

A Shopify Plus publication



Headless Commerce Guide

Shopping moments at every
customer touchpoint

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Contents

Headless commerce isn't for everyone	5
The many faces of online headless commerce	8
Custom storefronts	
Progressive web apps (PWAs)	
Custom native mobile apps	
The many faces of offline headless commerce	11
Smart mirrors	
Live streaming	
Vending machines	
Voice shopping	
Video games	
Reach the right customers in the right way	15



Star Trek in the 1960s portrayed technology that could be controlled by a character’s voice. What was once the stuff of science fiction has arrived. Instead of issuing commands like, “Raise deflector shields,” we can shop with our voices through smart mirrors or video games.

It shouldn’t come as a surprise to retailers that storefronts have moved beyond brick and mortar. Instead, retailers are using headless commerce to create shopping opportunities wherever their customers already are or will show up.

Headless commerce decouples the front-end digital experience from back-end functionality, such as inventory allocation, content management, and fulfillment capabilities. In other words, retailers aren’t constrained by a particular platform if they want to use a different content management system (CMS) or other form of user interface (UI).

As retailers grow and look for new ways to delight their customers, they’re looking for flexibility in how they deliver their customer experience—and a headless approach is growing in popularity. Application programming interfaces (APIs) and microservices make headless commerce possible both for fast-growing retailers and for those whose growth via traditional ecommerce has reached a tipping point.

When brands first started selling online, desktops were the dominant form factor, and purchase paths were relatively simple. A “full stack” approach, where the back-end ecommerce platform and website front end were coupled, made sense. And for the majority of retailers, it will continue to make sense. (We’ll explain why shortly.)

In some cases, providing an outstanding customer experience requires more, including:

- **Customer personalization**
- **Faster integrations with third-party applications and services, especially when customers are embracing new ways of engaging with brands, leading to an [omni-channel approach](#)**
- **The ability to try new approaches to marketing, selling, and managing content, meaning they'll be on the frontlines of these experiences as they become the standard**

The most common reasons headless commerce is getting more attention is that this kind of customer experience is made possible through added customizability, speed to market, scale, and control.

Depending on where you are as a business, you might want one of these things, or all four. But first, you need to determine whether you should move to a headless architecture at all.



Headless commerce isn't for everyone

It's Monday. You're talking with someone from marketing who can't wait to share about a virtual reality (VR) application that she's absolutely sure will revolutionize how consumers shop in your industry.

"We've got to get on this," she says. "Or we're going to be seriously behind the entire market."

