



WHITE PAPER

Preparing for MACH: the Four Keys to Success

At a Glance

WHO IS THIS PAPER FOR?

MACH is a new way of working for many companies and it can be a complex landscape to navigate. This paper is for decision makers contemplating Modern Architecture (MACH) as a composable, customizable approach to serving customers and meeting organizational needs.

WHAT CAN YOU EXPECT FROM THIS PAPER?

EPAM experts have reviewed multiple MACH implementations to identify areas that are integral to success but often overlooked. This paper is a comprehensive guide to these considerations, providing you with a “checklist” to work through before embarking on a MACH implementation and putting you in the best possible position to achieve success.

KEY LEARNINGS

WORK BACKWARDS

Clearly define the likely challenges you'll face, as well as the desired outcomes that equate to business value in order to create a concrete MACH strategy. This will dictate your approach to MACH, the technology and features you choose, and support post-implementation measurement. This paper outlines the key challenges and outcomes that MACH can address.

FIND THE RIGHT PEOPLE

Surround your implementation with people who are familiar with the MACH experience and understand the business value gained from MACH. This paper details the roles you may not have realized you'll need for a MACH implementation.

BUILD A SOLID BUSINESS CASE

The business case should include evidence-based input from across the organization, meaning traditional silos must be removed. This paper highlights inputs that you may not have considered to create a comprehensive business case.

CUSTOMIZE YOUR APPROACH

Understanding the MACH vendor landscape and the approach to take can be complex. Building sufficient time into the procurement process to define your requirements and understand the options will save you from trying to solve problems further down the line. This paper explains where to start when assessing the MACH landscape.

Contents

| | |
|--|----|
| INTRODUCTION | 4 |
| OUTCOME CONSIDERATIONS | 5 |
| LEARNING FROM OTHERS #1 | 7 |
| STAKEHOLDER CONSIDERATIONS | 9 |
| LEARNING FROM OTHERS #2 | 11 |
| BUSINESS CASE CONSIDERATIONS | 13 |
| LEARNING FROM OTHERS #3 | 14 |
| APPROACH CONSIDERATIONS | 16 |
| LEARNING FROM OTHERS #4 | 17 |
| ENSURING A SUCCESSFUL MACH IMPLEMENTATION | 19 |

Introduction

The landscape of any industry is always evolving, creating a need for dynamic technology solutions. When companies go through periods of growth, when their business model shifts or when they need to scale their work differently, they can face limitations in their current tools. Without the ability to customize the software to the business changes they're experiencing, they're only as good as the capabilities they're working with.

For many, this journey would inevitably point them toward MACH as one possible solution to their technology challenges.

MACH is a modular approach to technology architecture that offers flexibility for companies to better meet their customers' needs. By choosing a more composable architecture, organizations can build their own technology environment tailored to their unique requirements.

THE PILLARS OF MACH ARE:

| API-DRIVEN MODULARITY | CLOUD-NATIVE | HEADLESS |
|--|---|---|
| <i>providing loosely-coupled, replaceable components</i> | <i>allowing businesses to benefit immediately from service provider innovations</i> | <i>decoupled front-end architectures that enable omni-channel</i> |

MACH can be a big driver of change and, in some cases, revolutionize the way a business is run – but it's not without complexity. Having the right tools, systems and people in place to implement MACH effectively should be a business's number one priority.




Here's what decision makers should consider when it comes to MACH implementation.

Outcome Considerations

CONSIDER THE CHALLENGES YOU ARE TRYING TO ADDRESS

Most companies don't end up with MACH by looking for it; maybe their tech requirements have changed, their platform is at the end of its lifecycle or due for an upgrade, and they are looking at all options available. Many companies set out with a challenge or pain point they'd like to address and realize that MACH is the most suitable answer. The concept behind MACH brings benefits that meet many of the challenges organizations face while still running on monolithic technology suites.

