Monolith vs MACH

MACH COMMERCE: EVERYTHING YOU NEED TO KNOW

Busting the Myths of MACH and Outlining How it Can Boost Your Business

Amplience   BIGCOMMERCE

Contents

Introduction:
Why Do You Need
MACH Now?

Digital acceleration and transformation are at an all-time high for businesses as they look to stay up-to-date with rapidly evolving customer behaviors and expectations.

There has been an explosion of choice in most markets. Marketplaces are particularly major disruptors. The variety of channels and touchpoints customers can interact and purchase on has been growing, with mobile and social media becoming hugely popular. And customers want more meaningful interactions.

They want engaging, personalized content and experiences with brands that build trust, advocacy and that make them feel valued, not just lead them straight down the path to purchase.

As a result, businesses are realizing they need agility and flexibility. They need the freedom to scale, to transform their content and commerce offerings to truly align with their business values and roadmap. They must keep up with the speed of new trends, features and experiences. They need change.

And to support that change, businesses need to invest in MACH (Microservices, API-first, cloud native, headless).

What Is MACH?

MACH is the technological (and organizational) shift towards letting businesses decide what they prioritize on their roadmap.

It lets businesses go to market with new and improved developments quickly, giving both business and technical users the ability to create and control entire digital experiences unlike before.

Naturally there are many considerations that need to be factored in when making the move to MACH. But there are also plenty of misconceptions out there too.

We're here to put those to bed. We'll start by helping you get to know MACH a bit more before running through some of the big myths you might be hearing. Then we'll take you through how you can evaluate whether MACH is right for you and, if so, how to get started.
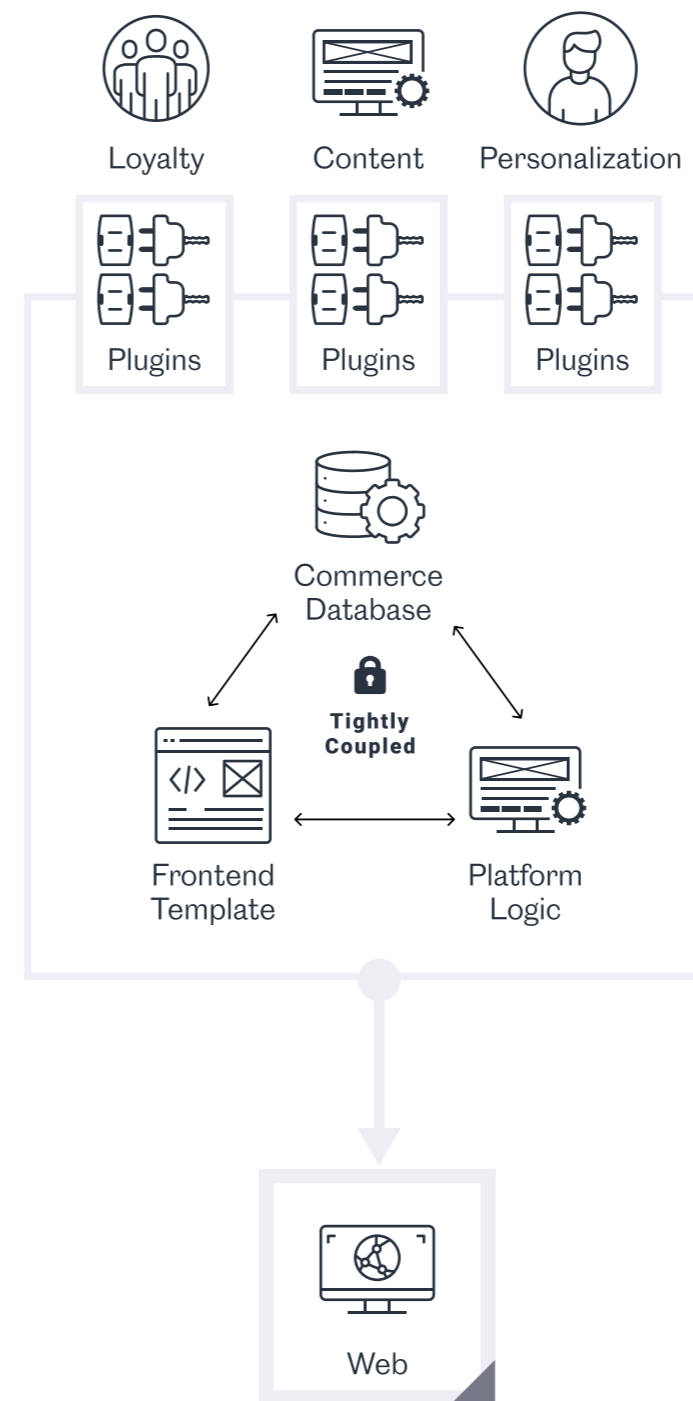
MACH:
The Basics

Breaking Down the Terminology

The term MACH hasn't been around for long. As you're starting to get your head around MACH, you're likely to come across a range of other terms and architectural approaches.

