowly began to catch on with consumers in 2018. New stand-alone VR hardware came into existence, and key players like Oculus and HTC slashed the prices of their existing tethered headsets, making the tech more palatable to the average consumer. These monumental developments, however, didn't equate to mass consumer adoption in 2018. The market is still missing a game-changing app that will be captivating enough to shift consumer behavior toward putting on a VR headset. Although developers are creating content for the VR ecosystem now, a robust offering of unique VR content, such as social VR, should captivate consumers in 2019, which will drive consumer awareness of VR headsets and supercharge adoption at scale.

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5.

Brands will start to create voice apps at a rapid clip, coinciding with the rise of visual displays.

Voice apps are currently in their early stages because they have limited capabilities due to their visual-free interface, which makes it challenging to engage consumers. This has deterred many brands from creating their own voice apps. But now that screens are becoming more common on smart speakers, like the Amazon Echo Show and Google Home Hub, their added visual component can enable a richer, more engaging user experience, prompting users to seek out voice apps more often. For instance, Amazon introduced a new design language for developers, called Alexa Presentations Language (APL), in September, enabling them to craft Alexa voice skills that adopt visual elements such as GIFs, images, videos, and slideshows. These visual elements will help brands see the value of voice apps and push them to opt into the ecosystem, as voice apps will be able to be used for more activities, and will be sought-after by consumers more often.

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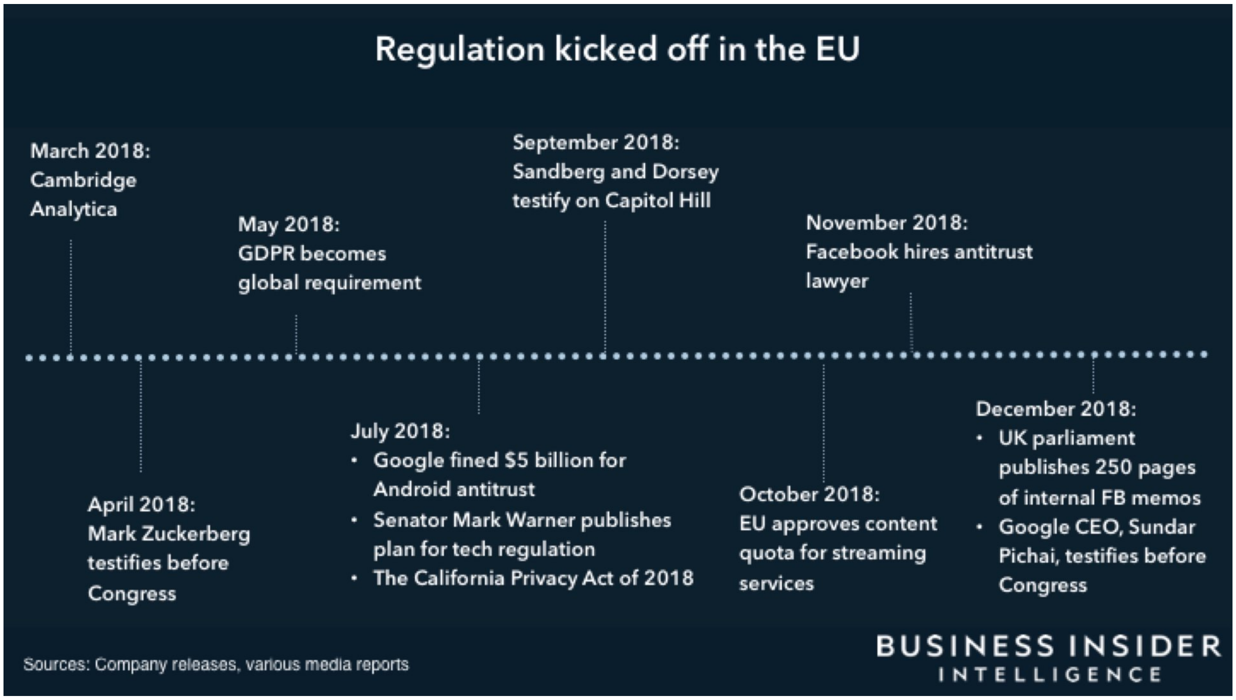
OUR TOP 5 DIGITAL MEDIA PREDICTIONS

2018 was a busy year in digital media: We weathered everything from data breaches to fake news to the official rollout of GDPR. We've seen intense bidding wars as big media further consolidates and watched Amazon elbow its way into the digital ad space. And we've watched "Stories" take over social media, vacuuming up users from feeds and driving investment in vertical video. Meanwhile, more familiar trends — like cord-cutting and the explosion of eSports — continue to present new challenges and opportunities as companies navigate their digital transformations. 2019 promises to be just as busy, and below are our top predictions for the digital media industry across the next year.

1.

Tech platforms will face proposed regulation from all angles, with the US clamping down on privacy and transparency, and the EU leading the way on antitrust.

Through 2018, lawmakers around the world have battered tech companies — mainly Facebook and Google — for their monopolistic tendencies and self-regulation shortfalls. In 2019, we expect that criticism will translate to ramping up of proposed regulations. In the US, we think the immediate push will be around standing up a federal data privacy law in the wake of the EU-derived GDPR, with a long-term eye on antitrust. After all, Trump recently told Axios that his administration is looking at "all of them," meaning tech platforms ranging from Apple to Amazon, on antitrust grounds. But we expect any actual action around antitrust in 2019 to come from the EU, which has been most aggressive/defensive in its pushback against tech giants. The EU will also continue extracting cash from platforms in the form of fines for data privacy infractions and anticompetitive practices and new taxes that target tech platforms' ad revenues. It's also increasingly possible the nations that have disproportionately suffered from tech could stonewall companies from operating altogether, as societal risks outweigh rewards. For example, Facebook has been especially disruptive to social structures in developing nations, like Myanmar, where the social site was used by members of the military to spread genocide-fueling propaganda targeting the country's Rohingya minority.


Regulation kicked off in the EU
March 2018: Cambridge Analytica
May 2018: GDPR becomes global requirement
September 2018: Sandberg and Dorsey testify on Capitol Hill
November 2018: Facebook hires antitrust lawyer
April 2018: Mark Zuckerberg testifies before Congress
July 2018:
• Google fined $5 billion for Android antitrust
• Senator Mark Warner publishes plan for tech regulation
• The California Privacy Act of 2018
October 2018: EU approves content quota for streaming services
December 2018:
• UK parliament publishes 250 pages of internal FB memos
• Google CEO, Sundar Pichai, testifies before Congress
Sources: Company releases, various media reports
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2.

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AVOD platforms will move mainstream as SVOD-saturated viewers seek out fresh content for free.

We expect that AVOD platforms like Hulu, Tubi TV, PlutoTV, Walmart's Vudu will expand reach and see growing usage in US streaming households. That growth will come from the rising adoption of connected-TV devices or smart TVs that have exposed more viewers to apps-based TV interfaces, making AVOD platforms easily accessible. Users won't abandon SVOD services, but we think they'll increasingly supplement them with AVOD viewing. We expect that SVOD uptake caps at around 2-4 services per household — and the global household average is just over two — leading users to seek out free, ad-supported content to supplement streaming habits. Broadly speaking, this shift will be driven by the ongoing "unbundling" of content — where the pay-TV bundle is being broken down and sold in specialized pieces. Unbundling is a necessarily atomizing force, but we think the fragmentation has gone too far, spawning a seemingly infinite number of SVOD services as a result. That amount of choice in paid services is overwhelming for viewers. A retreat back to free content is the likely response.

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3.

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Disney+ will emerge as the clear-cut winner among the high-profile SVOD services launching in 2019, besting WarnerMedia and Apple.

Disney has some of the most popular and iconic intellectual property on Earth, making its upcoming direct-to-consumer offering, Disney+, a must-have for OTT households. We think the most obvious positioning of Disney+ will be for it to focus on families with children, promoting its most popular content — like "Frozen" and "The Lion King" — to entice initial subscriptions. But Disney+ has appeal that extends beyond kids movies — it also houses mega-popular Marvel titles like "Avengers: Infinity War" and "Black Panther," the No. 1 and No. 2 top-grossing films worldwide in 2018. Consumers will find it hard to ignore the sheer amount of high-caliber content the service will provide at a reasonable price (we think between $6-$8 per month). That will be doubly true if Disney foregoes licensing revenue to keep its content exclusive. We also think that Disney will include non-sports content from ABC and Freeform to round out its service, and keep ESPN separate in its existing SVOD app. Even though Disney+ is set to be the last subscription to launch next year (WarnerMedia will launch in Q3, Apple in "mid-2019," and Disney+ in Q4), we think its superior content library, affordable price point, and the global appeal of the Disney brand will propel it to the top spot.

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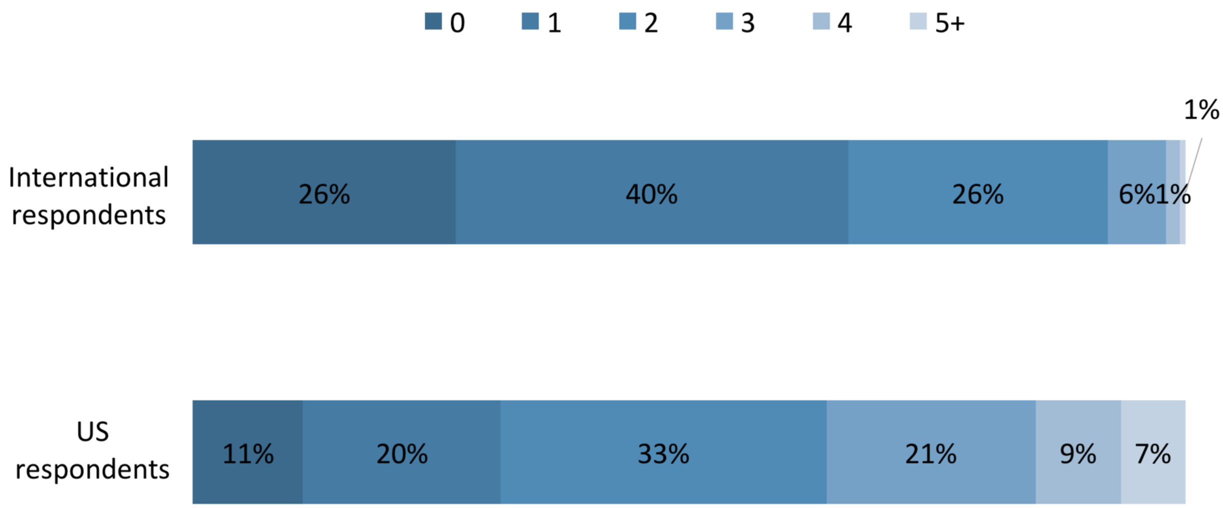
A Quarter Of International Consumers Don't Pay For A Streaming Video Service

Q: How many paid video streaming services do you currently subscribe to?



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Note: International respondents are from the UK, Canada, Mexico, Europe, Asia, and rest of world.
Source: Business Insider Intelligence SVOD survey 2018; US n=1,224; International n= 868

4.

