The Headless Commerce Playbook for Business Leaders

The complete guide to all facets of a headless strategy: the front-end, commerce, content, and implementation.

Mobify commercetools Next generation commerce Amplience™ epam

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Traditionally, ecommerce software was built as a single, integrated application, often referred to as a monolith. It was inherently rigid and created with a fixed set of rules, from creating a new product discount to changing the font size in the front-end. Headless commerce refers to a modern commerce architecture in which the front-end is decoupled and connected seamlessly to the back-end via APIs (Application Program Interfaces).

This guide brings together experts from different realms of the headless commerce world to provide a comprehensive playbook for business leaders that covers all the facets of a headless strategy: decoupled front-ends, API-driven commerce systems, headless content, and the implementation of a modern commerce architecture. Before we dive into each section, here's a quick overview of why all business leaders should be moving towards headless commerce.

Five Business Benefits of Headless Commerce

If your strategy revolves around growing your brand and staying relevant for digital consumers, consider these five benefits for embracing headless commerce.

1. Customization: When using a headless solution, you're not tied to monolithic software that prescribes how a front-end should be structured. This freedom means you don't have to stick to a specific templating system or train your employees to follow exact rules laid out by a software vendor. Instead, you have full control of what happens on the front-end, and can follow your UX design principles to shape your brand's identity without having to adhere to a templated layout that makes your sites and apps look and feel like everybody else's.

What You Gain

- Brand recognition
- Higher conversion rates and increased LTV

2. Freedom to experiment: In a headless environment, you can do user experience (UX) experiments without the risk of jeopardizing the whole ecosystem. You can A/B test specific parts of your website, or try to build an Alexa skill, without affecting the back-end operations if you run into errors. In contrast, a traditional commerce architecture would force you to modify front-end and back-end code simultaneously – sometimes requiring a shutdown of the entire application for maintenance.

What You Gain

- Learn faster (faster feedback on new ideas, promotions, or programs)
- Less dependence on IT/ development

3. Speed and agility: You can implement new UX changes faster since you don't have to redeploy a back-end system when working in a decoupled environment. Development becomes much more efficient when teams can work in parallel and UX changes can be made without having to test all the core back-end logic.

What You Gain

- Faster time to value
- Efficiency

4. Scaling: In a decoupled environment, the front-end and back-end can be scaled independently so that even if the front-end receives a lot of traffic, this doesn't affect the back-end.

What You Gain

- Freedom to push seasonal, flash or trend-seizing promotions
- Efficient software maintenance

5. Easily add new touchpoints: In a headless scenario, multiple front-ends can connect to one API and underlying system. In other words, if you want to add social channels, kiosks, mobile apps, or in-car marketplace shopping, you can do so easily and quickly. Now you won't have to build a business case for a new back-end every time you want to add a new front-end.

What You Gain

- Ability to launch new touch points ahead of competitors
- Loyal fans who perceive your brand as relevant to their lifestyles

Headless commerce promises these five business benefits, but deploying a complete headless solution includes many moving parts. Let's dive into each piece of the solution – the front-end, commerce, and content – as well as implementation considerations.

Headless Front-ends

The Value of Decoupling the Front-end

A headless front-end gives you the confidence to move quickly and the freedom to shape your brand. By decoupling the front-end experience, your team can remove the shackles of a monolithic stack and be free to change and innovate the front-end at an accelerated pace.

Agility impacts more than just the tech team, Google Cloud's DevOps Research and Assessment (DORA) did an in-depth State of DevOps 2019 report and found that agility has a significant impact on an organization's overall performance. What the report coined "elite performances" are twice as likely to meet or exceed their organizational performance goals than "low performers." So what did this group do differently? Elite performers have 208 times more frequent code deployments, 106 times faster lead time from commit to deploy, 2,604 times faster time to recover from incidents, and 7 times lower change failure rate.[1] An agile team can experiment often, learn quickly, and foster a culture of continuous innovation and improvement.