Many of these are similar and the terms are being used interchangeably, but there are a few nuances and subtle differences. Let's break the main ones down properly so you know exactly what you're talking about.

Monolithic Commerce Diagram

Loyalty   Content   Personalization

Plugins   Plugins   Plugins

Commerce Database

Tightly Coupled

Frontend Template   Platform Logic

Web

(Limited Digital Experiences)

Monolith

A monolith is a term used for eCommerce platforms where all the core eCommerce services are housed within the same code base. This includes content, product, search, promotions, payment, etc. In addition to core services, monolithic solutions include a presentation layer (e.g. the web storefront).

The presentation layer is often templated and tightly coupled to the platform logic and database, making adjustments or customizations limited. Additionally, monoliths leverage plugins that connect to the database and platform logic for enrichment services like loyalty, personalization, returns, etc.

Headless Commerce Diagram

Headless CMS
(Content)

Commerce Database
(Backend)

API Layer

Frontend </>
Frontend </>
Frontend </>
Frontend </>

Web
Mobile
Email
In-Store
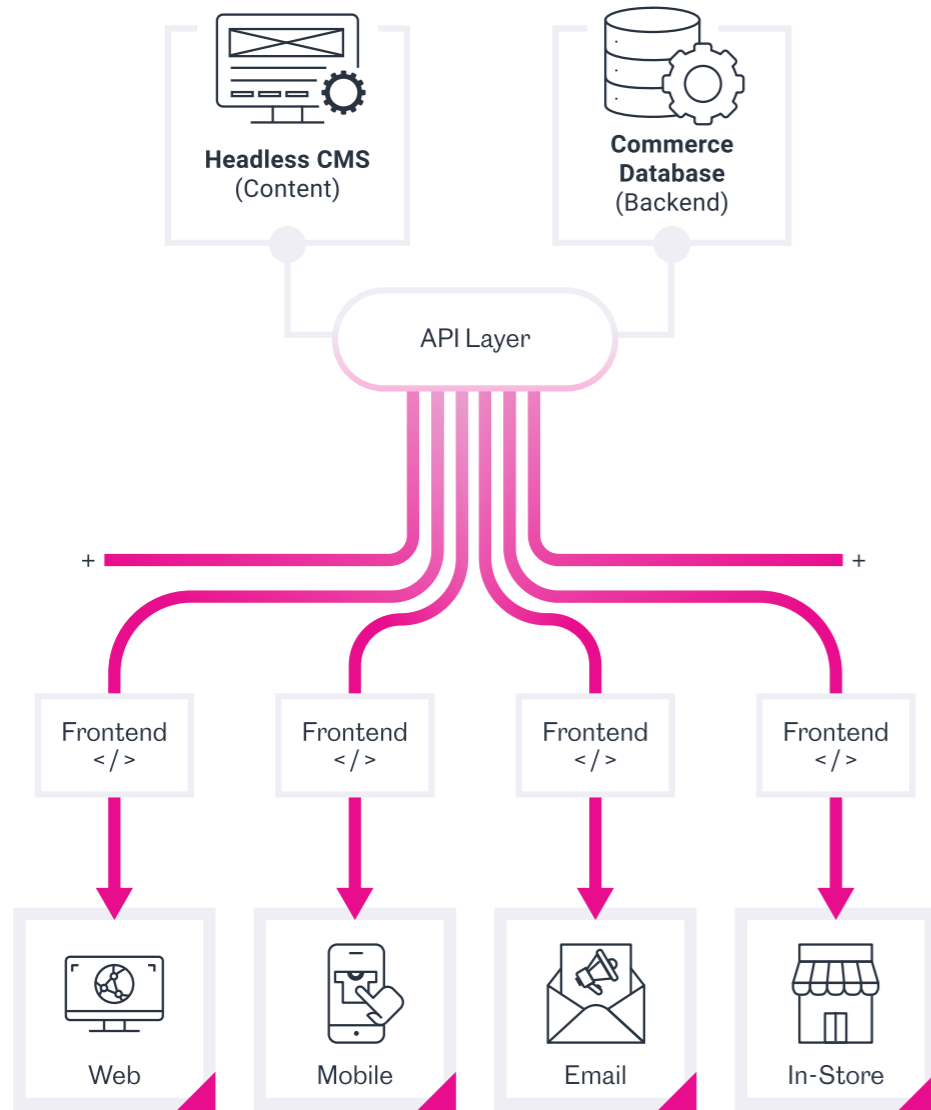
(Scalable Digital Experiences)