MACH is:

|  MODULAR, API-LED |  CLOUD-NATIVE |  HEADLESS |
|---|---|---|
| <ul style="list-style-type: none">• The ability to “stack” an ecosystem with only the technology needed gives much greater control over customer experience. It puts businesses back in the drivers’ seats of their technology roadmap.• API-led platforms are built to be adaptable. The ability to add or replace components quickly—without waiting for future platform upgrades—allows for increased speed to market. For example, changing forms or adding new commerce channels or payment providers can be completed immediately.• There will be less need for manual workarounds and customization since companies specifically choose the technology that works best for their needs.• Microservices-based technology allows separate teams to build, scale and deploy in parallel, rather than working to strict release cycles. | <ul style="list-style-type: none">• Cloud provides the benefit of only paying for consumption, meaning some companies end up with lower total cost of ownership (TCO).• Running in the cloud allows you to scale with your business as needed, through growth or seasonal changes.• There are no costly upgrades or release cycles, and businesses are always using the most up-to-date version of the technology thanks to automatic updates enabled through the cloud. MACH technology is effectively future proof. | <ul style="list-style-type: none">• APIs allow companies to decouple their front- and back-end technologies. As customer touchpoints increase, companies can quickly add different front ends as needed. Overall, this provides faster time to market for innovation.• Headless architecture allows businesses to experiment, perform A/B testing for new features or release new lines of revenue at will without compromising on back-end stability.• Talent can focus on the front-end experiences that deliver value to customers—without the distraction of maintaining back-end architectures—resulting in improved customer experience. |

Outcome Considerations (Cont.)

There are also extensive soft benefits to MACH. While implementing MACH entails changes to ways of working, MACH requires that cross-discipline teams work together, breaking down silos, bringing about positive cultural change and encouraging more collaborative working methods.

Understanding challenges that need to be addressed will inform the overall strategy that all stakeholders work towards. Documenting this activity will contribute to both the business case and ongoing measurement to ensure success.

**IF IMPLEMENTED SUCCESSFULLY, WITH THE CORRECT EXPERTISE INVOLVED,
THIS SHOULD LEAD TO:**

LOWER TCO

Cloud-native platforms that don't need upgrades and use consumption models—only using the tech that you require—and reduce the need for manual workarounds can lower a business's TCO of their entire technology ecosystem.

INCREASED SALES

Because of its modular nature, these improvements to customer experience have allowed some companies to benefit from increased online conversion. Businesses have also seen increased online revenue through opening new lines of revenue more quickly with a MACH approach.



#1

THE COMPANY: LEADING DEPARTMENT STORE

This company had a mature IT team, was open-minded to using modern architecture and senior leadership agreed to the level of change required for a MACH approach.



CHALLENGE:

The company's in-store sales were in decline, and they were not seeing the online revenue needed to compensate for this dip. Mobile conversion was a particular area of concern, being a quarter compared to desktop conversion, but the majority of overall traffic. They needed to improve customer experience and increase conversions, but their eCommerce platform was restrictive and had code defects. Release cycles were every two months, making it difficult to implement new features at speed.

The company also experienced costly upgrades to their technology suite, and as it was coming to the end of its lifecycle, they took the opportunity to look for alternative solutions.



SOLUTION:

The department store realized that although they had a skilled IT team, they needed to work closely with an SI to augment their capabilities and provide MACH advisory services. Together, they laid out a roadmap to move towards a MACH approach, leveraging existing technology and making changes incrementally to remove the risk of destabilizing the current technology system.

The front-end systems were decoupled from the back end to detach both the mobile and desktop experience. This allowed new front-end solutions to be implemented. The IT team was then able to focus on improving customer experience without the risk of affecting other areas of the tech ecosystem.

Both Order Management Systems (OMS) were replaced with a MACH solution. The new OMS was API-driven and distributed so it easily plugged into the existing stock and warehouse systems. This empowered the business to manage orders and returns using business rules, as opposed to making changes to other, less flexible, back-end systems.