A decoupled front-end also gives you the opportunity to strengthen your brand experience, which is critical considering 67% of customers say their standard for good experiences are higher than ever.[2] A headless front-end delivers faster, more engaging digital experiences with a best-of-breed approach that improves conversion and customer loyalty. You won't be limited to a front-end structure prescribed by the ecommerce platform so you have the freedom to customize the experience to shape your brand's identity. Meanwhile, the pace of front-end innovation can move faster, giving you the ability to quickly adopt the latest customer experience technology, and react quickly to market trends or shopper expectations.

1. https://cloud.google.com/devops/state-of-devops/

2. https://www.salesforce.com/research/customer-expectations/

How to Build a Headless Front-end

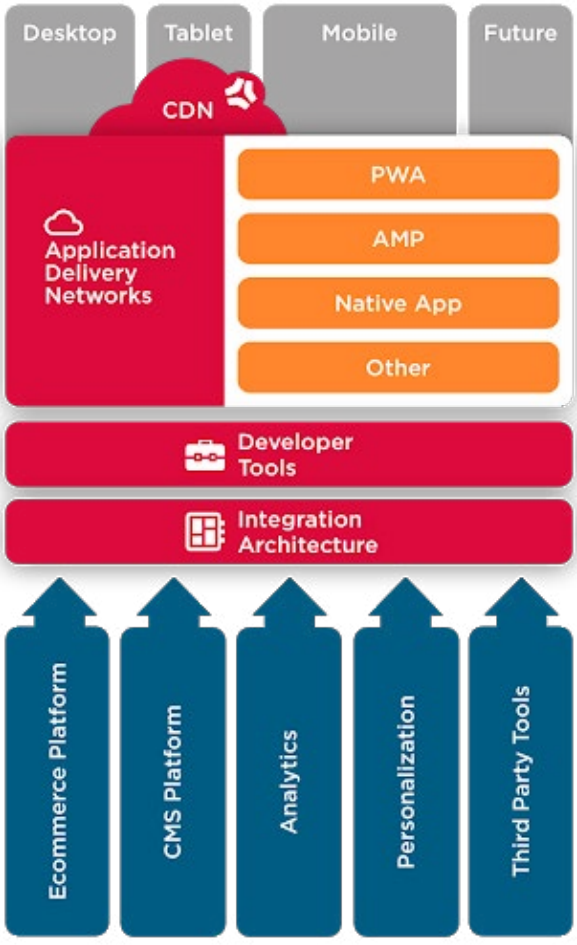
Launching a headless front-end requires building the actual front-end experience, as well as all the underlying plumbing for hosting, securing, scaling and integrating the front-end app. Building this foundational piece – or the "back-end for front-end" as some call it – is complex and very difficult to do in a scalable manner.

A modern Front-end Platform as a Service like Mobify is built on headless and serverless principles. This operating model for digital front-ends offers ongoing scalability and supportability that accelerates time to value and reduces total cost of ownership. It allows you to:

- Offload the stress of deploying, scaling, securing, and monitoring high-performing front-end apps to the Application Delivery Network.
- Reduce maintenance costs with a powerful API-driven Integration Architecture that allows you to easily add, swap or remove any back-end system.
- Leverage developer tools to build, test, and deploy amazing experiences with Progressive Web Apps, Accelerated Mobile Pages, and native apps on one codebase.

Essentially, a modern Front-end as a Service provides all the core front-end components an ecommerce retailer needs, and the experience you build on top of it is what makes your brand unique.

Front-end Platform as a Service



Day-to-Day Impact for Front-end Stakeholders

Introducing a Front-end as a Service will allow teams to move faster and shift their day-to-day focus from maintenance and support to innovation and value-enhancing work.