Headless

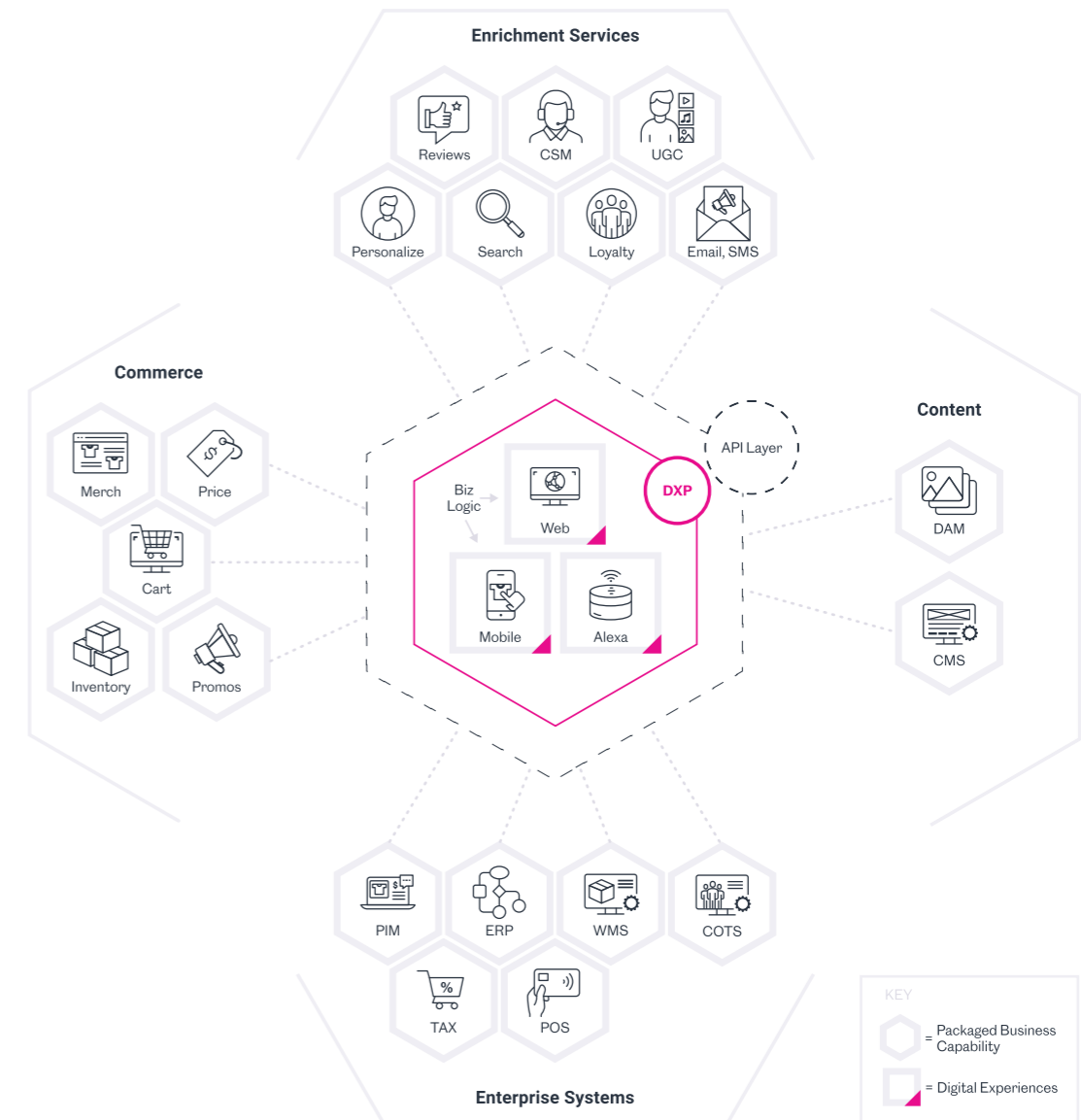Headless refers to the separation of the frontend and the backend. Your frontends is the likes of your storefront, app, etc. and your backend is the logic – the storage-like elements of your architecture. With headless, instead of everything being tightly coupled together like older monolith technology, the frontends and backends are connected through application programming interfaces (APIs) instead.