Amazon buys Snapchat as the social app struggles to add users, compete with Instagram, and make money.

2018 was abysmal for Snap. In the year, the company lost daily active users for the first time, saw several key executives jump ship, and faced multiple reports about the declining quality of its ads, among other snafus. The hiccups prompted CEO Evan Spiegel to publish a lengthy strategic turnaround plan, with a goal of becoming profitable in 2019. However, we think that Snapcat's user growth has been irreparably harmed by Instagram's success with Stories. The company will need a parent company that has the resources and drive to reposition the app — enter Amazon. There's reason to believe Snap is desirable to the e-tailer. The two are already partnering on e-commerce crossover features, like visual search via Snapchat. Social is becoming a stronger driver of e-commerce sales, and Amazon could drive greater engagement by way of the captive audience a social platform provides. And a social app also gives it yet another source for user data and, in turn, ad sales. Amazon could also convert Prime subs to Snapchat users if it builds up its functionality on e-commerce-driven social features.

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5.

Publishers will continue buying into podcast hype and entering the space while publishers already invested in the format will begin to sour on it.

The US podcast listener base will grow in 2019 — Business Insider Intelligence predicts the format will be used by 26% of the US population next year, up from 24% in 2018. And although there will be an uptick in publishers launching their own audio shows to capitalize on the podcast hype, we'll learn of more companies closing down podcast operations as the crowded landscape makes it difficult to cultivate a following. Apple currently hosts 550,000 active podcast shows, up from 525,000 in April, for example. Even for those able to drum up a following, monetization isn't guaranteed — podcasters typically aren't eligible to advertise their shows without first receiving about 20,000 downloads, and the average number of downloads is only 1,600. That helps explain why, between 2005 and 2015, the average podcast lasted only six months before going inactive. We expect publishers to get frustrated with the format's revenue-generating woes in 2019, with many going the route of BuzzFeed, which shuttered its in-house podcast operation in September.

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OUR TOP 5 E-COMMERCE PREDICTIONS

In 2018, seeds of innovation began to grow across e-commerce and retail, especially in the areas of automation and virtual reality (VR), and through the emergence of the first cashierless stores. Not coincidentally, this took place in a year of strong growth, with the US retail market expected to grow more than $200 billion throughout 2018 to reach $5.3 trillion. Interestingly, some of the biggest global e-tailers such as Alibaba, Amazon, and JD.com have seen their e-commerce marketplace sales decelerate during recent quarters, possibly because they're finding it harder to grow as fast as they used to, given their immense amounts of revenue. This has left other retailers like Walmart and Target to pick up the mantle of growth. Based on our ongoing analysis, understanding of industry trends, and conversations with industry executives, here are our top five predictions for e-commerce in 2019.

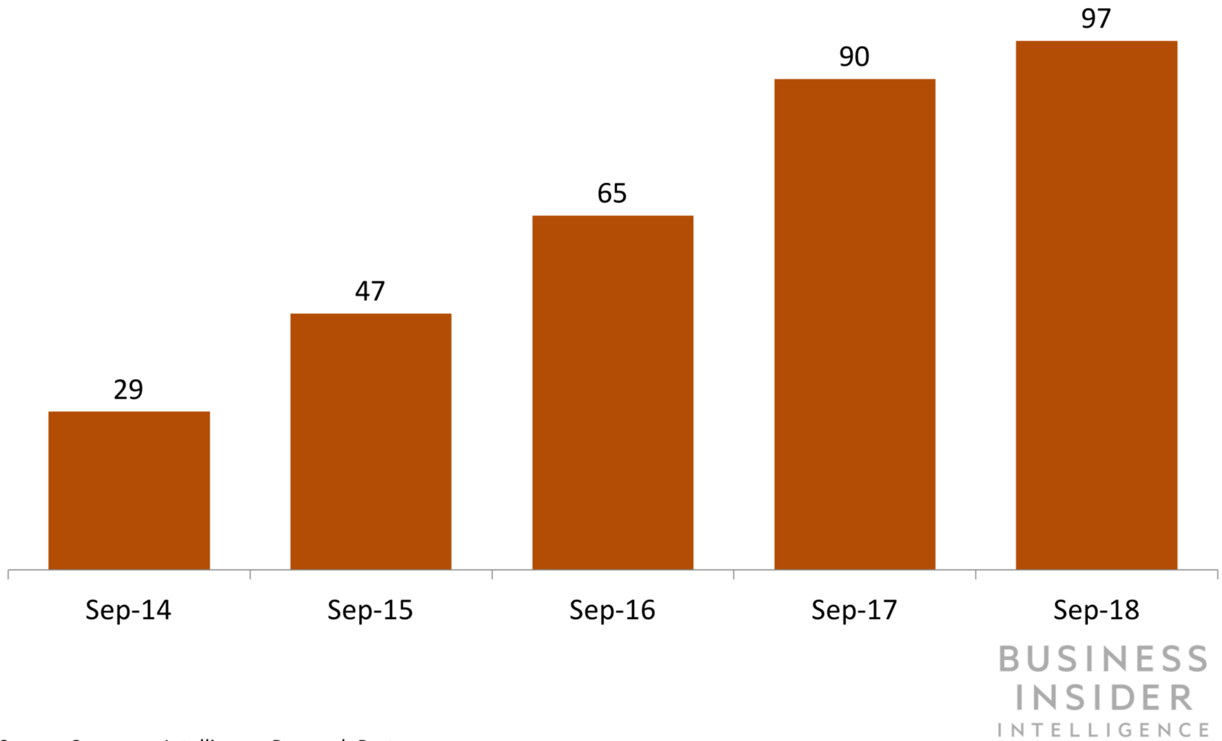
1.

Amazon Prime's US membership growth will flatten almost to zero.

The rate at which Amazon's been adding members to Prime has been dropping steadily over the last several quarters, slipping to 8% year-over-year (YoY) in Q3 2018, according to estimates from Consumer Intelligence Research Partners (CIRP). This is likely due in large part to saturation — there are an estimated 97 million US Prime members, which is an enormous base to try to expand upon. Considering that there are only around 119 million households in the US — a better measure of the addressable market than population, since households are likely to share a membership — the maximum addressable market left for Amazon to sell further memberships to is small. And it's likely smaller still, given that 11% of US adults don't use the internet and around 21% are under 18 (the minimum age for an Amazon account). To combat this, Amazon has added several new benefits to Prime this year in hopes of enticing more users, such as Prime Wardrobe and the expansion of online grocery benefits from Whole Foods to 60 markets. However, even after adding major perks last year — like benefits at Whole Foods and a cheaper Prime offering for consumers with an Electronic Benefit Transfer (EBT) card — between September 2017 and September 2018, membership still hit the lowest growth seen by CIRP since 2012. This suggests that these improvements haven't given Prime the boost Amazon hoped they would; without a serious change — such as a drop in the cost of Prime, which is unlikely to occur — this bump may not be forthcoming.

Estimated US Amazon Prime Members

Millions



Source: Consumer Intelligence Research Partners

2.

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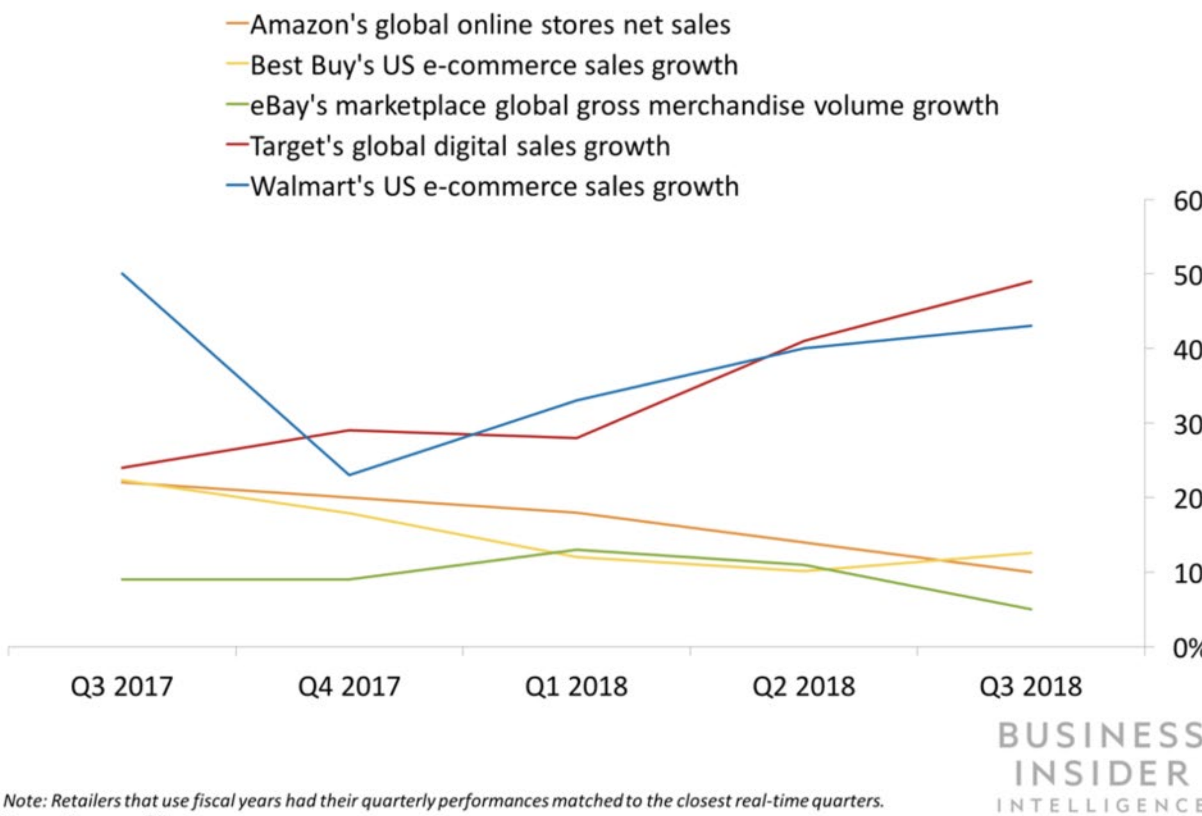
Target will emerge as the clear-cut fourth place US online retailer.

Amazon and eBay are well entrenched at the top of US e-commerce, and while Walmart doesn't release e-commerce revenue metrics, it's estimated to be in third place. Players like Best Buy, QVC, and Target have traditionally made up the middle of the pack. However, Target posted digital sales of $1.06 billion in its fiscal Q3 2018 (ended November 3, 2018), its second consecutive quarter with greater than 40% YoY growth. This is positioning Target to separate itself from the pack in 2019, and two key initiatives are set to propel it even further.

- **Convenience:** It's committed to making fulfillment as convenient as possible for consumers via services like Drive Up, Target Restock, and same-day delivery — which is widely available thanks to its acquisition of Shipt. This can convince consumers to shop with it, especially because it's offering the best delivery deal of the holiday season: free two-day shipping with no order minimum or membership fee.
- **Self-investment:** In 2017, Target committed to investing $7 billion into itself over the following three years. This is an ongoing process that can push its performance further in 2019. For example, it's piloting a new fulfillment system that can help make it more efficient and potentially faster, facilitating its booming e-commerce business.