The incumbent eCommerce platform was also replaced with a MACH solution, which allowed for gradual decommissioning of the existing platform function by function. This greatly reduced the risk from transitioning and negated the need for a challenging "Big Bang" approach.

Learning from Others #1 (Cont.)



RESULTS

Taking a headless approach has significantly reduced time-to-market for new functionality. Releases have increased from every two months to daily with close to zero defects.

The improvements in customer experience resulted in an increase in mobile conversions. The ROI was justified almost immediately.

KEY LEARNINGS:



MACH, especially the use of APIs, allows a risk-averse business to carefully migrate from a rigid ecosystem.



Leadership buy-in and cross-department support for the move to MACH is key to ensure a smooth transition.



Detaching the front-end experience layer and replacing the OMS are both “low hanging fruits” that can quickly return significant revenue gains. They are also good starting points on the journey because they quickly empower the business teams.

Stakeholder Considerations

YOU NEED A BUSINESS SPONSOR OR CHAMPION WHO UNDERSTANDS THE NEED FOR CHANGE THAT MACH REQUIRES AND CAN BRING THE BUSINESS ALONG WITH THEM.

While this is true for almost every successful technology transformation, it's even more important in this instance. Choosing MACH is not just adding a new technology – you're implementing technology that impacts company culture, product development, efficiency and time-to-market. This requires a business sponsor who is not only proficient in MACH technology, but who also fully understands the business case and value statements that surround the decision.

For many, MACH provides clear benefits and value, but it doesn't come without challenges, such as added complexity and process changes. Specific expertise is needed to guide and manage the expectations of senior leaders in the business.

YOU NEED A PRODUCT OWNER TO MAXIMIZE ROI AND ENSURE SUCCESSFUL DELIVERY OF THE BUSINESS GOALS.

A MACH product owner is not the same as a typical project manager. This person should be a MACH evangelist with the right cultural fit. Ideally, they have been part of a MACH implementation before and are passionate about enabling and educating the business, supporting knowledge transfer and fully aligning with the business sponsor. The right people will have similar skills to a business analyst, with the pragmatism to be adaptable to this level of change. Product purists who are unable to veer from set processes will not work in this role.

It is standard practice to assign more than one product owner and map them to different parts of your customer journey, such as Discovery, Browse, Checkout or Fulfilment. This is no different from a non-MACH structure and ensures that each product owner is focused and not overloaded. This structure also supports cross-functional teams, as the product owner will engage across the business to ensure requirements and KPIs are met.



Stakeholder Considerations (Cont.)

IDENTIFYING THE RIGHT PARTNERS. MACH IS A NEW WAY OF WORKING, AND THEREFORE A NEW WAY OF BUYING—ENSURING YOU HAVE THE RIGHT EXPERTISE AT EVERY STAGE IS KEY.

Getting the right balance of both internal and external capabilities is essential for MACH. From day one, you should lean on those who have walked this path before. This could be a team built internally or by looking externally to the tech community and others who have chosen MACH. The right technical skills are just one part of the recipe – you'll need people adept at technology evaluation, business change/ internal alignment, agile ways of working, experience design and implementation.

Working with external providers from day one can help to transform with innovative ideas and guidance and to de-risk your investment and exposure. Systems Integrators (SIs) and MACH vendors have done this before, know the challenges you're likely to face and can orchestrate your ecosystem to make sure moving parts fit together.

Another way to de-risk is to ensure you're not overly reliant on one individual. Above, we suggest assigning multiple product owners to ensure that your business doesn't implement a solution that it's not equipped to manage, should there be staff turnover.

Underpinning all three points is transparency of the business case, objectives and KPIs between stakeholders. If all parties are aligned to the same goals, this will ensure all parties are accountable for the outcome.



#2

THE COMPANY: SPECIALIST FOOD RETAILER

The retailer was faced with spending millions on upgrading their legacy tech suite and needed to understand if there were other, more modern, alternatives available to them.