1. DEPLOY ANYTHING, WITH CONFIDENCE

New day-to-day	Old day-to-day
• Frequent releases that don't impact quality or stability • Instant rollbacks for mitigation • Continuous delivery to drive continuous experimentation	• Code freezes during high-impact sales seasons • Off-hour deployments that take hours • Manual deployments and builds • Lengthy rollbacks

2. DELIVER FASTER CUSTOMER EXPERIENCES THAT IMPROVE CONVERSION AND LOYALTY

New day-to-day	Old day-to-day
• Sub-second load times • Continuous performance optimization • Zero degradation, even at peak traffic	• Slow to respond experiences • Bloated, unoptimized integrations • Lowest common denominator performance for everyone • Once yearly performance testing

3. SAVE TIME AND MONEY WITH QUALITY INTEGRATIONS

New day-to-day	Old day-to-day
• Integrations that enable internal collaboration without impacting performance • Integrations that fully unlock the value of 3rd party systems	• Integrations that compromise the customer experience • Integrations that complicate internal processes • Vendor lock-in for 3rd party integrations

4. BE CONFIDENT THAT SECURITY AND SCALING ARE COVERED

New day-to-day	Old day-to-day
• Continuous monitoring of threats and vulnerabilities • Confidence in peak traffic loads and response times • Focusing on security early in front-end development	• Managing security updates for many servers and regions • Managing containers for propagating updates • Setting and forgetting firewall and DDoS mitigation settings • Planning, adding and paying for excess capacity for only peak periods

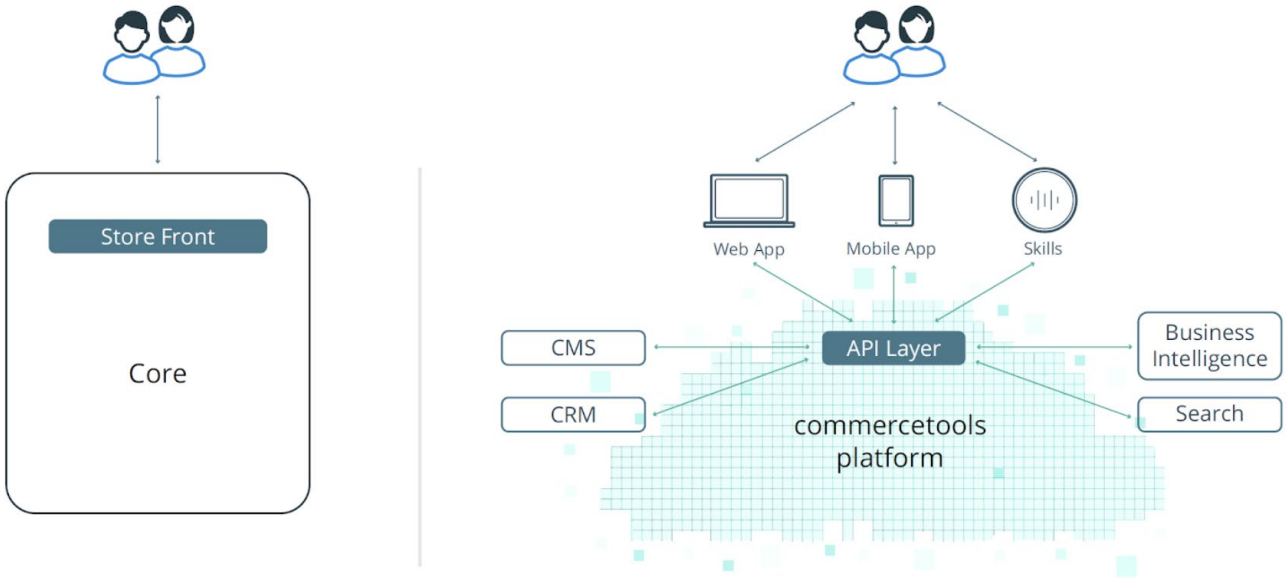
5. FOCUS ON VALUE-ENHANCING WORK RATHER THAN MAINTENANCE

New day-to-day	Old day-to-day
• Focusing on features and experiments that delight customers • Prioritizing enhancements that directly drive customer satisfactions	• Spending most of your budget and time maintaining containers, application servers, operating systems, and networks • Maintaining and auditing complex custom infrastructure for compliance

Headless Commerce

Replatforming to a Best-Of-Breed Commerce Solution

There's no set-in-stone definition of what a platform migration means in the commerce space, but for most, planning a migration is the perfect chance to eliminate overhead and aim for a leaner solution. The approach advocated by commercetools involves dividing an existing project into business domains and transferring the respective functionality and data out of the legacy platform to a best-of-breed infrastructure with commercetools as the core commerce functionality. In most cases, this means going from an on-premise monolith to a service-oriented, headless cloud solution integrated via APIs.