Top US E-Tailer's E-Commerce Sales Growth YoY



Note: Retailers that use fiscal years had their quarterly performances matched to the closest real-time quarters.
Source: Company filings

3.

Social commerce will fail to gain adoption despite social platforms' efforts.

As of May 2018, 82% of consumers had not bought a product directly through social media, and the exact same percentage of consumers responded the same way in 2017 and 2016, according to a report from SUMO Heavy. And only 20% of respondents were unfamiliar with social media shopping, so awareness is not the leading issue. For context, the top 500 retailers earned an estimated $6.5 billion through social shopping in 2017, and if the 24% YoY growth seen in 2017 maintains, it would bring in over $8 billion in 2018. To further improve the performance of social commerce, Instagram and Snapchat have been bolstering their shopping offerings with shoppable posts and ads. And recently, Instagram enabled users to save shoppable items to a list to come back to, and it now allows consumers to view all products posted by a retailer, while Snapchat has launched a channel exclusively for shopping and deals.

New features may make it easier to shop through social media, but that doesn't mean they'll inspire consumers to make purchases. Social media's greatest value in commerce is product discovery, and many consumers seem disinterested in buying through the platforms. While these latest efforts may lead to greater order frequency and value among the 18% of consumers who have bought through social media before, they won't move the needle because they don't enhance the curated product discovery capabilities that allow social media to influence purchases. Platforms need to entice consumers to shop through them, rather than simply making it easy to do so, similar to how they make users want to visit their sites in general. Finding ways to make product discovery and personalization shoppable, in addition to creating a unique commerce experience to match their platform's distinct values, would instead be able to drive adoption.

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4.

Cashierless stores won’t scale much beyond the size of a current Amazon Go store in 2019.

There are currently seven Amazon Go stores, and they’re all under 2,500 square feet, allowing them to function as convenience stores but not much else. To give the technology — which allows shoppers to grab what they want and leave without stopping to check out — the ability to work in other retail situations, Amazon is reportedly experimenting with its technology so it can work in bigger stores. But because Amazon Go stores were designed to fit the technology — and not the reverse, where the technology would be made to fit a preexisting store — applying the network of sensors and cameras to a bigger store is likely to prove difficult and may face delays, just as the original Go stores did. Meanwhile, third-party providers like Standard Cognition and Trigo Vision just partnered with retailers for the first time this year to outfit their stores with cashierless technologies. And though many of these providers only use a network of cameras — which is more easily scalable than Amazon Go's tech — they won’t be able to scale right away either. Communicating with these retailers and effectively retrofitting larger stores with the necessary technology will prove difficult because these partnerships are so new, causing bigger stores to take longer to open.

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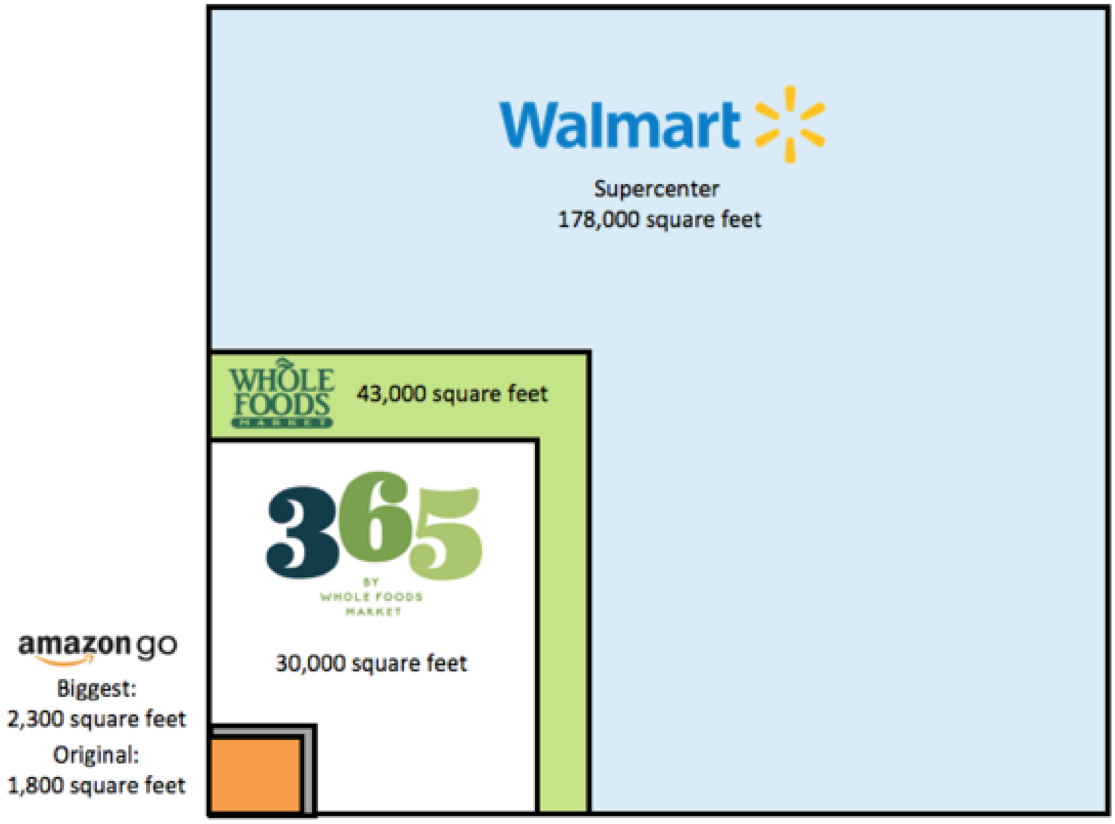
Store Concept Approximate Square Footage Comparison



Note: All sizes are averages or approximations.
Source: Company filings, CNBC, The Verge, 2018

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5.

Meal kits teaming up with retailers won't make a difference, and overcrowding will lead to a market contraction.

As the meal kit space gets more and more crowded, several players are turning to selling kits in stores to draw on potential customers who are leery about committing to a subscription. In fact, in-store sales of meal kits are currently on the rise, growing more than 26% YoY in 2017, according to Nielsen. However, with over 150 meal kit companies in the market, it's reasonable to expect that they will continue to cannibalize each other despite their best efforts. Even Blue Apron, one of the largest and historically successful meal kit companies, has been struggling, with its customer base dropping 24% YoY in Q2and 25% YoY in Q3. On top of that, partnerships with retailers are not always 100% steadfast: Costco recently put sales of Blue Apron meal kits at its stores on pause for the holiday season in favor of higher-selling items. This is both a vote of low confidence in Blue Apron's kits and a troublesome blow to the meal kit company's sales prospects during the high-volume holiday season, demonstrating the lack of reliability of these retailer partnerships.

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OUR TOP 5 INTERNET OF THINGS PREDICTIONS

The IoT continued its inexorable march into the home and the workplace through 2018. Having established itself as the hub of the smart home, the smart speaker is now becoming a central device for orchestrating a consumer’s digital life, while in the enterprise space, companies are preparing for the advent of 5G and looking for new ways to leverage developing AI capabilities. Based on these developments, our proprietary research, and the trends we're watching headed into 2019, here are our top five predictions for the IoT in the year ahead.

1.

Google will work with partners to put Assistant-enabled microphones in all sorts of devices around the home.

Amazon started to work with partners to create new ways to access Alexa more than a year ago, inking partnerships with companies like GE to make lamps and other products that feature the voice assistant. These devices are embedded with microphones that listen for commands aimed at Alexa. In 2018, Amazon also added devices like the Echo Wall Clock and the Amazon Basics Microwave with Alexa, with the goal of putting Alexa in enough devices to always be within earshot. Google and Amazon are vying for the lead in the US smart speaker space, as well as the broader AI-powered voice assistant category, and Google boasts a major advantage in terms of total Assistant-enabled devices, thanks to the hundreds of millions of Android devices in use globally. But Amazon far surpasses the search company in fixed device installations. In response, Google will follow suit and find partners to build its own companion devices to expand the listening capabilities of its Google Assistant ecosystem. Google will introduce these listening devices to improve Assistant's omnipresence — even when the consumer doesn't have their phone on them — to try to keep pace with Amazon and stop the e-commerce titan from becoming the default vendor in the smart speaker and voice assistant space.

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2.

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Smart speaker prices will hit $20 for the newest models.

This holiday season saw smart speaker prices sink as low as they ever had, with the newest versions of the Echo Dot and the Google Home Mini dropping to $29 — and prices were even lower for older devices like the 2nd generation Echo Dot, which fell as low as $20. Smart speakers were also included in bundles that saw them combined with other devices and put on sale far below the list price for either product. But these companies are probably approaching the limit of US consumers who would seek out a smart speaker on their own — Business Insider Intelligence's Smart Speaker survey found that more than half of self-identifying early majority consumers already own a device. To get to more recalcitrant segments of the population, the companies making smart speakers will cut prices even further, down to $20 or less for the newest-generation of products, in 2019. Forty-four percent of respondents to the Smart Speaker survey said they'd buy a $20 speaker, compared with just 21% stating they'd purchase a $50 speaker. These companies want their speakers in every home, and a lower price will help accomplish this goal.

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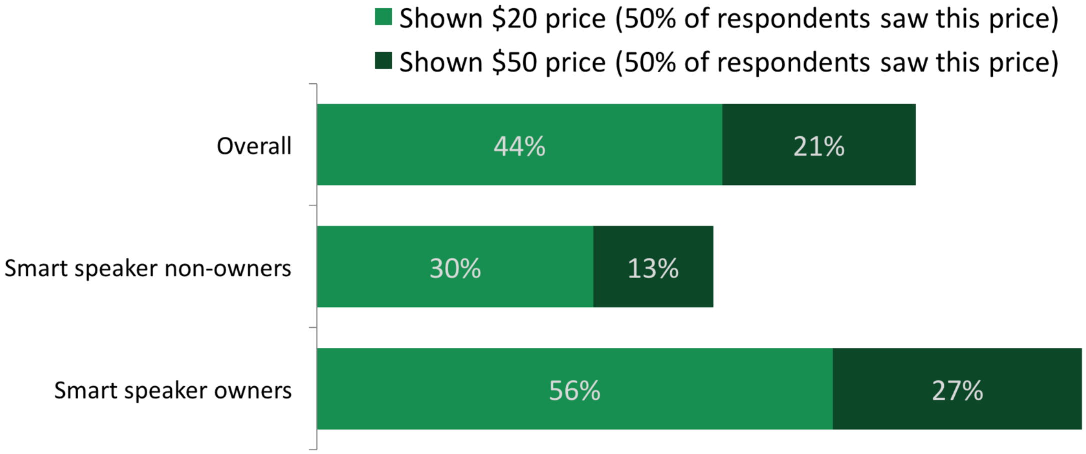
Lower Price Has A Major Impact On Potential Sales

Q: "Imagine that you're in a store and you see a basic smart speaker for sale. It's on sale for $20/$50. Would you buy the smart speaker?"



