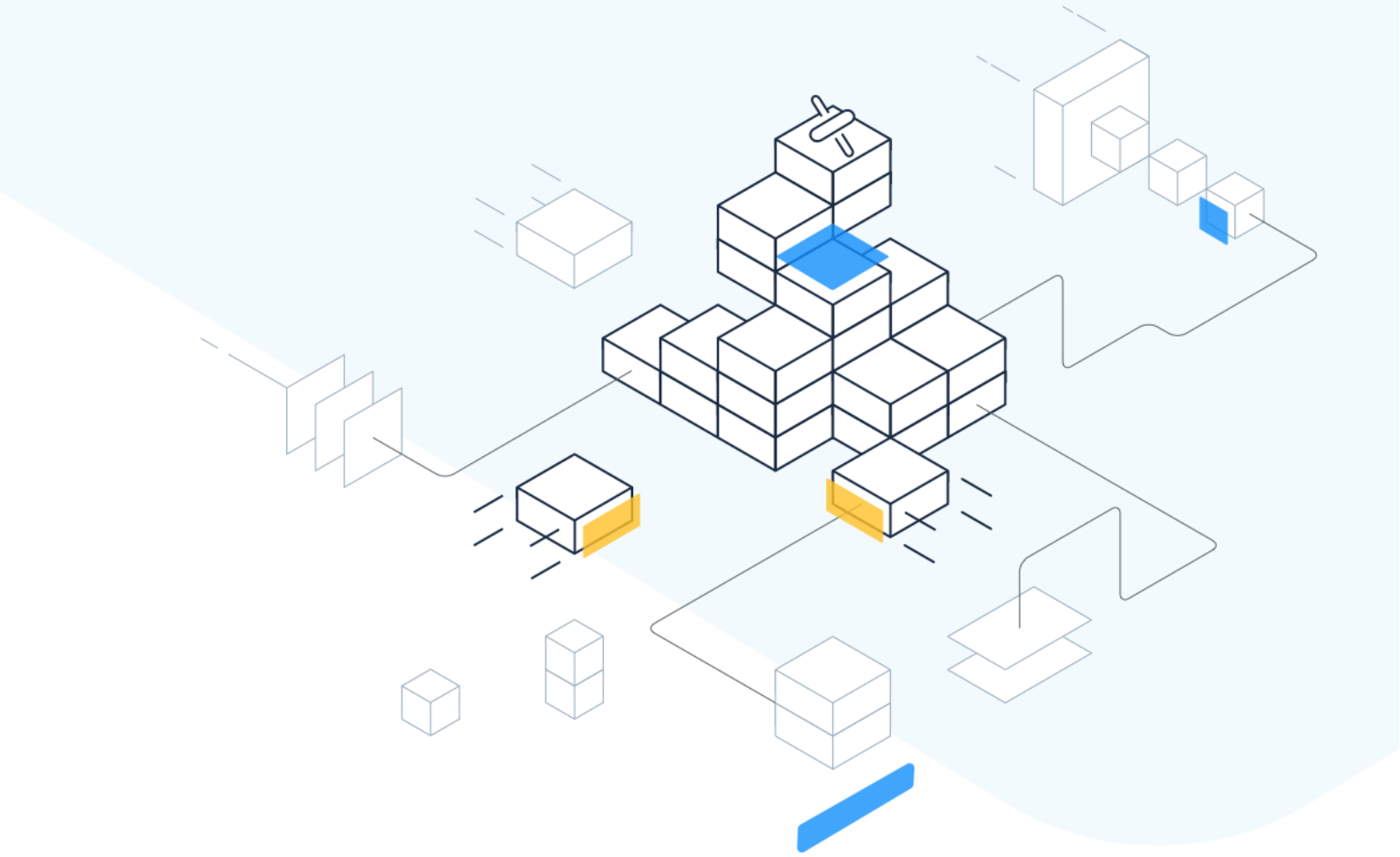
EMPORIX



From Monolith to Composable Commerce

Quick guide for successful legacy system transformation

Table of Contents

From Monolith to Composable Commerce

Quick guide for successful legacy system transformation.

Introduction

Running a dynamic business and surviving in fast-moving markets with static technology has never been a successful strategy. Today, as digital commerce continues to evolve to meet the demands of customers, this is more true than ever.

The good news is that unlike 10 or 20 years ago, today you have the technologies you need to build digital commerce that can flexibly adapt to new requirements at any time and that grows with new challenges.

The technical concepts behind this are not new, but they are gaining new momentum with the rise of Composable Commerce.

Service-oriented architectures, headless commerce, API-first development, best-of-breed, and especially Composable Commerce platforms are driving a shift and rethinking in enterprise technology design.

Many companies recognize this as a historic opportunity to break out of technological deadlocks and set the course for future-proof digital commerce.

No wonder that "re-platforming" is being discussed in many organizations. A paradigm shift in digital commerce is long overdue since too many businesses still try to win Formula 1 with horse-drawn carriages.