Unlike commerce software replatforming of the past, a phased migration is recommended, and more manageable with a headless solution. The idea is to disturb operations as little as possible and mitigate risks as much as possible.

Five Steps to Migrate to a Headless Commerce Platform

While this playbook is not intended to be a technical manual, it is important for digital marketing teams and business leaders to understand the migration process and how they will be expected to contribute to the migration planning. With that in mind, below are the five key steps in a migration to a headless commerce platform, as well as considerations for digital teams.

1. **Discovery and gap analysis:** This is an opportunity to take stock; to list what the current platform offers (especially in the overall customer journey), what it doesn't offer, and to set priorities. It's also a good idea at this stage to set up or reconfigure digital marketing teams to support the new platform during and after the launch.

2. **Building the migration roadmap:** There are a few critical decisions to be made in this step including selecting the front-end experience. At what point does the organization want to migrate to a new front-end – ahead of the commerce platform switch, during, or after? There are arguments for all three. Other decisions at this stage include how and when to move data like product catalogs, user profiles, and orders. Of course, no roadmap plan would be complete without pinning down some priority milestone dates. For marketing teams this could be seasonal or based on a new regional launch, the desire to rollout a mobile or POS app, or the launch of a new channel or product set.

3. **Extracting the data:** While the actual data handling will be done by the technical team, digital marketing teams need to have a stake in the data modeling including objects, sub-types, and attributes. A pet food company may have an object called "dogs" while a clothing retailer might have "shirts" and "jeans" product types with different subtypes, and a digital product might have object attributes like 'download count.'

4. **Importing and verifying the data:** Primarily a technical function, there should be digital marketing owners assigned to verify the data into the new system as this will ultimately impact how the day-to-day business processes are conducted.

5. **Building custom extensions:** Custom extensions are opportunities to build efficiency into the new commerce platform as the old platform is being phased out. This includes things like synchronizing product data between old systems and new systems.

Day-to-Day Impact for Commerce System Stakeholders

As with any new software solution or platform, a headless commerce implementation will require changes to how digital teams interface with the system. In the case of commercetools, that interface is called Merchant Center. The commercetools Merchant Center is an intuitive interface that helps commercetools platform users handle their most critical data and processes while keeping up with changing market conditions. It lets users manage product data, orders, and customer data for all retail channels. Additional functions, such as configurable forms and batch processing, speed up repetitive tasks.

Headless Content

An Insatiable Appetite for Content

Changes in customer behavior, e.g. adoption of new channels and devices, including mobile and, more recently, voice, has changed and will continue to make demands on the way that content needs to be conceived, designed, authored, assembled and delivered at scale. This is particularly noticeable when it comes with how brands must deal with increasing personalization and localization needs.

Headless content is becoming a more pressing necessity because the consumer is already everywhere, constantly demanding content; on their laptop, tablet, mobile, and voice-activated device at home. And the old web-focused CMS systems are not equipped to deal with this explosion of touchpoints. It's a massively time consuming and expensive exercise to bend the existing infrastructure 'out-of-shape' to solve these use cases. Traditional CMS is entirely web-centric, it doesn't consider the implications of either personalized storytelling or the use of content across multiple channels and devices.

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We know that the best performing digital experiences use data and insights to create personalized customer interactions. We also know that creating millions of individual experiences requires much more content than existing teams, systems, and processes can supply. This is where headless becomes so important for content.