EXCLUSIVE DATA FROM BUSINESS INSIDER INTELLIGENCE

Source: Business Insider Intelligence Smart Speaker survey, n=525 US consumers, 2018

3.

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Private 5G networks will be deployed for manufacturers.

The first public 5G networks will go live in early 2019, but they'll only be available in limited markets. As a result of this constrained availability, companies, especially manufacturers that are working in defined, contained spaces, will turn to private 5G networks to support their own devices. Telcos like Verizon already offer private 4G cellular network services, which allow companies to separate their data from public data in order to keep it secure. Since the latency of a 5G network will be comparable to wired connections — only sans wires — companies operating industrial facilities can outfit sensor-equipped assets with 5G connections instead of hooking them up via ethernet as they do today. This will save companies loads of time should they decide to reconfigure a worksite, as they'll avoid tearing up and redoing network wiring and instead continue leaning on 5G. Look for manufacturers to work with partners in the telecom space to deploy these private, customizable 5G networks in 2019.

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4.

AI-equipped cameras will take the place of dozens of devices for IoT monitoring.

Cameras can take the place of numerous sets of eyes, and companies having been using them for years to watch specific locations to monitor how machinery is performing. In 2019, though, Business Insider Intelligence expects IoT solution providers to marry top-performing cameras with built-in AI-powered machine vision computing systems to provide wide-field monitoring using a single camera that can generate key information and insights on the spot. These sorts of systems will build on things that companies like AT&T are already doing; president of IoT solutions Chris Penrose described how the company uses a low-power camera to take photos of a legacy pressure gauge once a minute and employs image recognition software to translate them into real-time digital readings. More powerful cameras won't be able to operate on batteries like the one Penrose described, but they'll be able to watch dozens of gauges, sensors, or pieces of equipment at once in great detail, and with built-in computing, they won't need any external connection to communicate important information to personnel or even shut down systems automatically. IoT users will jump at machine vision solutions that mean fewer devices to monitor and maintain for a similar or even greater boost in efficiency and productivity.

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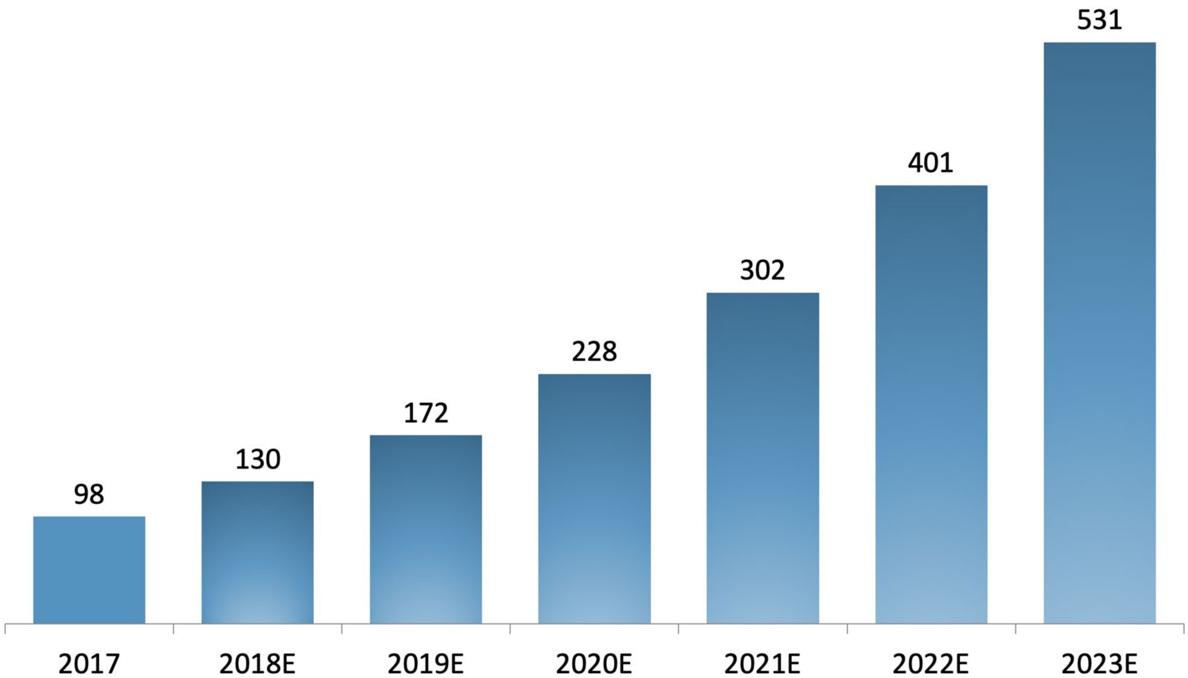
Annual Connected Surveillance Camera Shipments

Global, millions



Source: Business Insider Intelligence estimates, 2018; IHS Markit, 2017

5.

Apple will release an always-listening Apple TV.

The tech giant's smart speaker, the HomePod, hasn't gained traction since it was released in February following a series of delays — fewer than 4% of tech-savvy early adopters who responded to a Business Insider Intelligence survey reported owning one. Apple's Siri voice assistant is all over, though — much like Google's Assistant — coming to consumers in the hundreds of millions of iPhones and iPads in use. It's also already built into the Apple TV media player through the remote. In a bid to expand the role Siri plays in orchestrating the home and divorce its voice assistant from small devices like phones and remote controls, Apple will release an updated version of the Apple TV that includes always-listening microphones to provide hands-free access to Siri. This device will help Apple to counter the growing primacy of Amazon and Google in the smart home and voice assistant market, while honing its focus on media, which will be critical in the year it's expected to release its streaming video service.

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OUR TOP 5 PAYMENTS PREDICTIONS

2018 marked a competitive and eventful year in the payments industry, with digital payments swelling, tensions over interchange fees escalating, the number of records impacted by data breaches surging, and mobile banking becoming nearly ubiquitous in the US. Across industries, firms have been forced to diversify their offerings to become more competitive and meet demands for speed and simplicity propelled by rising smartphone penetration, regulatory tension, and digitizing consumer habits. Based on these developments, our proprietary research, and industry trends we're continuing to see unfold into 2019, here are our top five predictions for the payments industry in the year ahead.

1.

Amazon will launch a full-scale payments or banking product in 2019.

Though Amazon isn't new to payments, several recent moves indicate a much more concerted push into the payments and banking industry, which we believe will culminate in a 2019 service launch. Most notably, it's rumored the firm is in early-stage talks with banks, including Capital One and JPMorgan Chase, about a partnership for a checking account-like service — a move that could allow Amazon to scale into the space without waiting to apply for a banking license. Amazon has also been building out other payments services — like its cash top-up service that makes it easier for un- and underbanked users to access Amazon, as well as a debit card in Mexico — while aggressively working to recruit merchants to Amazon Pay and weighing a brick-and-mortar push for the service.

Combined, Amazon's moves indicate a push not only to develop a product, but to find a network and user base for it as well, making a near-term launch likely. Amazon's massive reach and strong customer loyalty would aid in this launch: Sixty-five percent of Prime users would be willing to try Amazon online banking, a number that remains as high as 37% among non-Prime members, according to Bain & Company. As Amazon continues to target Gen Z — a group less likely to have credit cards or access to traditional banking services, and more likely to prefer digital or alternative financial services — it could be easy to garner an audience. For the firm, launching a banking or payments service now could help it boost engagement, reaccelerate Prime subscription growth, and position it as a more effective competitor to services like PayPal and Square, which also began as payment acceptance players but have recently begun to explore the benefits of offering bank-like services to customers and merchants alike.

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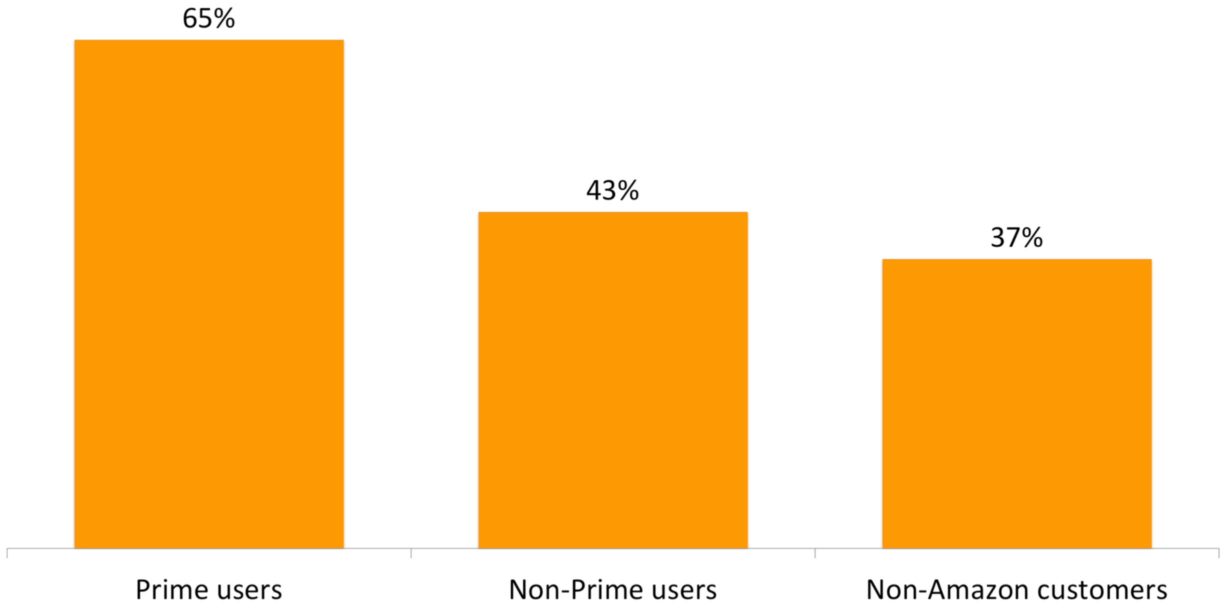
Share Of Amazon Customers Interested In Banking Services

Q: If Amazon launched a free online bank account that offered 2% cash back on all Amazon purchases, would you use it? Yes answers shown



Source: Bain/Research Now, n=6,000, 2018

2.

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Developing markets will tighten regulations and give domestic players an advantage, mimicking China's payments industry.

China's payments industry is dominated by homegrown services: State-affiliated China UnionPay holds around 90% of the card market, and Alipay and WeChat Pay combined comprise over three-quarters of the mobile wallet market. Until recently, the country has held off on allowing foreign payments companies to enter the market, which has helped these players maintain their advantage. And though that's beginning to change as China opens up to foreign card networks and payments players chasing a massive opportunity — the country is expected to be the biggest bank card market by 2020 — multinational firms have had to follow complex application guidelines and/or form joint ventures, making the process to get off the ground challenging.

Two other markets appear to be following in China's footsteps, pointing to a trend poised to spread through 2019.