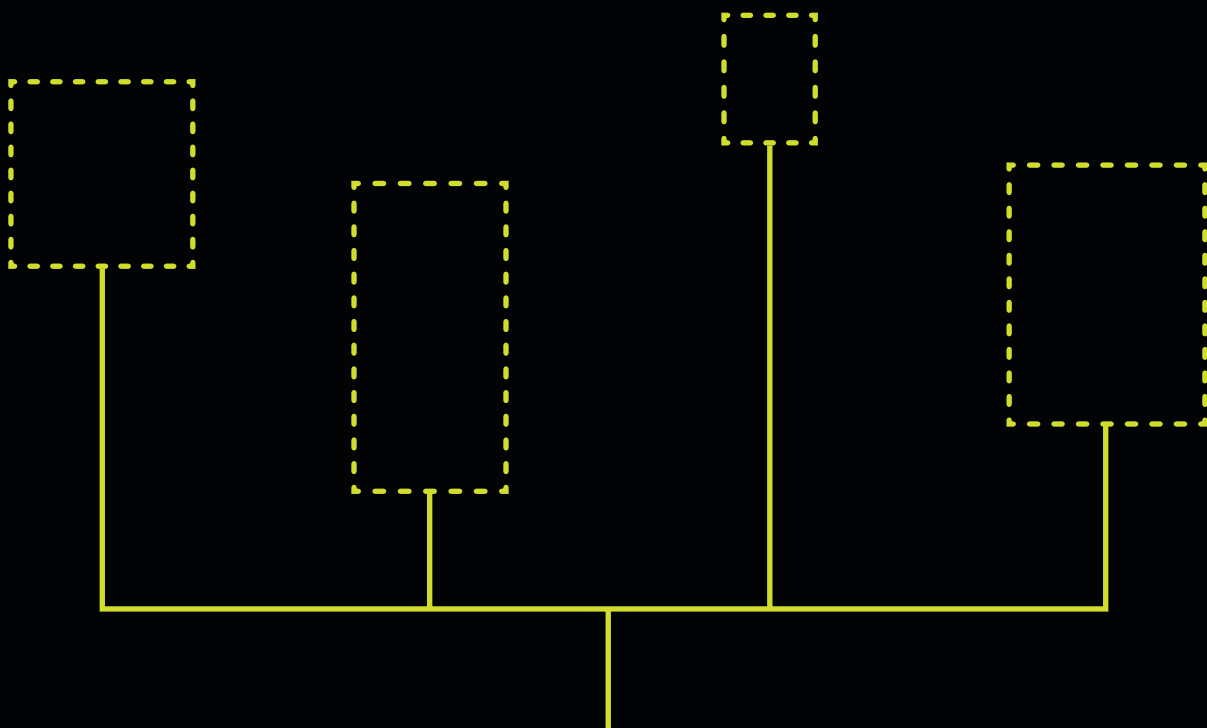
A few days later, your VP stops by with an article discussing the Internet of Things (IoT) and its potentially limitless number of purchasing touchpoints.

"Can we make this happen?" he asks.

Imagine a series of such conversations from your sales team or even third-party consultants... we could go on.

These hypothetical conversations illustrate how easily people can fall victim to "shiny object syndrome." Before you make the case to invest in headless commerce—or partner with someone in the enterprise to do so—put yourself in the shoes of a more senior decision maker and see how readily you can overcome the following questions and objections:

Headless commerce isn't for everyone



How much will this cost? How much time will it take?

Headless commerce sounds great, but you won't get funding unless the return on investment (ROI) timeline is clear. The budget for an enterprise headless project could cost \$50,000–\$500,000 plus annual maintenance costs, depending on the functionality, supporting tools, and level of customization.

If you want to get a sense of whether this is right for you, some brands start with building out a small section of their website on a headless platform (e.g. a new product landing page or blog post). This test can be much lower than the above estimates, depending on the developer resources you have access to.

Remember, "headless" doesn't necessarily mean building a website, but any custom experience built on the Shopify API and related developer tools where you control the front end.

Other channels built on a headless platform (e.g. a mobile app, audio stream, or video game integration) could cost as low as \$99 a month if you use an app to help you build your custom storefront.

Essentially, the cost of headless varies depending on the complexity of your build. Building and implementation are just one set of costs. Don't forget to scope out fees paid to external agencies, or monthly costs such as subscriptions to a CMS platform.

What are the opportunity costs in developer resources?

Even in large organizations, headless commerce might mean diverting staff and other areas of the budget away from competing priorities.

Opportunity costs are best weighed against what a move towards headless commerce will provide. This includes new features and functions in your product line, other digital experiences that aren't directly tied to commerce, overall revenue, margin, and customer retention. Make sure this is understood up front.

What kind of ongoing maintenance do we need?

Some CMSes have limited native functionality or might not integrate well with other third-party tools. Beyond the initial deployment, developer teams might need to build upon their existing skill sets to support the management of a headless infrastructure. This includes maintaining not only the codebase, but also the servers and databases that tie into plug-ins or microservices.

None of these questions is meant to be a deal-breaker. Your final choice should help you compete with other retailers on continuous deployment, customer engagement, retention, and marketing.