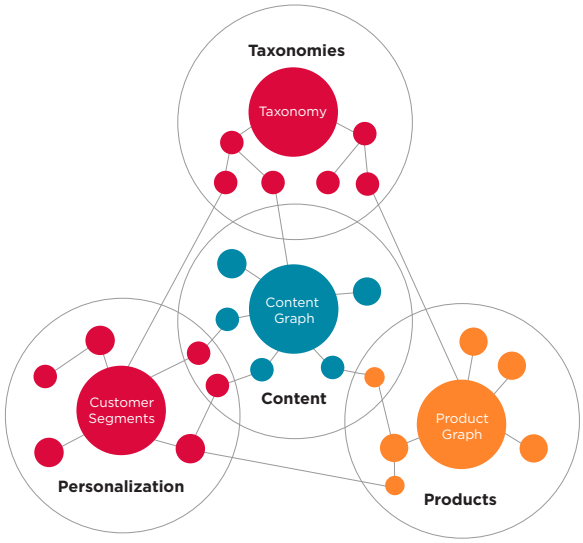
The Freedom to Do More

The true value of headless content is the freedom to do more. More quickly; in more places and without the need for development sprints. Teams can use lean and agile approaches to become more productive, creating content and experiences faster and more efficiently than ever before. The result is a richer and fully functioning storefront that is more relevant and meaningful for customers, which in turn leads to greater conversion: everyone's ultimate goal.

How do we achieve this goal? With a truly headless CMS, like Amplience Dynamic Content and Dynamic Media. The business users get the control they need to move at pace in creating and deploying content into the myriad of channels, while the technology teams get a headless CMS that they can build on and extend. All teams can work to the full potential of their productivity.

Making content headless makes it atomic, that is to say it can be broken down into small, machine readable data. This approach means that content can be created once and re-used everywhere, and structuring it as data means it can be manipulated by personalization technologies more easily. The additional benefit of content being structured in a machine-readable format is that it's automatically future ready, leading to a world where much of the digital customer journey can be automated.

Content as Data



So what do we mean by content as data? One of the core innovations in the Dynamic Content platform is the content graph. It provides a mechanism to enable the new world to be modelled in a channel neutral way, i.e. we can define the experiences required by modelling content, where content lives, and the structure and flow. Through graph queries, we see the 'context' i.e. the intersection of Customer (segmentation/personalization), Content (content and product) and Experience (where all the data comes together).

In practical terms, graphs can then be linked together in such a way that they can generate the precise content set required for each personalized interaction. This approach is unbelievably flexible and is one of the most powerful differences from traditional CMS.

This is the promise of headless content and the world Amplience has built. We are moving to a place where changes to anything from the main navigation to product tiles to page templates can be managed by content, not code.

Content not code is a groundbreaking paradigm. It creates both the freedom to do more for content teams and the freedom to do more for technology teams.

There may be a logical rationale to headless content, but at its heart, it helps stop the frustration teams feel every day, it helps content teams feel they are driving the business forward and technology teams feel they are building the right things.

Headless CMS Considerations

The key to a successful implementation is to invest time in up-front content modelling. The headless world is very flexible and can be made to model any real world scenario. But for the system to be truly usable by content teams, care must be taken to ensure that the content types (the building blocks of the experience), are organized in such a way as to facilitate content production.

So you need you ask yourself the following questions before making significant changes:

- Is the solution truly headless? i.e. was it built to structure content as data and deliver it as an API? Ideally it should be built using microservices, be cloud native and able to scale for your needs.
- Does it provide simple to use business tools that non-technical users can quickly and simply adopt?
- Are there reference customers with similar use cases to your own that you can talk to?
- Is the System Integrator familiar with the technology stack?
- Are the other solution components also microservices, API-first, cloud and headless?

In a headless world, you need new tools and APIs to manage the customer experience, otherwise you will just move the existing problem into code, taking you back to first base. The implications of getting this wrong is that you'll have a shiny new app but the same old problems of getting things done.