- **Regulations in India, like a new data localization rule, are challenging giants' growth and expansion plans.** Post-demonetization digital payments growth is encouraging a plethora of multinational giants, like Amazon, Google, Facebook (WhatsApp), and PayPal, to ramp up their efforts in the region. But the Reserve Bank of India (RBI) has recently been cracking down on these firms: Earlier this year, for example, it announced data localization laws requiring Indian customer data to be stored within the country, setting an October 15 deadline that no company but WhatsApp met. As a result, many services — including WhatsApp — haven't been granted permission to launch, or launch in full, in the market, indicating that the government could be preparing to push foreign players out or become even more stringent. At the same time, domestic companies like Indian card network RuPay are gaining share on Visa and Mastercard — which recently complained to the US government that India was using “nationalism” to promote RuPay and stifle foreign competition — and could continue to develop this year in response to regulatory shifts.

- **Venezuela's economic conditions and government protectionism could give domestic companies a competitive advantage.** Venezuela is currently experiencing an economic crisis, in which slowing currency production combined with hyperinflation has led to limits on the amount of cash customers can withdraw in a day, making it challenging for consumers to access enough cash to spend. This has led to a surge in engagement with digital payment applications — a local offering called Vippo saw users increase thirty-fold in 2017 — and has created an economy that's rapidly becoming cashless. This could make the market a testing ground for digital payment tools that will be attractive for those same players pursuing India, but Venezuela has been hostile in the past to multinational companies, which could result in a situation that gives domestic firms an advantage.

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3.

Direct debit products will see an increase in prominence and popularity thanks to regulatory shifts and increased availability of faster payments.

In many global markets — China being an exception — cash and cards comprise most payments. But we're seeing a push toward direct debit offerings that allow users to pay directly from their bank accounts, bypassing card rails entirely. Direct debit products are poised to come to prominence next year for two key reasons:

- **Interchange tensions will sour merchants' feelings on cards.** Rising card usage is surging expenses for merchants, which paid $43.4 billion in Visa and Mastercard credit card interchange alone last year. These costs are hurting relationships between merchants and card providers as merchants look to the courts for recourse, with mixed results, and consider acceptance bans. Even as fees decline slightly, thanks to a combination of negotiation and regulation, tensions continue to grow, potentially opening the path for new services, like Pay By Bank, which is expanding in the UK.

- **Faster payment schemes will make these products a more realistic option.** Often, direct debit-based payments can take time to settle — at times, up to three days. For retailers, this can limit access to funds. But the launch of faster payment systems, like the UK Faster Payments Scheme, Australia's New Payments Platform, and the system owned by The Clearing House (TCH) in the US, are speeding up settlement times and making direct debit options more realistic. As faster payments accelerate in 2019, and US retailers lobby the Fed for a nationalized, broad-based system, these new services could come one step closer to launching and shaking up the space — if sellers can convince users they're worth adopting through a combination of bans, fees, or incentives.

4.

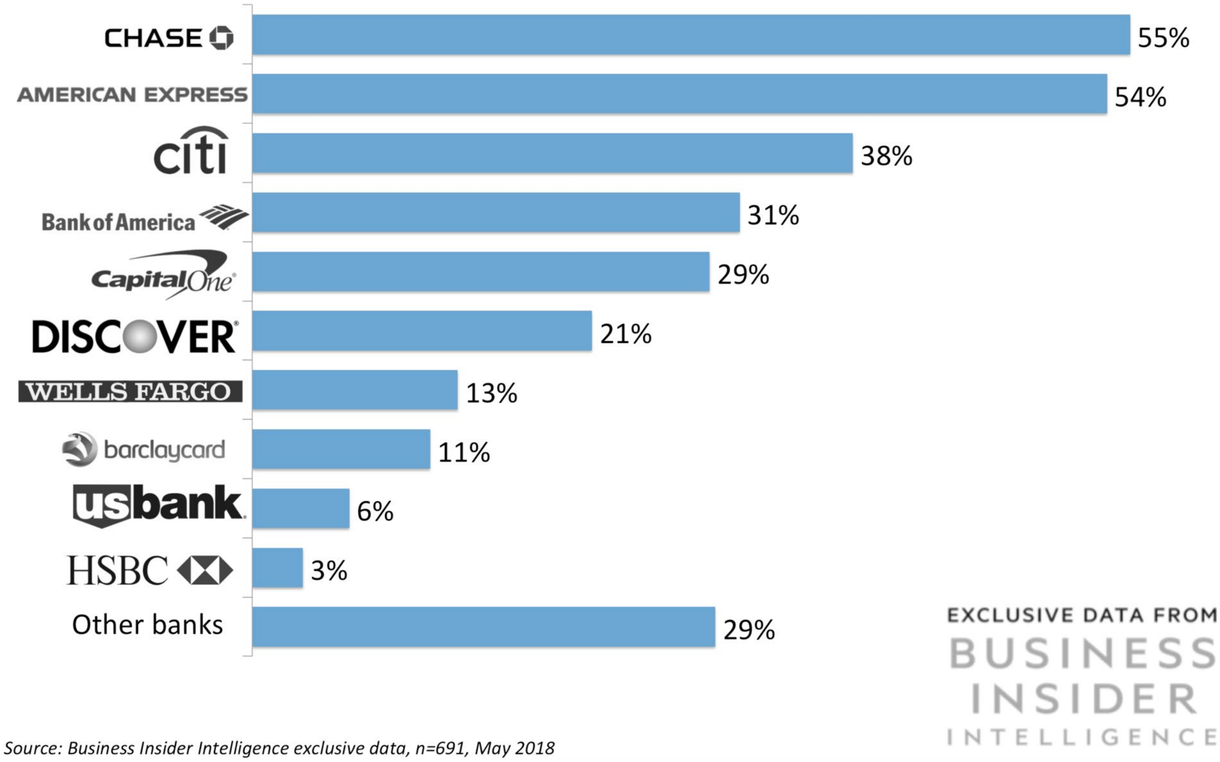
Despite the hype around the Chase-Visa deal, it alone won't mark an inflection point for contactless in the US.

Just 5% of US cards are currently contactless-enabled, unlike other global markets such as the UK and Australia, where the tech is omnipresent. But a new partnership between JPMorgan Chase and Visa, in which the bank will begin adding contactless technology to all its cards, beginning with new customers and select debit cards, could grow penetration. For context, 55% of respondents to a Business Insider Intelligence survey had Chase-issued cards, and Chase-branded products saw $670 billion in purchase volume last year, holding about 20% of the market.

While Visa has publicly stated that lack of availability of contactless cards has been a hurdle to adoption, increasing availability alone won't be enough to turn the US into a contactless-dominant market similar to Australia or the UK. The majority of users won't change their payment habits without a clear reason to do so, especially because cards are so ingrained into daily life in the US. To hit the inflection point that firms like Chase and Visa are clearly seeking — contactless usage can increase sales, for example — card providers will need to offer customers clear incentives to adopt, like rewards or discounts, or find ways to make contactless a useful feature throughout customers' lives, such as through transit integrations. If firms can't do this — and so far, nothing is happening on a broad scale — contactless will remain a feature rather than a utility, and the adoption needle won't move much next year, even with a surge in penetration.

US Credit Card Ownership, By Issuer

Q: Which of the following credit card companies do you have a credit card from? Responses from credit card owners shown



Source: Business Insider Intelligence exclusive data, n=691, May 2018

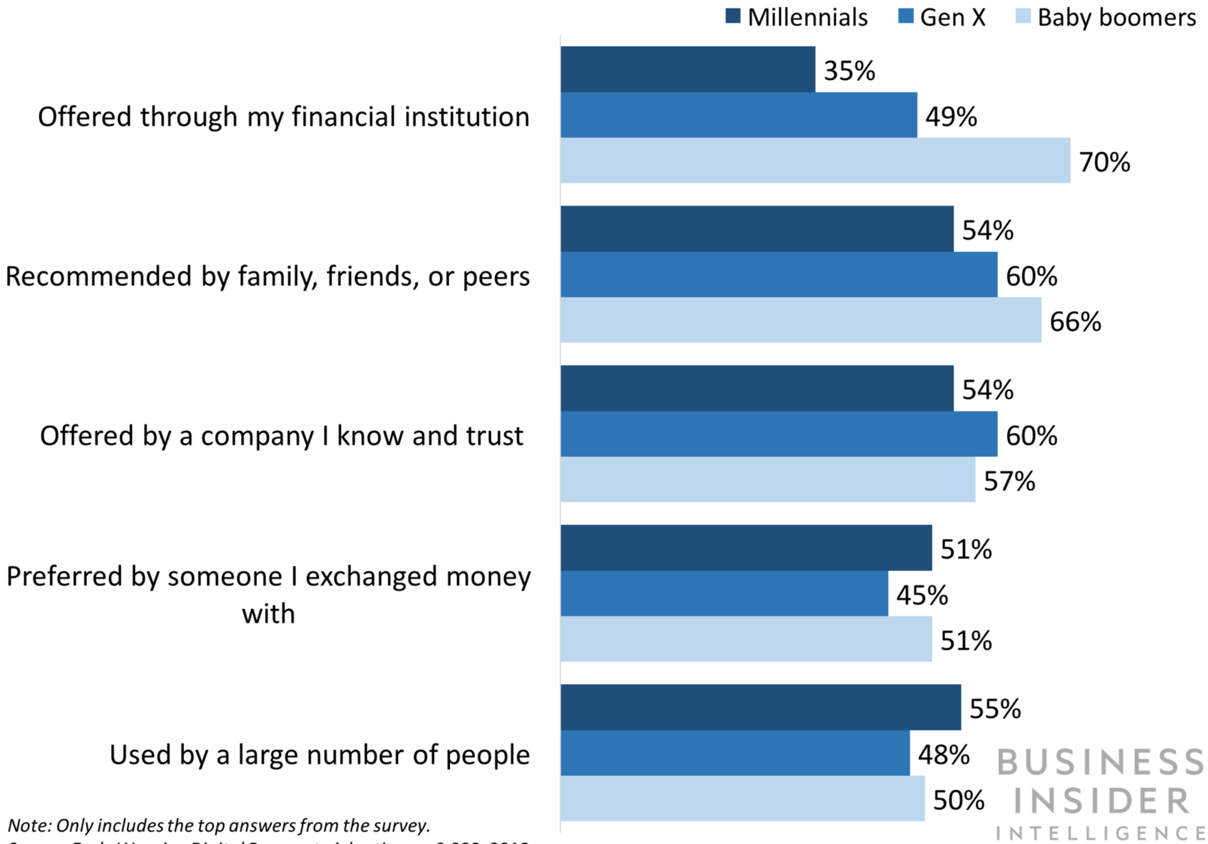
5.

Younger generations will lead the adoption curve for new P2P app use cases, which will accelerate this generation's shift away from cash.

P2P payments are approaching saturation among younger generations: 75% of millennials and 69% of Gen Zers use P2P apps. These users are tech-savvy and likely more accustomed to using their phones for daily functions, which is evolving how they pay.