This paper aims to help you sort out the "**ifs**" and "**hows**" of re-platforming, with a focus on moving from monolithic legacy systems to Composable Commerce platforms.

You'll get an overview and inspiration to make informed decisions without going too technologically in-depth. Please let us know if this paper is helpful to you or if you have further questions about re-platforming!

Contents

Reasons for change

Let's get this straight: we can't emphasize enough that the reasons for shifting your technology strategy should never sound like "it's technologically trendy right now" or "others are doing it, too".

Rather, the decision to re-platform should be based on a comprehensive analysis of your digital business - weaknesses, opportunities, risks - and strictly guided by plain findings.

Nevertheless, there are also "typical" reasons for a change that should be mentioned here (to provide you with strong arguments you need to convince stakeholders in your company).

Digital commerce is continuing to evolve

Global retailers like Amazon and Alibaba are setting the standards for digital commerce and driving technology.

Even if you're a much smaller player with a completely different business model, there are no more excuses when your customers expect the same omnichannel shopping experience they get from the big guys. Technology is at your fingertips and evolving rapidly.

The marketing technology landscape, for example, has grown dramatically over the last 15 years, from 50 vendors in 2016 to over 8000 today.

Each one drives new demands of consumers and thus shapes the requirements for your digital commerce. The challenge is to find the solutions that help take your digital commerce to the next level and integrate seamlessly into your system, which can be all but impossible with monolithic legacy systems, not designed for change and customization.

Monolithic legacy systems reach their limits

Monolithic all-in-one solutions are still used in digital commerce, even though they often lead to a technological dead end.

Today, more than ever, the need for customizability and flexibility outweighs the benefits of getting all the functionality you need for digital commerce pre-built in one system.

All-in-one commerce systems are usually not designed for change and customization.

Over the years, many of them have become so rigid, inflexible and even unstable due to frequent customizations that any further modification comes with unforeseeable risk and major effort.

When even regular system updates become an entire project, then the time has come for a fundamental change.

The challenge is to be ruthless in analyzing the current situation and to overcome protective attitudes that may have evolved over a long period of time.

The 4th generation digital commerce has arrived

In recent decades, the evolution of digital commerce technology has gone through various stages, starting with monolithic system architectures where all functions are built into a homogeneous structure.

We have roughly outlined the drawbacks of such systems above. Nevertheless, they are still used in digital commerce today, albeit heavily adapted in many companies and slightly adapted by manufacturers to ensure that their solutions remain market-ready. Quite a few are touted as headless or composable even though they are not. The second generation of digital commerce came with new approaches to software engineering such as Services and Application Programming Interfaces (API), allowing functional components to be flexibly connected as needed.

These concepts paved the way for the 3rd generation of digital commerce, the so-called headless commerce, decoupling the user front end from the business processes in the back.

This significantly reduces complexity while increasing flexibility, but turning a monolith into a headless monolith does not solve the fundamental problem of the lack of flexibility inherent in the backend software.

The 4th Generation of Digital Commerce brings together the concepts and strengths of service orientation (SOA), API, and Headless into Composable Commerce that allows you to combine exactly the components you need to make your Digital Commerce successful and sustainable.

	1ST GEN	2ND GEN	3RD GEN	4TH GEN
SOLUTION FOCUS	Capability / feature	Capability / feature	Capability / feature	Process orchestration
APPLICATION	Packaged	Enterprise	Cloud	Composed
DELIVERY	On premise	On premise	Hosted in the cloud	Cloud-native / agnostic
BUILD	Pre-integrated	Assembled on site	Pre-integrated	Assembled in the cloud
EXPENDITURE	CapEx	CapEx	OpEx	ValueEx
PAYMENT	Upfront one-off	Upfront one-off	Recurring subscription	Recurring subscription

How to tell it's time for a technological realignment?

"If developing and maintaining your legacy system over a three-year period costs more money, resources (and nerves) than investing in a new system, then you should consider switching to Composable Commerce."

- **Udo Rauch**, CSO at Emporix

This sums up the matter. If the rigidity and complexity of your legacy system is paralyzing your E-Commerce instead of driving it, it's high time for a change. This is certainly the case if you are experiencing one or more of these symptoms:

- Maintenance and servicing of your legacy system gets increasingly costly
- Customization of front-end and back-end functionality gets riskier and riskier
- System performance and user experience worsen, meaning that sales decline and customers leave

In **monolithic systems**, complexity increases with each customization for which the system is not designed, i.e. when it is customized "against" its framework.

In **service-oriented architectures**, complexity does not increase because they are resilient to change by design.

Conclusion:

There are good reasons for transforming your digital commerce right now.

However, these reasons should always be based on an objective perspective on your business - weaknesses, risks, and opportunities - rather than more subjective criteria such as market trends or technology hypes.

If your legacy system is not only wasting your teams' time and nerves but also paralyzing your business, it's definitely time for a change. Composable Commerce could then pave your way to greater reliability, flexibility, and sustainability.