CHALLENGE:

With an expensive upgrade on the horizon, the retailer realized that they had failed to deliver most of the digital projects they set out to achieve using their current technology. The system was slow and expensive, and their overall tech ecosystem was extremely complex.

The business was working in silos, and the IT team was not mature enough to take on a large-scale change. They realized they needed external capabilities to advise on the best way forward.



SOLUTION:

With the help of a systems integrator, a rapid discovery and appraisal of the current situation identified the full extent of challenges faced by the business.

A detached front end was introduced to de-risk the current eCommerce platform and free up talent to focus on execution.

In parallel, a new “way of working” program was created to break down the business silos and kick-start a cultural change. This included constant and direct communication with the project champion regarding program health.

Gradually, a new MACH commerce platform was introduced, API by API, and the Content Management System (CMS), Product Information Management (PIM) and Multi-Agent Systems(MAS) were replaced in the same way.

A product-led roadmap was introduced that utilized Continuous Integration/Continuous Deployment (CI/CD), automation and shared KPIs to ensure consistent quality across the program. Training also began to build more in-house capability based on MACH languages, such as JavaScript.

Learning From Others #2 (Cont.)



RESULTS

Implementing a MACH approach created a technology ecosystem that needed no upgrading and could evolve along with the business.

Delivery was accelerated—with a huge reduction in failed projects—allowing the business to complete previous initiatives and open new lines of revenue.

The business culture changed dramatically, eliminating silos and divisive company politics with all teams working towards a shared goal.

KEY LEARNINGS:



Aligning plans and KPIs brings the business together and breaks down silos



Open, constant and direct communication with all stakeholders is vital for the health and success of the program



Trust in partners is key to a unified vision

Business Case Considerations

USE CASE STUDIES & FORUMS TO UNDERSTAND WHAT OTHERS HAVE DONE, INCLUDING PROOF POINTS & IDEAS FOR WHAT'S ACHIEVABLE THAT CAN HELP WITH BUSINESS CASE SIGN OFF.

Before making any decisions about MACH, take the time to educate yourself; doing this at the beginning of the procurement cycle will save you from trying to salvage a failed implementation later.

Don't be afraid to look to other companies who have done this well, reach out and ask them to walk you through their journey. There is a vast community of MACH users who are happy to discuss the challenges, pitfalls and success stories. You could consider creating an external advisory board of MACH community members to formalize the process as you build your business case.

ASSESSING ROBUSTNESS/RESTRICTIVENESS OF YOUR CURRENT SOLUTION – IS IT UNSUPPORTIVE, COSTLY OR SLOW TO UPDATE, LEAVING YOU UNABLE TO PREPARE FOR FUTURE CHANGES?

The answer to this question must come from inside the business and represent cross-discipline ownership. Silos need to be broken down and a collective view on where the issues lie should be included. If there have been cross-functional tensions in the past, this is the point to start a new way of working between groups.

To support the business case, your findings must be evidence-based. If you're presenting your case to your board, you must be prepared to explain objectively why the existing solution is restrictive.

TCO OF THE EXISTING ESTATE WILL BE A KEY CONSIDERATION IN CHOOSING MACH, NOT JUST MONETARILY, BUT IN TERMS OF OPPORTUNITY COSTS AS WELL.

The overall cost of your technology ecosystem is a key input into the business case. Don't be deterred by the year one TCO of MACH. You're buying five platforms, not one, so in many cases the cost of license fees will be higher in the first year. You'll also inevitably face the cost of retiring legacy technology, integration and learning. But, if you get the business case right, this will all be offset by the opportunity gains.

When measuring the opportunity costs, think about the instances where you were unable to update your platform quickly enough, because it wasn't cloud-native, to take advantage of market changes. You might also have a number of projects and plans gathering dust that you haven't been able to roll out with the current suite, but in the second year with MACH, you can get these moving.