The frequency of P2P use among younger customers will start to trickle into other types of commerce, influencing their preferences for payments in general. P2P platforms like Square Cash, Venmo, and Zelle have introduced quick and convenient transactions, and their popularity is pushing them to expand into non-P2P use cases, like debit-style cards tied to accounts and in-app payments at major retailers including Uber and Grubhub. This will encourage younger millennials, and Gen Z in particular — a demographic of P2P super-users who are less likely to have access to traditional financial services and might be more interested in alternative payment methods — to rapidly adopt P2P-based commerce and other alternative use cases from these providers in the year ahead. Younger consumers' reliance on P2P apps for functions other than P2P in 2019 will begin a shift beyond cash and demonstrate a future threat that traditional payment providers will have to contend with.

Top Factors Influencing Adoption Of A P2P Service



Note: Only includes the top answers from the survey.
Source: Early Warning Digital Payments Adoption, n=9,000, 2018

OUR TOP 5 FINTECH PREDICTIONS

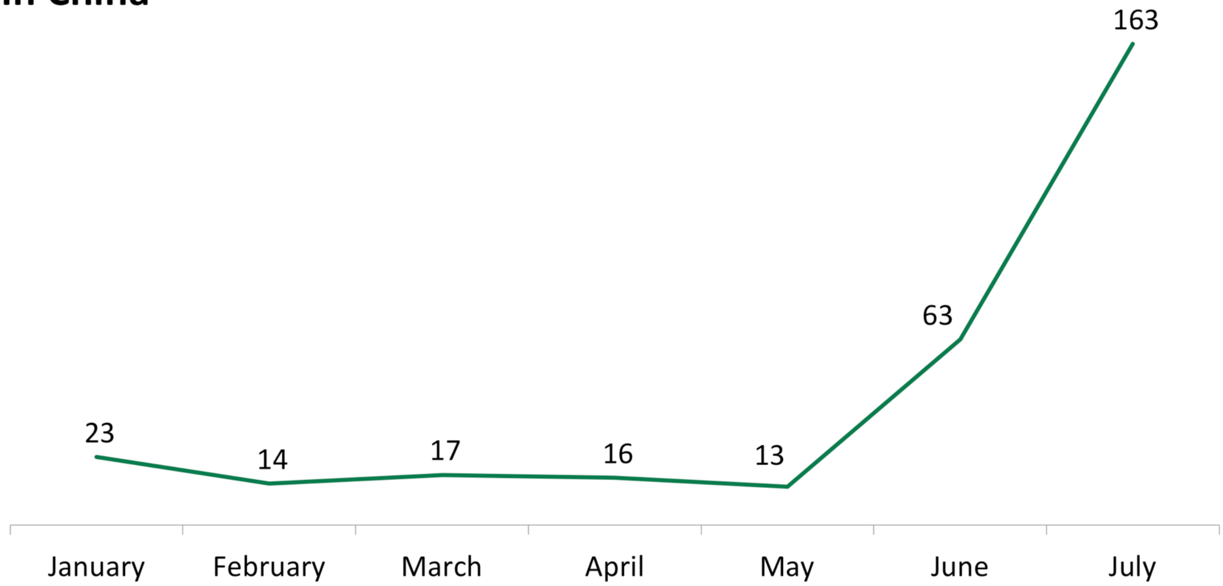
This year marked a watershed moment for the fintech industry. The distinction between fintechs and incumbents began to blur significantly, as the latter started actively investing in, acquiring, and collaborating with their fintech rivals to support their own digital transformations. We saw considerable scaling in older corners of the fintech ecosystem, especially among neobanks in Europe, while new and emergent areas — including blockchain and distributed ledger technology (DLT) more broadly — have come to the fore. Meanwhile, an onslaught of regulation brought new challenges to the industry that it will continue to grapple with into the year ahead. Based on these developments, our proprietary research, and the trends we've seen intensifying as we head into the new year, here are our top five predictions for fintech in 2019.

1.

We will see a number UK marketplace lenders shut down as regulations tighten.

Marketplace lenders in the UK will likely face a particularly difficult year in 2019. The Financial Conduct Authority (FCA) published a proposal on regulatory changes earlier this year that would limit those who can invest in marketplace lending platforms to certified sophisticated, or high-net-worth investors, and restrict their investments to less than 10% of their net assets. There's been some uncertainty in the UK marketplace lending space recently, with Lendy reaching out to the FCA with news that one of its biggest borrowers had threatened to sue the company, for example. Such issues are likely what prompted the FCA to take action, which, unsurprisingly, has been met with push back from the industry. As the FCA enforces these rule changes in 2019, we will likely see a number of players in the UK struggling to find investors, and some will be forced to shut down. This would track a similar trend we saw in China this year, with many marketplace lenders defaulting after the country tightened its regulation of the sector. However, this is likely to be good for the market overall, as it will weed out players that lack sustainable business models or employ questionable tactics, providing more legitimacy for the space.

Number Of Defaulted Marketplace Lending Platforms In China



Source: TechNode, 2018

2.

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US-based trading app Robinhood will go public in 2019 — and it won't be the only one.

Earlier this year, Robinhood co-CEO Baiju Bhatt said the digital investment platform would pursue an initial public offering (IPO) in the "medium to long term." However, we think this move will come sooner rather than later, for a couple of reasons. First, the company recently hired Jason Warnick, a former exec at Amazon as its new CFO, a move that indicates Robinhood has a public debut in its sights. Additionally, although the company has not revealed its financials, all signs point to healthy fundamentals — Robinhood had around 6 million customers, who had collectively executed more than $150 billion in transactions, as of October 2018. It's also pulling in revenue via at least three different streams: by charging interest on money held in Robinhood accounts, by offering premium paid services, and by selling order flow to exchanges. We expect the company to pull the trigger on a public filing in the next few months, with an IPO to follow by the end of 2019. Robinhood likely won't be alone in this feat, though — 2018 brought 9 fintech IPOs, and we expect to see many more in the year ahead, as fintech business models continue to mature and prove their sustainability.

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3.

Collaboration between incumbents and fintechs will accelerate.

In 2018, we saw a number of partnerships emerge between financial institutions (FIs) and fintechs. This trend is set to intensify significantly in the year ahead, with these collaborations growing deeper. Instead of simply leveraging technology developed by fintechs, we expect FIs to begin to integrate fintech offerings more deeply into their core products. BPCE's enlisting of TransferWise to provide cross-border transfer solutions is a prime example of this type of collaboration, and many more similar agreements are likely to surface in 2019. Partnerships offer a natural platform for achieving the digital capabilities that incumbents by this point know they need, without the development costs. And the benefits extend to fintechs as well, providing them with the resources and access to customers they require to scale their operations. Regulatory pressures will also be a key driver of these partnerships — existing open banking regulation in the UK and Europe, and its introduction in Australia, Hong Kong, and Japan, is forcing even reluctant FIs to take a more collaborative approach. As these firms seek to remain compliant, they will make strategic acquisitions of, or investments in, fintechs with the innovation and talent capabilities necessary to help meet these mandates.

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4.

The digital-only bank wave will hit the US market.

It's no secret that the US challenger bank market has long trailed its UK and European counterparts. That's largely because of a stifling regulatory regime, which has made it very difficult to obtain a banking license, and how entrenched incumbents are in the financial lives of US consumers. However, 2019 is poised to be the year that the US market finally takes off. The groundwork for the shift was laid this year, with mobile-only bank Varo Money's landmark preliminary banking license approval and the nationwide deployment of JPMorgan Chase's digital-only play Finn. Meanwhile, San Francisco-based neobank Chime passed the 2 million opened accounts mark, and is now adding more customers a month than Wells Fargo or Citibank, according to The New York Times. In the year ahead, we expect activity in the US digital-only bank market to accelerate, especially as well-known European challengers like N26 and Revolut make their long-awaited entries into the country. Additionally, Barclays plans to launch an online challenger bank in the US in 2019, and Israel's Pepper is reportedly in talks to enter the market as well. This combination of efforts from homegrown startups, incumbents, and foreign entrants will push digital-only banking to the mainstream in the US next year — and the market may even start to look a bit crowded.

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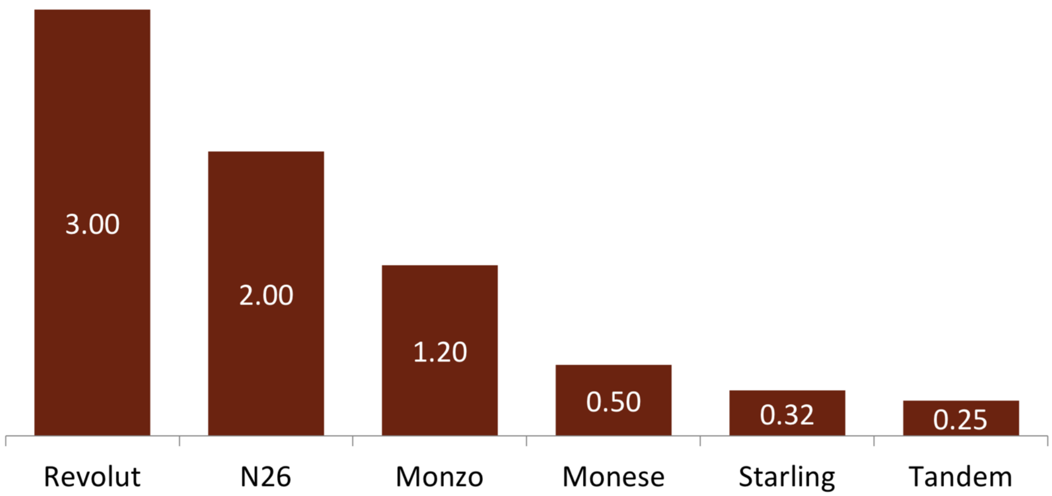
Major European Neobanks' Customer Numbers

Millions, 2018



Source: Company Reports

5.

Blockchain adoption by incumbents will intensify, but ICO funding will plummet.

FIs have been busy experimenting with blockchain solutions to solve a variety of pain points in the industry. We've seen these early experiments begin to bear fruit in 2018, with FIs starting to use the technology in live environments — UK-based Calastone announced that it's moving its entire investment fund transaction network to blockchain, for instance. In the coming year, we expect to see many more similar announcements, as FIs' blockchain projects increasingly move out of trials and go live. These developments will also likely inspire further exploration of the nascent technology, leading to additional use cases being identified. However, despite ongoing enthusiasm for blockchain itself, ICO funding will likely drop off significantly. The second half of 2018 has already seen substantial pull back in this regard — in September, only $279 million was raised via ICOs, compared with $2.4 billion in January 2018, per Autonomous Research. The picture looks even dimmer for 2019 — in fact, we predict no month in the new year will top $300 million in ICO funding.

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OUR TOP 5 TRANSPORTATION AND LOGISTICS PREDICTIONS

The digital transformation of the transportation and logistics industries charged ahead in 2018. In the auto industry, Waymo made history by launching the first commercial self-driving ride-hailing service in the US. Electric scooters exploded into the public consciousness, headlining a broader push toward micromobility services. At the same time, booming online retail sales have sent freight volume soaring, creating a massive opportunity for digitally native logistics services to disrupt the shipping process and make it faster and cheaper. We expect digital forces to continue changing the face of transportation and logistics in 2019. Here are five ways we predict that will take shape.