Composable Commerce Diagram

Enrichment Services

Reviews
CSM
UGC
Personalize
Search
Loyalty
Email, SMS

Commerce

Merch
Price
Cart
Inventory
Promos

Biz Logic
Web
API Layer
DXP
Mobile
Alexa

Content

DAM
CMS

PIM
ERP
WMS
COTS
TAX
POS

Enterprise Systems

KEY

= Packaged Business Capability

= Digital Experiences

Composable Commerce

Composable commerce refers to the ability to assemble and deploy applications that can easily be added, replaced or removed as your business needs to grow or change. The way composable commerce allows all of this to happen is through packaged business capabilities (PBCs). Each PBC generally focuses on solving a specific business problem and can comprises a range of features or tooling in order to achieve it.

These PBCs also remove the sizeism around the microservices used, meaning they will neither be too rigid or complex but allow just the right amount of flexibility to ensure they are simple to deploy.

MACH

As mentioned, MACH stands for microservices, API-first, cloud native and headless. It forms a set of guiding modern technology principles that uses a modern, competitive approach to build enterprise software stacks.

MACH vs Composable: What's the Difference?

The main difference between MACH and composable commerce is the way applications are connected and the impact this has on future changes and additions. And the agility of the overall architecture and the risk of change.
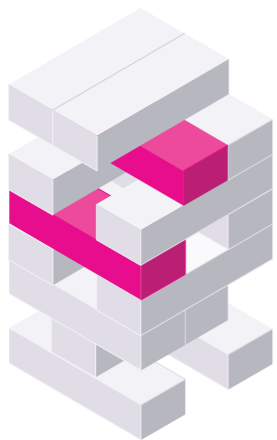
If we think of major technology stacks like a set of building blocks, a monolith would be equivalent to a   stack, where data, code, and business user tooling is tightly coupled. Remove a piece and you risk toppling the entire application.

A MACH stack would be equivalent to a set of Lego bricks where the pieces are flexible and interchangeable but can result in business tooling and technology being siloed. Making a change to the Lego stack may require some rebuild but will only risk one piece of the overall architecture.
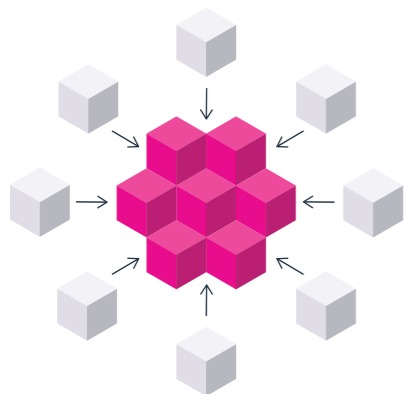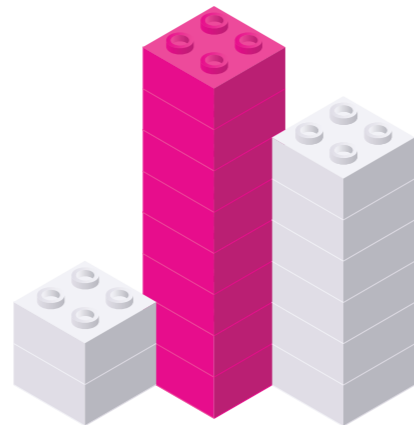
A composable stack would be equivalent to a set of magnetic building blocks. Essentially, the PBCs are the building blocks within the architecture and the underlying orchestration that connects the systems together are the magnets. So when one block is removed there is little impact to the overall architecture as the applications are connected through orchestration.

From Monolith to MACH

Whether self-hosted or SaaS (software as a service), monolith technology is essentially an all-in-one solution that comes packaged and ready to go. Given they're an out of the box option, monoliths have been an easy option for many when looking to enhance their digital offering.

The downside to this, however, is you're very much locked into the platform in terms of user experience and visual design, pricing and the technology and features you can use.

As businesses look to bolster their digital experiences, deliver on changing customer expectations and interact across several channels and devices, the rigidity of the monolith has been further exposed. Businesses need flexibility and the ability to deliver the experiences they want to deliver, not the ones they're forced to by the limitations of their technology.