Headless Implementation

Implementing a modern digital architecture with a decoupled front-end, API-based integrations, and microservices leads to more complexity than the equivalent monolithic architecture on a single DXP platform. EPAM helps clear up complexity by providing end-to-end solutions through strategic consulting to meet your needs while offering value to your business. Throughout this process, many questions arise. Below you will find answers to the most frequently asked headless implementation questions that can be used on your journey to an API-led architecture.

FAQs

Why should I consider a headless implementation?

API-first became popular due to the rise of omnichannel and the proliferation of the different ways people interact with brands. We have web, mobile, mobile apps, digital kiosks and even bots, and consumers want a connected, customer-centric experience. In order to deliver this and not build snowflake solutions for every channel and touchpoint, brands need decoupled architectures that can cater to each channel's unique front-end technology while providing the same functionality.

How do I kick off a headless implementation project?

It's important to first understand the needs of your customers – both internal and external – to identify what best-of-breed solutions you'll need to create your roadmap. First, ensure there's alignment on the future state architecture so products and platforms are chosen with both internal and external needs in mind.

How should I phase my headless implementation?

The short answer is, it depends on the pain points and what's driving the need for change. If you want innovation but have a monolithic platform and don't want to spend years replacing it all, you can still make a headless pattern on monolithic systems. If you go headless over what you have right now, you can start to own the glass piece by piece. Using the strangulation pattern, you attach the APIs to the now decoupled front-end. Before you know it, you have replaced a monolith with an API-first architecture.

What are the common challenges that businesses encounter when going headless?

Ongoing supportability for the decoupled front-end is one of the most common challenges business face when opting for a headless solution. Creating the actual experience isn't necessarily the hard part, it's building the underlying infrastructure and integration architecture to effectively scale it long-term. A front-end Platform as a Service approach is beneficial for businesses as it eliminates support and scalability concerns.

How will moving to a headless content solution impact my team's day-to-day?

A completely headless CMS allows a central point for all assets shared across multiple touchpoints beyond web and mobile. The role of the content author/admin becomes obsolete as a truly headless CMS doesn't have a WSIWG editor and requires IT staff to support.

Conclusion

As covered in this playbook, there are a lot of moving parts when it comes to a headless commerce approach. In this new world, no one solution is the center of the tech stack. It's about bringing together best-of-breed solutions that are independent of one another, but can integrate seamlessly. Mapping out your headless front-end, commerce, content, and implementation strategy, and moving towards a modern commerce architecture will unlock agility and enable a better customer experience.

Mobify

Mobify's Front-end Platform as a Service is an API-driven front-end that empowers your team to move faster and customize the digital experience to shape your brand's identity. The decoupled front-end is built on headless and serverless principles, and provides ongoing scalability and supportability that accelerates time to value and reduces the total cost of ownership. Customers include digital innovators like Lancôme, Pandora, Debenhams, Paula's Choice, Cosnova, Mackage, Syo & Kioa, Carnival Cruise Line, Ann Summers, and Hobbycraft. **Please visit www.mobify.com to learn more.**

commercetools
Next generation commerce

commercetools is a next-generation software technology company that offers a true cloud, headless commerce platform, providing the building blocks for the new digital commerce age. Our leading-edge API approach helps retailers create brand value by empowering commerce teams to design unique and engaging digital commerce experiences everywhere – today and in the future. Our agile, componentized architecture improves profitability by significantly reducing development time and resources required to migrate to modern commerce technology and meet new customer demands. It is the perfect starting point for customized microservices. **Visit www.commercetools.com for more information.**

Amplience™

Amplience dramatically simplifies how clients plan, create, manage, and deliver content. With a modern API-first approach, the Amplience solution can unleash the creativity and productivity of content and technology teams. Amplience serves more than 200 of the world's leading retailers including Otto.de, Crate and Barrel, Boohoo, Mulberry, Shop Direct, and TUMI. For more information on the Amplience solution, **please visit www.amplience.com**.

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