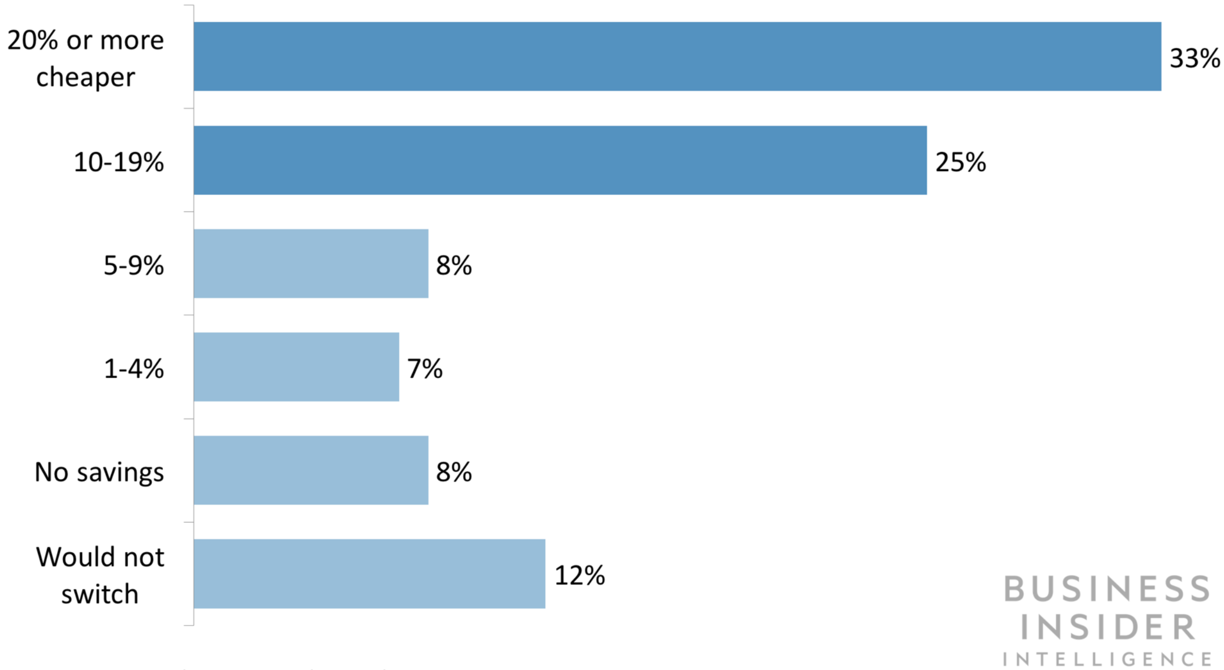
1.

Amazon will test its third-party delivery service in earnest, enlisting one of its top sellers to help.

Amazon's logistics ambitions are both well-documented and much-hyped. The firm currently counts hundreds of trucks, delivery vans, and warehouses around the globe. This shipping capacity has led to speculation that Amazon will eventually launch its own standalone delivery service for third-party merchants. Over the course of 2018, Amazon's delivery ambitions came into greater focus, and speculation about the service may soon give way to reality. In February it reportedly started trialing a last-mile delivery service for select merchants on its platform, and in June it launched a program that helps other firms create their own delivery companies that execute deliveries on Amazon's behalf. The company has even tested out pricing strategy — eyeing its eventual need to compete with legacy shippers — recently offering a merchant in Los Angeles 50% lower rates than UPS and FedEx. So far, Amazon's delivery efforts have been contained to tests with local merchants or to moving its own products. In 2019, we expect the e-tailer to significantly expand its third-party delivery efforts and move parcels for one of its major national retail partners (Think: Nike, Williams Sonoma). While we expect the test will take place on a limited basis (e.g. confined to a few geographies), signing up a major, nationwide seller will still be a milestone for Amazon's logistics ambitions.

Savings Would Lure Merchants To Amazon's Delivery Service

Q: At how much cheaper would you switch to shipping with Amazon from your current carrier?



Source: Internet Retailer, n=108 US online merchants, 2018

2.

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A major streaming company will partner with an automaker to create video streaming services for autonomous vehicles (AVs).

Connectivity is more or less table stakes for new vehicles — most automakers now offer the option of embedded connectivity for every car in their lineup. In total, Business Insider Intelligence projects that annual US connected car shipments will rise from 12.7 million this year to top 16 million by 2023. A separate, but critically linked technology is also on the upswing — self-driving cars. During 2018, we witnessed the very first launch of a commercial autonomous ride-hailing service in the US, Waymo One. And more of these services will follow in the coming years, from General Motors (GM), Ford, Toyota, Intel, and others. Once companies scale up their self-driving fleets and connected, fully autonomous vehicles (AVs) hit the roads in full force, viewing hours that were previously off-limits to media companies will be unlocked. As we move closer to that reality, the race to provide the best in-car entertainment for passengers will start to take off. In 2019, we expect a major streaming company to partner with an automaker to begin mapping out the future of in-car entertainment. Such a partnership could be aimed at developing content that's exclusive to a single automaker's fleet of AVs. For example, GM could partner with Hulu to develop a streaming service that's only available to its fleet of Cruise autonomous cars.

3.

At least one of UPS, FedEx, or DHL will purchase a warehouse robotics startup.

Online retail is now a core consumer shopping channel — Business Insider Intelligence estimates that total US e-commerce sales will hit $515 billion in 2018, a more than 50% rise since 2014. And Amazon Prime's concomitant rise has conditioned US consumers to expect two-day shipping. That's ultimately crunched retail supply chains — 67% of executives at parcel shippers thought the primary effect of Amazon's two-day shipping was that it forced them to decrease the amount of time their goods are in transit, according to a 2018 Shipware study. To cope with this new environment, parcel delivery firms are trying to shave time off the front end, investing in warehouse automation technologies, like sorting systems and robotics, to hustle goods in and out. In 2018 alone UPS opened 22 new highly automated warehouses in the US, while FedEx has opted to purchase warehouse robots from Fetch and Locus, two leading startups in the space. And earlier this month DHL invested $300 million to expand the robotics and automated sorting equipment in its US warehouses. In 2019, we expect all of these companies to continue their sizeable automation and robotics investments. In particular, we expect at least one of them to go the extra mile and buy a warehouse robotics startup. At this point, there are more than a half-dozen startups specializing in warehouse robots around the globe, giving legacy shippers plenty of choice in the matter.

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4.

The shine of Waymo's official launch of the first commercial AV service will fade away as a barrage of damaging high-profile incidents sets the AV space back.

As companies fight to capture a larger market share of the AV industry — the global market is expected to be worth $54 billion in 2019 — they will race to introduce driverless services and products and capture an early mover advantage. This competition will lead companies to take shortcuts, rushing to market before the underlying tech is mature enough. For context, even though Waymo launched an AV service in December, the company was having significant issues with its vehicles as recently as August — its AVs were reportedly stopping short at intersections and traffic lights. And even GM's Cruise, which is right on Waymo's heels as they plan to launch their own AV service in 2019, still has problems recognizing whether or not objects are in motion. These issues will eventually lead to several notable accidents and incidents, which will be highly publicized — unlike participants of its pilot program, riders of Waymo's newly launched service will not be required to sign non-disclosure agreements. Like Uber's fatal car accident involving its AV, the public response to these incidents will be swift and severe. AV companies will be required to reexamine their technology, consumer interest will fall dramatically, and legislators will push for more restrictive regulations.

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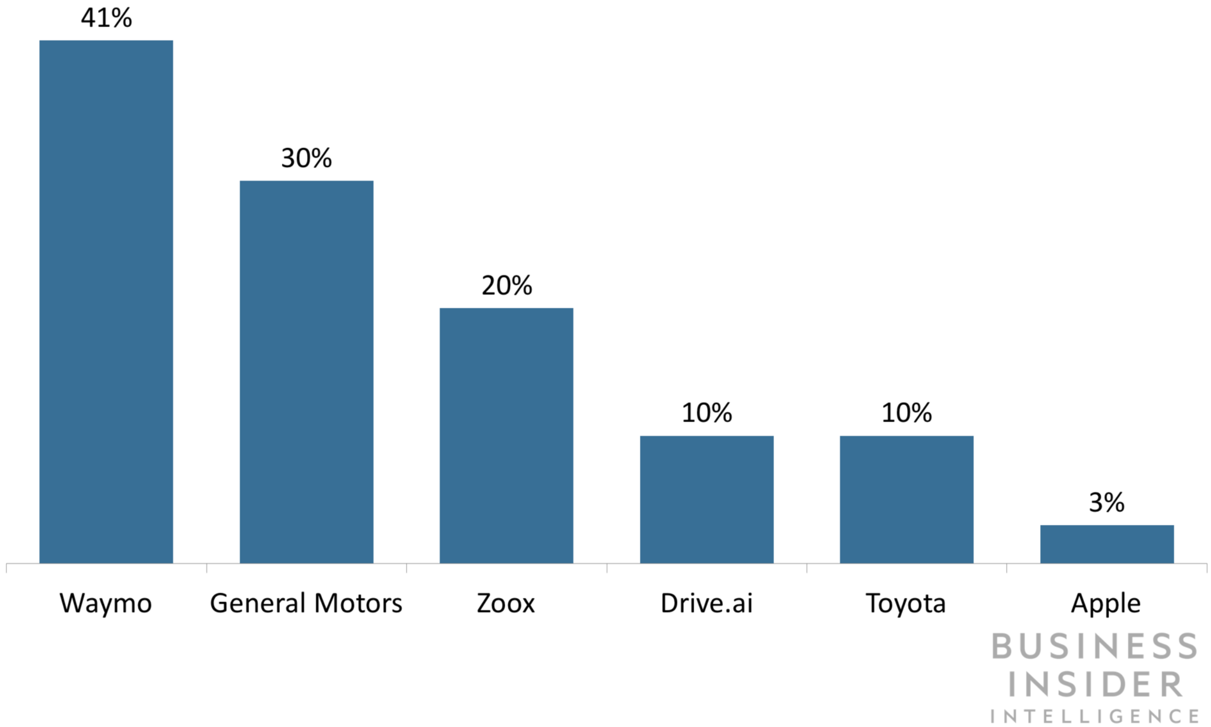
Share Of Registered Autonomous Test Cars That Have Crashed

Crashes in California, by company



Source: California Department of Motor Vehicles, 2018

5.

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While drone delivery regulation inched forward in 2018, the rise of 5G will see companies taking their drone delivery tests to the next level.

Some of the largest companies in the world are currently exploring drone delivery, including Uber, Alphabet, and Amazon. However, many of these tests are very limited — for example, Alphabet's drone delivery business recently launched a pilot program in Finland, but the company will only deliver parcels weighing up to 3.3 pounds over distances of up to 6.2 miles. No tests have ventured long distances and none have navigated major metropolitan areas, such as New York City or London. But 5G is coming — about 25 carriers around the globe will launch 5G networks next year — and the highly reliable and low-latency networks it brings will boost the accuracy of drone-to-drone and drone-to-smart infrastructure communication. This would enable drone delivery in some of the more challenging areas, like skyscraper-dense urban centers. Wireless navigation and processing would also allow manufacturers to slim down the now-bulky hardware they currently use, in turn enabling drones to either fly faster or carry more weight. As such, 2019 will be the year drone delivery pilot programs, and tests will become more advanced — entering populous urban areas — and therefore more indicative of future success. And major retailers will watch intently as results come in, with some partnering with drone firms to pilot the new service.