> "Business are looking to other technologies, tools and teams as a stop-gap to support new experiences"

Businesses may have one eCommerce platform for their brand site, a content management system (CMS) to support a blog, a mobile CMS to support iOS/Android apps, an email provider, a social platform, an SMS provider, an affiliate provider for marketplaces and more, making it extremely hard to build and maintain consistent and brand-focused customer experiences across each of these channels.

Rapid iteration and agility are vital in being able to keep up and stay ahead of your competition. And this is where MACH is providing real value.

Headless vs. API-First

A thing to note with the evolution to MACH and the use of APIs especially is that many monoliths are starting to promote a 'headless' approach. These headless approaches are not typically API-first, however. The original APIs for these platforms were designed for plugins.

So while you think you're getting the benefits of the monolith platform and the added flexibility of headless, in reality you're not likely able to fully realize the value of what headless and MACH can achieve.

Not all the APIs will be extendable and not all will support a fully headless checkout and you may end up with multiple orchestration layers, which defeats the point somewhat. Being

API-first instead will offer that true flexibility, allowing you to implement a fully headless checkout and see value against the business goals you want to achieve.

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MACH Means Change

A move from monolith to MACH means you are aligning and building your technology around your roadmap and business objectives. But this change means the way in which you structure your teams and operations will need to realign to match.

Delivering products and features to customers becomes an iterative process, for example, as opposed to longer projects requiring a different mindset and a new way to fill and evaluate the development pipeline. With new tools and solutions in the MACH mix, you will also need to consider who is looking after what on a day-to-day basis. Whereas your monolith may have meant more developer input was needed on the frontend to get changes live, for example, new platforms empower marketers more. This can be useful but it means time and effort is shifting across teams, so resourcing may need to be adjusted.

MACH:
Myth-busting

MACH does not come without its doubters and misconceptions.

Unfortunately, a lot of this more negative talk can stem from unsuccessful migrations, businesses that have gone in quickly without taking stock of what they want to achieve, how to get there and how they may need to reorganize internally to make it work. Here are some of the biggest myths we've heard about MACH.

MACH Is Too Complex

When first hearing about a MACH approach, the architecture and frameworks can seem complex. But that's mainly derived from it just being different. It's a new way to set up your technology stack and relies on more moving parts given it's not just a one-stop shop type of platform. But it is these moving parts, the ability to choose the vendors and solutions you want, that helps businesses realize the true value of MACH.

To alleviate any concerns around complexities, vendors and systems integrators (SIs) can help by delivering existing architecture frameworks, frontend templates, examples or snippets of pre-built code that give you a starting point as well as some structure and guidance. These will help with not only going live quicker but also when continuing to innovate.

It's probably worth noting here that the level of perceived complexity will also stem back to the digital and technical maturity within the business (more on this below). If organizations already have the expertise and skills available to them, the implementation will naturally be a lot easier.

Dialogue and open communication with vendors and SIs around what you want to achieve is vital, especially as what may seem complex to you may be a lot simpler in reality within these new frameworks.

It Involves Too Many Moving Parts

As mentioned, there are inherently more vendors and people involved in MACH implementations given the nature of the architecture. But more people at the table doesn't have to mean more confusion or a lack of direction.

In fact, a lot of these MACH-based vendors are used to collaborating and partnering with others to deliver successful implementations. Strong relationships with independent software providers (ISVs) and SIs are valuable, ensuring all players are working on solutions together.

But make sure there is someone - ideally your SI - putting their hand up and taking responsibility for delivering what you want. This will help guarantee success.

It Shifts the Decision-Making Process

Some chief marketing officers (CMOs) will be wary about moving to a complex group of connected systems that sound like they will require more development work. But in reality a MACH architecture can provide more freedom and autonomy for both marketing teams and developers.

"MACH architecture can provide more freedom and autonomy for both marketing teams and developers"

Through a headless build or full microservices architecture, your tech stack being modular allows different solutions to scale independently of each other. That means marketing teams can make frontend changes without risking problems on the backend. IT teams can focus on revenue-generating projects instead of assisting marketing with frontend changes.

A wholesale and direct to consumer (D2C) seafood brand Santa Monica Seafood selected BigCommerce as their eCommerce platform because of its flexibility and ease of use.

As Khai Vuong, IT Director at Santa Monica Seafood, explains: "It was important to us to choose a platform that allowed a non-technical group to lead eCommerce operations. BigCommerce has allowed our marketing team to operate a complex, robust platform without too much involvement from the IT team, which means our time is free to focus on future integrations and changes that are coming our way."