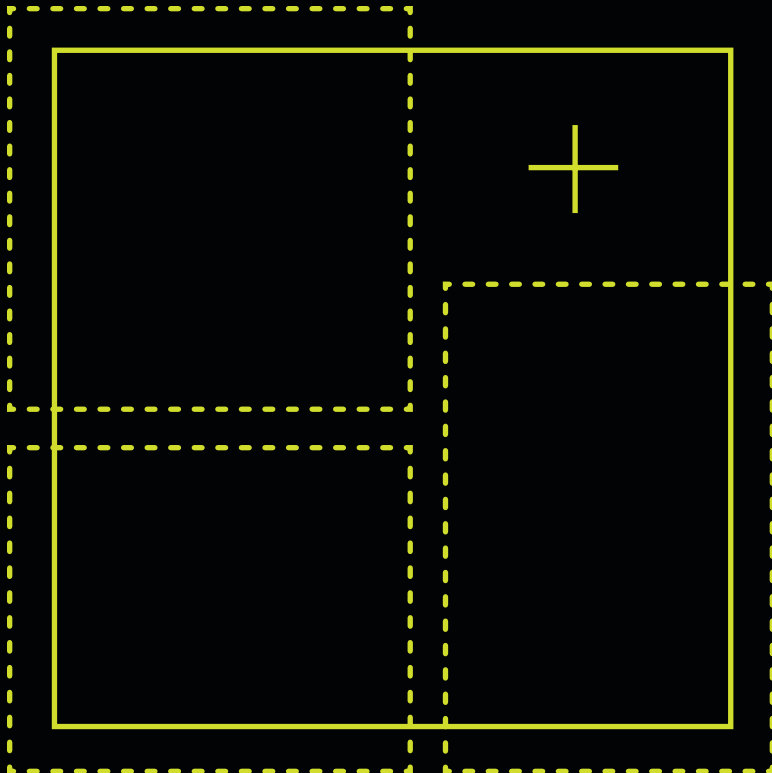
Going headless is not an either/or scenario. Some retailers might start with an out-of-the-box, fully integrated ecommerce platform and move into headless commerce to address business needs over time. For example, a mobile app could be run on a headless architecture while the rest of your platform remains fully integrated.

Headless commerce works well for complex businesses who sell on multiple channels at once, or who want to A/B test the way they're reaching customers. It might not be a fit for those who are still determining things like product/market fit.

If you decide to go headless, there are wide ranges of headless use cases and business outcomes.

The many faces of online headless commerce

Imagine walking into a mall where every store had not only the exact same layout, but also the identical paint color on walls and display tables. Products might stand out, but the shopping experience would be homogenous and boring. Retailers have learned to be creative with the way they organize their spaces—online and offline.



Custom storefronts

A truly mobile-first experience feels like the owner of a physical store greeting a regular customer by name. The site loads quickly, navigating is easy, and everything renders on the screen beautifully. Custom storefronts allow retailers to do this for every device.