MACH specialists can help you consider the right input for your business case, including efficiencies that can be achieved over the coming years, as well as the speed-to-market or speed-to-change that are specific to MACH.

#3

THE COMPANY: CYCLING RETAILER

This company consists of multiple brands and had senior level agreement to change. The IT team was mature, and the technology was a mixture of suites and custom-built software.



CHALLENGE:

The company had various technologies spread across its separate brands. The biggest brand was sitting on a custom-built ecosystem but was proving difficult to support as many of the original team had left the company. Other brands were using a different technology suite, but the expensive license was due for renewal and manual workarounds were already causing support issues. Additionally, the group wanted to launch a new digital brand and saw an opportunity for change.



SOLUTION:

With a number of MACH partners already engaged across the organization, the company wanted to move towards a phased MACH approach that realized value quickly. A single roadmap was created by a systems integrator to align all MACH vendors.

As a greenfield approach (or starting from scratch) is the simplest to implement, the first phase consisted of creating a MACH ecosystem for the new digital brand, with the plan to move other brands across at a later date. This approach mitigates risk, manages initial license costs and makes the business case more manageable.

The company was introduced to a distributed MACH OMS, which became the core part of the overall proposal and the most obvious source of value early on. The remaining MACH ecosystem included an eCommerce platform, Search, CMS and bespoke REACT front end. New and effective ways of working were utilized as part of the implementation, introducing agile, DevOps, automation and industry best practices to achieve consistent quality.

The client received a “clean” MACH platform to migrate the rest of the business across to. They also had established new ways of working, giving the business a more proactive and rapid approach to delivering new capabilities and customer experiences.

Learning From Others #3 (Cont.)



RESULTS

The new digital brand was launched successfully on a MACH ecosystem, and the business was able to scale rapidly across brands and territories. This resulted in an uptick in sales across the group.

A single eCommerce, CMS and Search solution was put in place across the group. This, along with no annual upgrades, easier delivery, reduced failures and less manual workarounds significantly reduced the TCO.

KEY LEARNINGS:



Creating a greenfield project with a new brand allows for a minimum viable product (MVP) that is real and has an immediate impact on the business



The MVP can be used to introduce complementary ways of working that will enable a business to make the most of a MACH ecosystem



Managing multiple software vendors is a fundamental part of a MACH approach and requires close alignment between the systems integrator and client

Approach Considerations

CREATING A REALISTIC PICTURE OF WHERE YOU SEE YOUR ORGANIZATION IN ITS MACH ADOPTION, WHILE LEVERAGING EXISTING INVESTMENTS

| GREENFIELD <i>(STARTING FROM SCRATCH)</i> | BLENDED |
|--|--|
| Opportunities for a greenfield approach are rare, but MACH is easiest in this scenario. For example, brands going direct to consumer for the first time. When there is no legacy technology in place, companies have the opportunity to map out their ideal ecosystem and introduce ways of working from the outset. | A blended approach to MACH can involve anything from decoupling your front-end from your back-end technologies and switching to a headless framework, to having a predominantly CMS/OMS solution. At the simpler end, this can be just a liberating change for the marketing department, allowing them to scale and release as needed, rather than a fundamental change that hits the business harder. |

UNDERSTANDING THE VENDOR LANDSCAPE AND SELECTING THE RIGHT VENDORS FOR YOU

Building more time into the procurement cycle to understand the landscape is important. There is a wealth of information about vendors and analysts are now talking about MACH. And, as mentioned above, people are prepared to give their time to talk about this ahead of the formal procurement process because it saves time solving problems in the long run.

Be clear on your vendor criteria – length of time in the market, customers etc. – but remember that MACH is composable, so somebody needs to implement whatever you choose. Whether that's internal or external, a good implementation means that you have a good technology ecosystem, and more so in the case of MACH because the infrastructure of this ecosystem needs to be built properly to work effectively.