MACH technology can help your marketing and development teams work in lockstep by taking control of the site in the ways they need to do their respective jobs more efficiently.

It Costs Too Much

Budget and return on investment (ROI) are key considerations for any business. A concern for some with MACH architectures is that with so many solutions being used the total cost of ownership will be too high.

Building a solution with multiple parts will involve some upfront costs, both for the solutions themselves and the development to integrate everything together. But the setup costs are not significantly different from that of setting up a monolith. And over time the total cost of ownership can decrease in comparison to legacy monolithic systems.

With a monolith, you put all your eggs in one basket. All your development costs go into implementing one large complex system. Making changes as your business grows and your needs change over time can require expensive updates to the whole system. Even minor changes can require developer resources. With a MACH architecture, however, you can swap out components of the system or add new ones to scale as your needs change.

Being able to make changes to part of the system without impacting the entire thing can lead to cost savings over time.

Implementations Take 6-12 Months or More

Speed and time to market are a huge benefit of MACH. Given it is built by combining solutions and platforms, you can easily add, swap and remove solutions as and when you need without it affecting the rest of the architecture. And you can take an iterative approach when migrating and implementing.

With MACH, re-platforming no longer means taking on a long, laborious process. There are different ways to approach moving to MACH through iteration but beginning with key areas like web and mobile is a good place to start, leaving you to build your enterprise orchestration over time.

This approach means you can effectively deliver value very quickly, with minimum viable products typically launched in days or weeks depending on your needs.

Should You Make the Move to MACH?

MACH does not come without its doubters and misconceptions.

Knowing whether MACH is right for your business can be a tough decision. Moving to any new technology has its risks. But to help you evaluate your initial fit, it's worth seeing how you stack up against our checklist.

The MACH Checklist

These are the main high-level criteria when looking at MACH. If you tick most of these boxes, it's worth continuing your evaluation process.

> **MACH QUALIFICATION CRITERIA**
>
> - Complex digital channel needs
> - Complex business model, enterprise company, high-growth brands
> - High technical maturity
> - A need for better applications

When to Recommend the Right Solution

MONOLITH	MACH

DIGITAL CHANNEL NEEDS - What type of businesses does your brand support?

✓ Single Web Channel	✓ We support both B2C & B2B ✓ We have multiple brands within our organization ✓ We're planning to expand into multiple countries next year

BUSINESS MODEL & COMPANY SIZE - What's on your roadmap for the next 12-18 months?

✓ We just want to update content ✓ We are launching our first retail B2C site	✓ We want to build a brand marketplace ✓ We are looking to build an in-store app for customers and associates ✓ We have plans to implement unified inventory across Amazon, our stores, and our brand sites

TECHNICAL MATURITY - Do you have a large technical team that supports eCommerce today?

✓ We have one frontend developer but mostly use templated work or drop in plug-and-play components	✓ Yes, we have a team of frontend developers ✓ No, but we're planning to hire a Technical Architect and a team of React developers to support this project

BEST OF BREED - Are you looking to change your current tech stack?

✓ Out of the box capabilities are perfect for us ✓ We don't want to have any additional contracts	✓ Yes, we are looking to scrap everything but our ERP system and implement all API first applications that support the needs of the business

How to Qualify If You're Ready for MACH

Now you've ticked the boxes above, it's time to go a little deeper on each point. Here are some more specific examples of how MACH could benefit your business.

LOOKING AT YOUR DIGITAL CHANNEL NEEDS

What type of business does your brand support?

- Multiple brands
- Multiple channels (B2B, B2C, D2C, marketplace)
- Multiples sites
- Multiple regions (including currencies, locales, and regional specific content)
- Multiple entities (CPG, health and safety, etc)

LOOKING AT YOUR BUSINESS MODEL

What's on your roadmap for the next year or so?

- Building a brand marketplace
- Plans to implement unified inventory across Amazon, your stores and your brand sites
- Looking to build an in-store app for customers and associates

LOOKING AT YOUR TECHNICAL MATURITY

Do you have a large technical team supporting your eCommerce? Migrating to a MACH approach does require certain skills and digital maturity within the organization. It's important to make sure you're internally set up and prepared not just for the migration project, but ensuring the migration is a success and that you keep seeing value from it in the future.