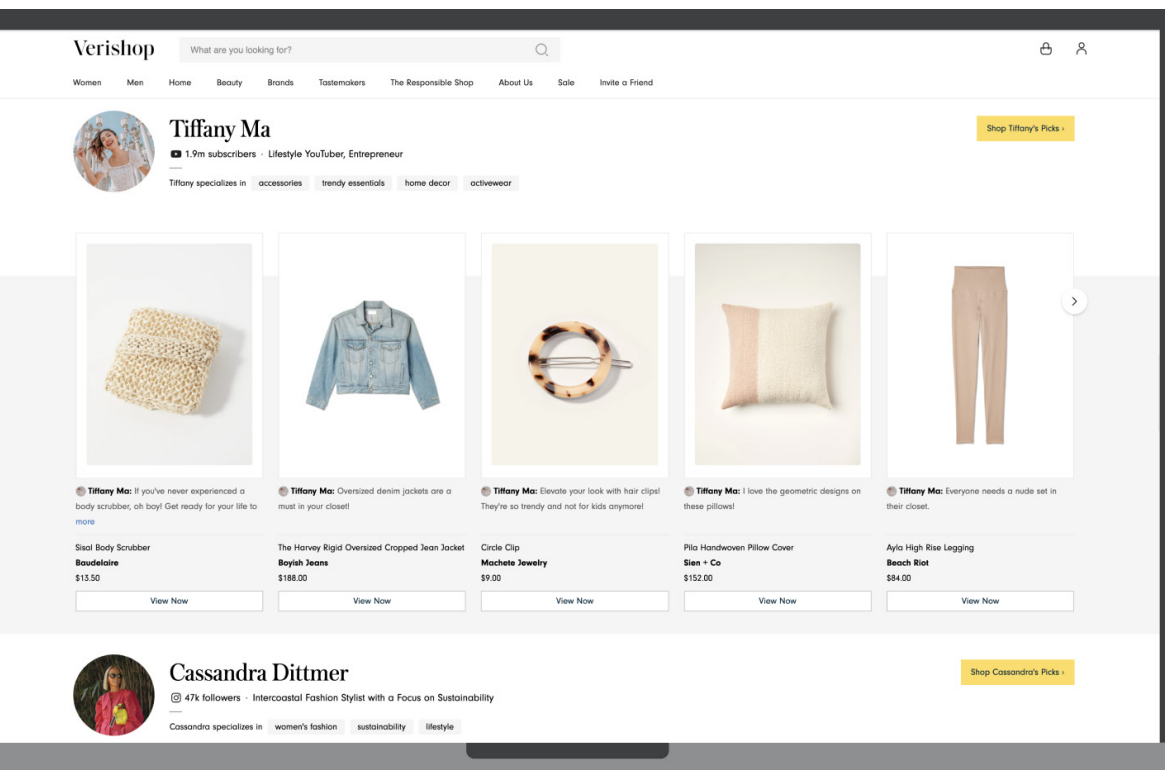
[A good example of custom storefronts in action is Verishop](#), an online retailer specializing in home, beauty, and apparel. Verishop's VP of technology Jason Bosco said the company realized early on it wanted to build innovative ideas on top of a standard ecommerce experience.

Verishop is launching “Tastemaker Shops,” where social media influencers can curate its catalog and then send their followers directly to custom storefronts to purchase an item. In other words, influencers are now a sort of storefront.

“In order to build something like that, we had to go down the custom path,” Bosco said. “We didn’t want to also build a whole custom ecommerce platform, because that’s a hard thing to do.”

Headless commerce also allows Verishop to develop a modular architecture. That means application components could operate independently with each other, then be re-used via microservices for other purposes later on. “Otherwise you become more and more tempted to build bespoke things,” he said.

The many faces of online headless commerce



Progressive web apps (PWAs)

More retailers are approaching custom online storefronts through a progressive web app (PWA), a development approach that uses techniques like pre-caching and progressive rendering to load sites reliably and quickly across multiple devices. It also means a storefront only loads once throughout the shopping experience.

With PWAs, customers can browse offline and receive push notifications to their mobile devices. You get many of the benefits of a native mobile app without having to build one. As a result, some retailers see improved conversion rates. Developing a web and mobile app together is a huge opportunity to save on development costs.

According to Brian Anderson, founder of Nacelle, PWAs can help address what he calls the “mobile gap” in some shopping experiences. He noted how sometimes average order values (AOV) don’t correspond with the volume of mobile traffic coming via social and other sources.

“A potential customer might see a product, click, and be transported to this jarring experience where everything has to reload. It’s a bit of a disservice to the customer,” he said. “It’s a discovery deterrent, and it becomes hard to understand the full context of your catalog.”

Beyond improving AOV and conversion rates, Anderson suggests using PWAs as part of an overall marketing strategy.

“It’s about being able to seamlessly let the consumer take time to consume the copy and images and form a relationship with the brand,” he said.

Custom native mobile apps

Retailers have created custom native mobile apps to support their businesses for years, but the needs and expectations of mobile users are changing faster than expected. Traditional mobile apps can also tie up a lot of developers’ time.

For some, shopping might simply be one part of a brand experience that focuses more on engaging with loyal customers and supporting a community of like-minded people.