The internal people who will use the technology are just as important as your customers. Business tooling – the interface for your business users – should enhance the employee experience. You also need platforms that work on similar technology languages, so that skillsets needed can be easily found. It's beneficial to have a "Swiss Army knife" team that can apply themselves across the ecosystem of platforms, rather than individually.

The **MACH Alliance** has been set up as an independent body to help brands looking to implement MACH technology and can provide guidance on the vendor landscape.

#4

THE COMPANY: B2B FOOD WHOLESALER

An established wholesale business reliant on traditional channels for business identified a need and opportunity to open an eCommerce channel to protect existing revenues, gain new clients and improve customer experience.



CHALLENGE:

The company needed to understand how to build an eCommerce capability that is flexible, future-proof and can replicate the needs of a B2B wholesaler. The solution also needed to replicate the offline customer experience, creating a fast and easy way to browse and order from the entire product catalog.



SOLUTION:

The company already had leads in place, with prior experience of a successful MACH eCommerce project, and it was able to ensure the rest of the leadership team was onboard with the approach prior to project kick-off.

A commerce platform was chosen to be quick to implement, yet flexible enough to allow for future growth and new functionality without a complex release schedule. The business implemented an eCommerce and CMS solution from scratch, tailored to the needs of a B2B business.

Content managers can use the system daily to update existing content, publish new content, remove out-of-date content and make other site changes immediately, without intervention from the development team.

The whole solution is cloud-native Software as a Service (SaaS), which means it is always up to date and the company can focus on developing new experiences and capability.

Learning from Others #4 (Cont.)



RESULTS

Implementing a MACH approach created a technology ecosystem that needed no upgrades and could evolve as the business changed.

Delivery was accelerated, with a huge reduction in failed projects, allowing the business to complete previous initiatives and open new lines of revenue.

KEY LEARNINGS:



Agreeing on a clear vision across the business from the beginning will improve outcomes



An internal team that understands MACH and buys into the concept is key to a successful MACH implementation



Greenfield projects are easier to tackle, but an established business will still need to work well with legacy platforms. API-led solutions mitigate the risks.

Ensuring A Successful Mach Implementation

The key factor to a successful implementation is due diligence up front. Are you surrounded by the right team? Have you fully thought through the business case and the objectives you're trying to achieve? Was research conducted on the MACH landscape and was every resource utilized to influence the roadmap? The outcome of this initial thoroughness will be the glue that holds a MACH implementation together and will ultimately ensure that all stakeholders are working towards the same goals.

A MACH approach will not be the right choice for every company. Many businesses will find that their digital ecosystem becomes more complex with the increased number of vendors and moving parts involved. Some companies could struggle with the new processes, ways of working and changes in culture that MACH brings. But companies who have implemented MACH in the right way are seeing extensive benefits and leaving their competition in the dust. And, it could be the difference between adding a new layer of complexity and revolutionizing your business.

ABOUT EPAM

Since 1993, EPAM Systems, Inc. (NYSE: EPAM) has leveraged its software engineering expertise to become a leading global product development, digital platform engineering, and top digital and product design agency. Through its 'Engineering DNA' and innovative strategy, consulting, and design capabilities, EPAM works in collaboration with its customers to deliver next-gen solutions that turn complex business challenges into real business outcomes. EPAM's global teams serve customers in more than 30 countries across North America, Europe, Asia and Australia. As a recognized market leader in multiple categories among top global independent research agencies, EPAM was one of only four technology companies to appear on Forbes 25 Fastest Growing Public Tech Companies list every year of publication since 2013 and was the only IT services company featured on Fortune's 100 Fastest-Growing Companies list of 2019.

Learn more at ww.epam.com and follow us on **Twitter @EPAMSYSTEMS** and **LinkedIn**.

GLOBAL

**41 University Drive,
Suite 202
Newtown, PA 18940, USA**

P: +1-267-759-9000

F: +1-267-759-8989

enquiries@epam.com