- Yes, you have a set of internal product managers and digital operations
- No, but you're planning to hire a technical architect and team of frontend developers
- Yes, you have multiple frontend developers
- No, but you're planning to hire a solution architect and leverage a solution implementer for feature development and planning

LOOKING AT YOUR APPLICATION NEEDS

Are you looking to change your current tech stack? There is an array of really cutting-edge technology vendors on the market that let you create modern-day digital experiences. Personalization, augmented reality (AR)/virtual reality (VR), data and analytics – you name it, you can likely integrate with it to offer your customers something bespoke and unique. You just need to know what to include to match your business goals.

- Yes, we are looking to get rid of everything but our ERP system and implement all API first applications that support the needs of the businesssystem and implement all API first applications that support the needs of the business

MACH: How to Get Started

So you're a good fit for MACH and keen to get going?

There are plenty of considerations and things you need to plan for. Here we've included five key themes to think about when planning to migrate to MACH.

1. Defining a Purpose

This may seem simple, but you will first want to define a purpose for migrating to MACH. What problem or feature are you trying to solve that you cannot today?

Goal: Create a single focus to drive alignment with your leadership team and tie objective goals to define success.

QUESTIONS TO ASK YOUR BUSINESS

- What are you trying to do today that you can't do right now for your digital experience?

- What is blocking you today? Technology? Business operations? Both?

- What do I want to be able to do in the future?

- Who will be owning the overall vision?

- Is there a timeline driving this decision? If yes, what is the minimum viable solution to support this timeline?

2. Business Buy-In

The toughest yet single most important step after defining a purpose for your MACH approach is the business buy-in. But why is it the hardest?

The shift to MACH is also moving the mindset from re-platforming existing features and integrations to rebuilding an organizational architecture to scale and building new experiences. This means that almost every piece of the digital business is going to change, from building and managing your digital properties to the structure of your teams.

The business buy-in phase is part-education and part-planning. You'll begin by having conversations with all your teams and you'll start to not only flesh out the vision and experiences from the purpose but look at asking the questions around who owns what and how you will do your day job. Start with a single company focus or specific project with high-value impact, as this creates focus and engagement across all teams. As you begin to build requirements and define business processes, your teams will have a focused approach as well as equal input on the overall outcome.

Goal: Build clear definitions of who owns what while outlining what the "new world" will look like for both your merchants and tech teams, building confidence and excitement as you move toward your new architecture. This will also continue to drive a unified focus on ensuring the right tools and technologies are chosen that work for your IT and business teams.

QUESTIONS TO ASK YOUR BUSINESS

- What features or experiences will return the highest ROI?

- How long will those features take to implement?

- What is this channel going to bring me in revenue? How much investment should I place when building a solution?

- Replace this channel with any of the following:

  - Digital web

  - Social

  - Email marketing

  - In-store/Endless aisle

  - Marketplace

- What internal departments are dependent on these technology changes?

- Who will own the following tasks, and what will their day-to-day look like?

  - Digital content

    - Which parts of the team own frontend experiences like the website, mobile app, promotions, email, etc.

    - How does the process change when a new channel appears?

  - Digital catalog and sales

    - How is product, catalog, and inventory managed?

    - Is this shared across web, store, marketplace, and affiliate?

  - Overall marketing

    - What does promotion planning look like for the website, mobile app, in-store, marketplaces, etc.

    - What changes do we want to make to our overall promotion strategy?

3. Architecture Planning and Breaking Down the Monolith

Now that the vision is clear and all teams are on board, the next step is understanding what tools and technologies you'll need to build these experiences. We highly suggest partnering with one or two key technology vendors and a trusted digital consultant to help guide your team through this process.

Start with your most common end-user interactions and ask: what is the common thread that ties my customer experience together across any interaction? Whiteboard the experiences and map existing tools and the business processes that support them. As you focus on the core user experiences and underlying tools, assess what features you do and do not like and what capabilities you need for your business. Does your current platform's promotional module meet the needs of your business? How will you handle federated search?

As you begin to map your key user experiences, you may begin to see themes and patterns in areas of overlaps, duplicative tools and tools that do not meet the needs of your business. This will help you define a clear directive around which business areas are most critical to convert to MACH.

DIGITAL WEB PERFORMANCE - Some businesses may find that their   capabilities are lacking or they want to increase site speed, which may mean beginning with converting to MACH with your product information management (PIM), content management and federated search.

INTERNATIONAL EXPANSION - Some businesses may be looking to consolidate operations across multiple locales, which may begin with converting to a headless eCommerce platform and CMS.

FEATURE SPECIFIC - Some businesses may want to address a particular feature like in-store kiosks, or personalized merchandise, which may begin with inventory APIs, a CMS, and headless digital asset management (DAM).