This is where a custom mobile app can take advantage of a headless architecture and use APIs to connect ecommerce with online experiences to inform, educate, and inspire.

A custom mobile app can allow those outside IT to play a more active role in managing the overall customer experience. Headless commerce allows you to more easily manage processes like approving and publishing content, so you can update an app more frequently. Think of a fitness studio that sells workout gear but also publishes a daily article with exercise tips. The CMS will responsively load the content for every device.

The many faces of offline headless commerce

Technology isn't just transforming our digital lives. It's transforming our entire experience of shopping in store or at home.

Smart mirrors

You enter the change room and quickly realize there's something you forgot to take off the rack. Or you wonder if the item you're trying on is available in navy blue. In a busy store, flagging down an associate can be tough.

Retailers are starting to install smart mirrors to avoid this entirely by empowering consumers to browse in the change room. Beyond that, smart mirrors can offer product recommendations of complementary items, taking into account customer and order history. These mirrors can also place orders to be shipped to your home at a later date.

Brands like Guess have been quick to capitalize on smart mirrors, positioning them as personal stylists that use artificial intelligence, Bluetooth, and motion sensors to construct an outfit.

The many faces of offline headless commerce



Live streaming

When we're watching TV or films, we notice the clothes people wear, the cars they drive, and even the laptops they use. For years, brands have leveraged product placements to align themselves with trending stories or characters.

Seeing a product in the moment can heighten that sense of excitement and urgency, which is probably why many content providers are investing in opportunities like live streaming. This is not only true of Netflix and YouTube, but also Instagram, Twitter, Facebook, and even LinkedIn.

Headless commerce allows those offering live streaming to go beyond product placements with a direct link to make purchases, all without leaving the live experience. Instead, shopping becomes part of the viewing experience.

Just look at THE NTWRK, a mobile shopping app that made its debut last year. With Shopify Plus, THE NTWRK sold a limited edition set of Beats by Dre headphones on live stream with celebrities like DJ Khaled.

Vending machines

In the beginning were soda pop, potato chips, and candy bars. Later we began to see vending machines with audio equipment at airports. Now vending machines are stocked with clothes and even books.

Consumers can now use their credit cards or other smart payment apps on vending machines, rather than fumbling for change. The next step for retailers is enabling a wider array of products in vending machines while also building capabilities to discover and order even more items.

Clothing retailer UNIQLO created UNIQLO To Go, a vending machine that stocks thermal T-shirts and even down leather jackets in a variety of colors. In China, [Alibaba has partnered with Ford](#) to offer more than 100 cars at a vending machine, where people can book a test drive before making a final purchase.

If a vending machine is treated as a storefront, headless commerce means it can be treated like any other channel. The smart vending machine market is projected to reach \$30 billion in sales by 2024, [according to Global Market Insights](#). Beyond offering increased choice, retailers can now bring the right products to consumers at the right time, without opening a new physical store.



Voice shopping

If a speaker is smart enough to adjust the temperature of your living room or look up a dinner recipe, it should also be smart enough to order concert tickets, re-order your dog food, or buy a new TV set.

[According to a study from OC&C Strategy Consultants](#), voice shopping is set to grow from about \$2 billion today to \$40 billion by 2022. That's possible in part by headless commerce, as retailers find ways to connect storefront capabilities to all the devices that make up what technology experts call the Internet of Things (IoT).

But the potential for voice shopping isn't restricted to our homes. Innovative retailers will also find options within brick-and-mortar stores, as well as third-party locations such as arenas, hotels, and restaurants.

Costco, Whole Foods, PetSmart, and Walgreens are already offering voice shopping today through Google Home. Apple HomePod and Amazon Alexa are other examples of devices through which retailers could connect voice shopping experiences.

Even technologies that seem years away hold promise for voice shopping. Take self-driving cars. What will happen when your commute into work is managed without direct intervention? It's not hard to imagine making a last-minute order for groceries on your way to the office. And they'll be delivered to your doorstep before you get home.