OUR TOP 5 DIGITAL HEALTH PREDICTIONS

For digital health, 2018 was a year marked by unprecedented levels of venture capital funding, continued consolidation, and big tech's steady march onto the healthcare scene. We saw highly capitalized startups move to the forefront of healthcare — and big tech's looming presence continues to pressure incumbents to embrace digital health. Based on these developments, our proprietary research, and the trends we're watching headed into the new year, here are our top five predictions for digital health in 2019.

1.

At least one of these four companies will go public.

There hasn't been a digital health initial public offering (IPO) in the US since digital heart monitor manufacturer iRhythm went public in October 2016. This might be in part due to the nascence of the market — many digital health companies haven't been around long enough to generate the revenue streams necessary to take their companies public. Now, we think digital health's record funding in 2018 — alongside the maturation of digital health's more established companies — will foster at least one IPO in 2019. Here are our top picks to end digital health's IPO drought in 2019:

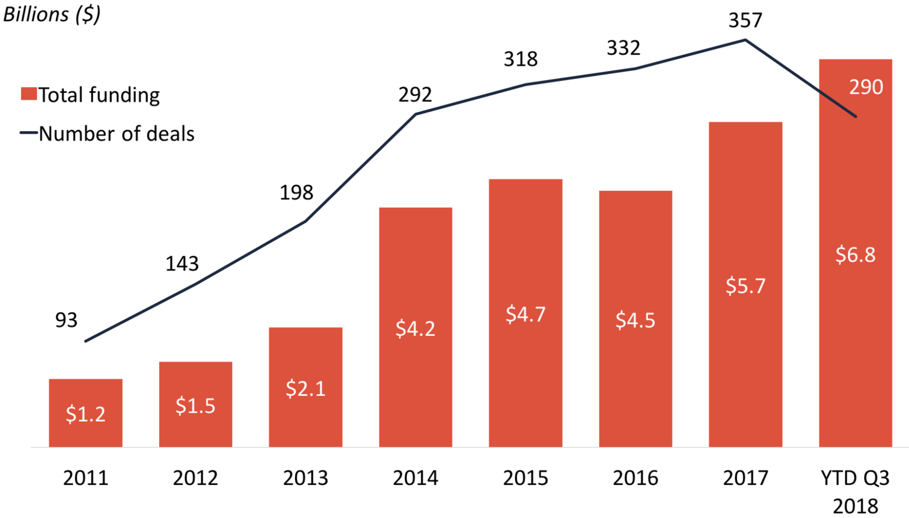
- **Health Catalyst.** Healthcare data analytics company Health Catalyst continues to grow as clients migrate to its cloud-based solution, and nearly 95% of Health Catalyst's revenue is now recurring, to Chilmark Research. Moreover, the company's rejected mergers and acquisitions as a potential exit strategy, and has weighed an IPO since 2015, per MedCity News.
- **One Medical.** Tech-focused primary care disruptor One Medical raised $350 million in 2018 and announced expansion plans. Going public could help One Medical promote awareness of its network, recruiting patients away from traditional physicians.

- **Change Healthcare.** Change Healthcare — which provides software and analytics to health systems, payers, and pharmacies in the US — has reportedly been discussing going public since January 2018. An IPO could peg the company's valuation at as high as $12 billion.

- **Oscar Health.** Like One Medical, health insurtech Oscar is taking on an entrenched, heavily concentrated industry, and could benefit from the increase in public awareness an IPO would bring. Moreover, Oscar health raised more than $500 million in 2018 and also announced plans to expand into the growing and stable Medicare Advantage market. Oscar likely wouldn't struggle to acquire the capital necessary to make an IPO worthwhile.

US Digital Health Funding Passes Record Levels In Q3 2018

Billions ($)



Note: Only includes US deals over $2 million, data through September 30, 2018.
Source: Rock Health, 2018

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2.

Telemedicine... won't take off.

Telemedicine's been on the verge of taking off for several years, per analyst expectations. And a number of signs suggest 2019 really could be the year it finally does: Congress plans to pass additional legislation that's favorable to telemedicine adoption in 2019, and consumers say they can be incentivized to use virtual doctor visits. Further, telemedicine visits grew about 260% annually between 2015 and 2017 — admittedly high growth — per a November 2018 JAMA study cited by Reuters. But it's high growth from a small base, and still means only about seven out of every 1,000 commercially insured US individuals held telemedicine visits in 2017. Even if telemedicine visits were to spike 300% in 2018 through 2019 — which is generous, as telemedicine demands significant changes in behavior from patients and only 15% of physicians worked at a practice that used telemedicine for patient visits in 2016 — that still means only 112 individuals per 1,000 would experience a telemedicine visit in 2019. And that's assuming each visit was with a unique patient. We don't think an 11% adoption rate is worthy of the designation of a tech "taking off," and instead predict that telemedicine utilization will continue to climb, with nominal overall gains.

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3.

Amazon, Apple, or Google will make a big splash with a digital health acquisition.

Big tech companies made headlines nearly weekly in 2018, with Apple, Amazon, and Google making especially big waves in the industry. And this trio is just getting started in healthcare; Google poached former Geisinger Health System's CEO to bring strategic focus its disparate health initiatives in November 2018, and Apple CEO Tim Cook stated that "Apple's largest contribution to mankind will be in improving people's health and well-being," during a recent Time interview. With the exception of Amazon's $1 billion acquisition of PillPack in June 2018, these companies haven't revealed their full intentions in plans for healthcare. Instead, they've cast a wide net, building out portfolios of healthcare patents, staffing up their healthcare units, and pouring money into digital health startups. It's likely that in 2019, big tech's healthcare focus will come into sharper focus, with one or more of the companies' multipronged approaches to healthcare culminating in an acquisition. For example, both Amazon and Apple built their own medical clinics in 2018, an avenue they could pursue further with an acquisition of One Medical.

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4.

Blockchain will move to the forefront of healthcare.

A flurry of health firms announced new blockchain trials in the latter half of 2018, and we expect that momentum will carry over to 2019. For example, healthsystem Ascension joined a pilot in December 2018 to explore how blockchain technology can help improve healthcare data quality in order to reduce inefficiencies and waste. And Anthem, Mass General, and the CDChave all made headlines for new blockchain projects since August 2018. Moreover, roughly half of healthcare companies globally are piloting blockchain projects. Promising results from these projects will likely evolve into permanent blockchain implementations. And while legal experts suggest that blockchain in healthcare faces an array of regulatory hurdles as issues around HIPAA-compliance and confidentiality haven't fully been addressed, the US Food and Drug Administration (FDA) has signaled it's open to blockchain in healthcare. The FDA signed a two-year agreement with IBM Watson in early 2017 to research the use of health data sharing via blockchain technology, for example. We project the growing prevalence of blockchain pilots from health firms will also force the FDA to modernize healthcare regulation to better handle blockchain solutions, fueling overall interest in the space and making 2019 a breakout year for blockchain in healthcare.

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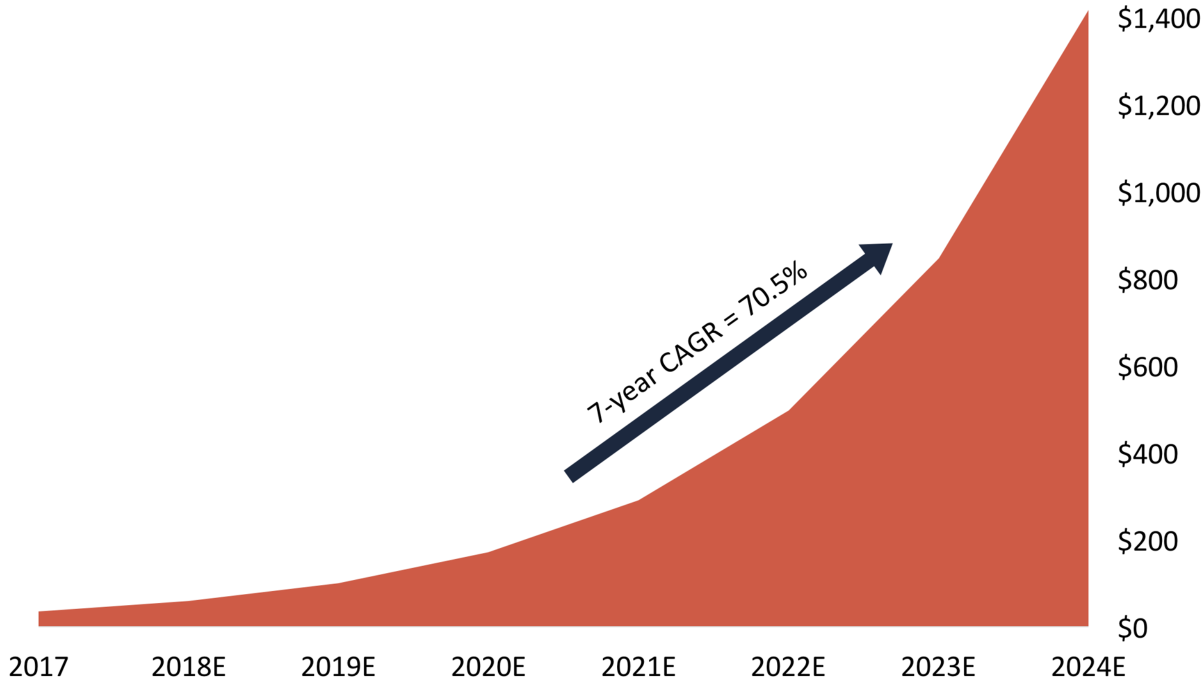
FORECAST: Global Blockchain In Healthcare

Millions ($)



Source: Zion Market Research, 2018

5.

Retail chains will echo CVS' acquisition of Aetna with cross-industry mega deals.

We expect Rite Aid, Walgreens, and Walmart will turn to vertical integration to shore up their health plays and recruit additional traffic to their pharmacy businesses. Amazon's rumored entry into pharmaceuticals likely contributed to CVS' decision to purchase payer Aetna for $69 billion — a mega-merger that sent ripples through the healthcare industry. CVS competitors like Rite Aid, Walgreens, and Walmart are threatened both by CVS' revamped business structure and Amazon's continued expansion in the space — the e-commerce giant is working on securing licenses to ship drugs in additional states and appears poised to launch an Amazon "Prime Health." In response, we could see Walgreens spin its current ties with Humana into an acquisition bid. And Walmart's already broadcast its appetite for buying up outside players: It weighed buying PillPack before Amazon pulled the trigger and was in acquisition talks with Humana as of April 2018. While a recent Walmart partnership with insurer Anthem makes a bid for Humana less likely, there's still good chance it makes a major acquisition in 2019. Retail pharmacies also took a greater focus on in-store care clinics and providing telehealth services in 2018. A takeover of a telehealth provider or a network of urgent care clinics could also make sense for one of these players.

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