There's no 'right way' to architect a MACH solution. Your approach should start by aligning tools and operations around the highest priority business goals.

This not only helps drive focus and direction but can be directly tied back to the bottom line. Start by taking inventory of all the core capabilities of your existing platform and plan out the core capabilities and features you need from each:

Product, catalog, inventory, price, promotions, cart, loyalty, account management, SEO/URL management, personalization, A/B testing, content management, social and email, search, tax, shipping. Review each tool and consider what to keep, what to remove and what to replace.

> **Goal:** Build a template to visualize the needs of the business. This will help to minimize complexity and confusion and ensure technology and business processes are accounted for when building customer experiences.

QUESTIONS TO ASK YOUR BUSINESS

- What is the common thread that ties the experience together across any interaction?

- What does a customer journey look like for the following scenarios?

  - Web-to-store

  - Social-to-web-to-store

  - Store-email-mobile

- What systems do my team leverage today to create these end-user experiences

- What business process does my team follow to create these end-user experiences?

  - What is working?

  - What is broken?

- How will these systems talk to each other in the future?

- How many tools will my business team need to interact with to complete a task?

4. Vendor Selection

Once you have the prioritized list of key applications defined along with your requirements, it's time to choose your vendor. Since MACH is foundationally built on the principle of letting you choose the best apps and services on the market, your new digital architecture will consist of multiple tools rather than a single framework. This means you need to understand how these tools will work together and how that impacts your business.

It is imperative to drive these vendor selection conversations with an internal architect or an outside solution consultant who can help stitch the picture together and uncover any risks. It is also highly beneficial to include multiple vendors in discovery conversations. Ask for a proof-of-concept. And perhaps request a demo focusing on a relevant use case for your business.

MACH technology vendors are familiar with collaborating during a sales process. This may seem abnormal in a traditional single tool approach, but do not be afraid to include multiple vendors in a RFP (request for proposal) to solve together. It will only be more beneficial for you and your business.

Another note about vendor selection is to break down vendors into tiers, looking at how important this tool is in delivering or supporting your end-user experiences and how often this tool will be used by the business. Prioritizing these into tiers can help determine an accurate budget for total cost of ownership.

5. Your Migration Process

You have a vision. You have a planned architecture. You have the key vendors in place. The next step is to finalize the iterative plan and confirm dates, ownership and roles.

Migration is less about moving from system to system. It's about rebuilding and redefining the operational process.

As we talked about in the architecture planning phase, some businesses may have a specific goal, feature or reason for migrating to MACH. Others may just be planning strategically for the future. The goal is to create a solid plan to drive maximum end-user performance improvement while mitigating risk to your business.

For each iterative phase, you'll want to define what elements of the experiences are changing, what applications or technology is changing to support that experience and what operational process is changing to meet that new experience.

Once you have the foundational milestones for each phase, you can build out interdependencies, training and hiring timelines and sunsetting plans.

QUESTIONS TO ASK YOUR BUSINESS

- What elements of the current experience are changing?
- What applications or technologies are needed to support this new experience?
- What does the scope of work look like based on the goal we have set?
- Are there any dependencies on certain tools, vendors, infrastructure?
- How will this impact the overall timeline and migration?
- Who is doing each task? Internally owned or agency owned?
- Who is owning the overall project timeline?
- What/when will internal operations change?
- Do we have the right team in place? Do we need to hire to support this change?

Next Steps

See How Amplience and BigCommerce Can Help You Go MACH

Want to learn more about how you can use MACH to create dynamic commerce experiences?

Get in touch with our expert team by emailing contact@amplience.com or visiting amplience.com

Amplience powers digital-first brands and retailers with the freedom to do more. Our low-code CMS, DAM and Digital Experience Management platform allows more than 350 of the world's leading brand teams to manage content, not code. The result is a rapid ROI for our clients who are delivering data and insight-driven customer experiences that drive deeper, more valuable customer relationships. Amplience supports the industry's transition to Microservice, API-first, Cloud and Headless (MACH) technologies, is MACH certified and an executive member of the MACH Alliance.

Named a Strong Performer, Amplience was recognized by Forrester in The Forrester Wave™: Agile Content Management Systems (CMSes), Q1 2021 report with the highest possible scores attained in the criteria of decoupled delivery, deployment and system performance, components, and marketplaces.

Powering customer experiences for the world's most innovative brands, Amplience's customers include Ulta Beauty, Coach, GAP, Crate & Barrel, Harry Rosen and Missguided.

Experience
FREEDOM

Amplience