The many faces of offline headless commerce

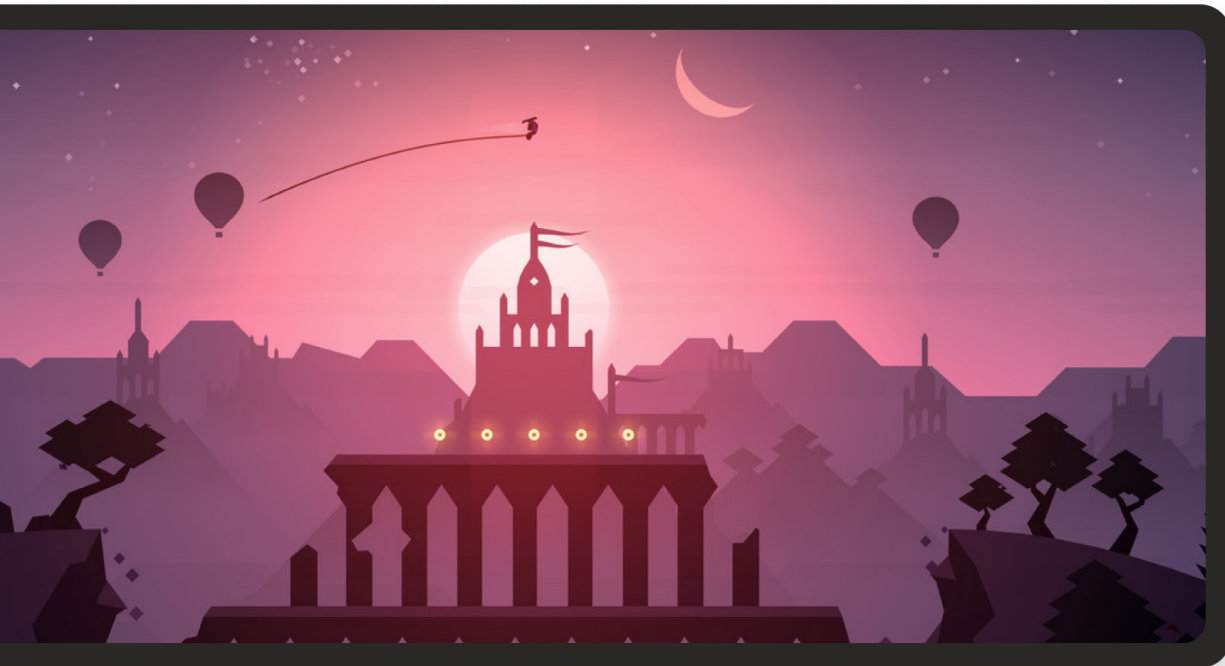
Video games

There's no better time to shop than when you're in a good mood, and who isn't in a good mood when they just blew past their previous score or levelled up in a game?

Whether they play via console or mobile app, gamers represent a fantastic customer opportunity given that they're already thinking about a brand and are possibly open to buying associated merchandise.

The size of this market is impressive—and growing. [Research firm NewZoo](#) estimated that the global gaming industry will generate \$152 billion in 2019, with platforms like Twitch attracting more than a million users at any given moment.

[Game developers like Snowman are already leading in this area](#) with titles like “Alto's Adventure.” Using the Unity Buy SDK, the firm created a custom storefront that bridged the physical and virtual worlds by allowing players to discover and buy merchandise without leaving the game.



Reach the right customers in the right way

Just a few years ago, shopping through social networks and smart home devices might have sounded strange. Today, it's even harder to predict where the commerce revolution will take us next. Retailers and agencies need to be ready for almost anything.

When retailers prioritize customer experiences above technology, they will prioritize actions that solve short-term problems, while giving them options to pivot for the future.

Sometimes that will mean moving to a headless architecture; sometimes it won't. The only thing that's certain is that flexible commerce will let retailers stretch themselves to reach the right customers in the right way.