Approaches to change

Every digital system, no matter how outdated and obsolete, contains a large amount of development effort and business knowledge.

In many cases, not all parts of a system are obsolete and could continue to add value to your digital commerce.

Retaining and reusing system components is an important consideration when planning the transition from a legacy system to a new, sustainable system in a meaningful and, above all, economical way. Blind renewal mania is a bad advisor here.

Shutting down a legacy system and replacing it with a new composable one is one approach. Another is to incrementally transform the existing system into a service-oriented architecture.

Both have pros and cons to consider when setting the strategic course for transformation.

Building from scratch

When the pain and damage caused by an inflexible, complex, and unstable system get to the point where the downsides can no longer be ignored, you may decide to tear the whole system down and restart from scratch.

By this time, in many cases, a lot of money and time has already gone into working around fundamental problems instead of solving them.

Benefits of building a new system from scratch

- Get rid of all legacy burdens and technology dept of the legacy system
- Move into Composable Commerce fast and without any detours
- Limit risk and effort due to adapting and deconstructing the legacy system
- Meet top management's request for rapid overall business transformation

Challenges in rebuilding from scratch

- Allocate and coordinate massive resources for a tight project timeframe
- Switch from legacy to new composable system without affecting operations
- Teams, responsibilities, and workflows to be adapted to the new architecture
- Requirements catalog often overloaded with "trendy" technology features

Transforming your existing system

Since the change from a monolithic to a service-oriented architecture not only affects technologies but also infrastructure, people, processes, and even the corporate culture, it may be advisable in individual cases to transform step by step, for example using the strangler pattern method.

Strangler pattern describes a common approach to migrating a legacy system by gradually replacing specific pieces of functionality with new applications and services.

At the end of this multi-stage process, the new system replaces all the functionality of the old system, thereby " strangling" the old system and allowing it to be retired.

Benefits of transforming incrementally

- The system is transformed at low risk and with maximum control
- Allocate and coordinate small dedicated teams for lean iterations
- Keep existing functionality in play while refactoring to updated versions
- Focus on "low hanging fruits", adding maximum value at minimum risk

Challenges in transforming incrementally

- It May take longer than rebuilding, depending on complexity, planning and resources
- Manage legacy burdens and technology debt of the legacy system while transforming
- Risk and effort due to adapting and deconstructing the legacy system
- Requires a lot of ongoing attention to routing and network management

Incremental transformation is the preferred way when the risk of a redesign is high due to the high complexity of the legacy system or specific requirements in the company's technology landscape. An incremental approach helps to break down risks into manageable chunks.

Conclusion:

Changing from a monolithic to a composable commerce architecture is a paradigm shift that affects not only technology but also the entire organization.

The decision on how to transform, in one go or incrementally, should not be made in the heat of anger and frustration about your legacy system.

Rather, strategic goals, costs, and benefits must be analyzed and balanced very carefully within the specific context of your digital commerce strategy.

Building for sustainable commerce

Weak business cases don't get any better by just using the latest technology. They stay weak, just technologically at a higher level.

That's how Bill Gates and other thought leaders put it in a nutshell. And that's why the strategic objective of technological change in digital commerce should be to lay the foundation for sustainability, rather than just tinkering with symptoms.

Here's what to consider when planning for sustainable commerce.

True composability in digital commerce

"The future of business is composable. Composable business means creating an organization made from interchangeable building blocks. The building blocks of composable business enable organizations to pivot quickly."

- Gartner[1]

[1] https://www.gartner.com/smarterwithgartner/gartner-keynote-the-future-of-business-is-composable

Since today's markets, regardless of the industry, can change unpredictably at any time, commerce businesses must be able to respond quickly and flexibly to new requirements.

Composable technology helps achieve this, but is only one building block of composable business. According to Gartner, thinking and business architecture must be composable, too.

The building blocks of composable business

- **Composable thinking:** Overcome traditional thought patterns and principles of building and adapting by yourself and replace them with conceptualizing what to compose and how to use low-hanging fruits to add maximum business value.

- **Composable business architecture:** Build and organize for flexibility and resilience, not to preserve and maintain existing structures and processes for their own sake. Consider change as an opportunity, not a risk.

- **Composable technologies:** Build your technology ecosystem as a reflection of your composable business architecture, designed for continuous change and adaptation to new market challenges and requirements.

Not every organization and technology that calls itself composable meets the requirements for flexibility, modularity and scalability, which modern commerce requires. The reason is simple: composable principles are conquering digital commerce faster than many vendors can tailor their products to customer expectations.

It is hardly surprising that even solutions that are still monolithic at their core are labeled as "composable".

The challenge for digital commerce managers is to separate real from fake composable technologies when building a reliable foundation for future-proof commerce.

Checklist: How to recognize fake Composable Commerce

- **The number of services you can compose is limited.** True Composable Commerce allows you to connect services on an open API platform without any limitations, no matter if you choose services you have developed yourself, compose ready-made services on a best-of-breed basis, or mix both.

- **Only services provided by the vendor can be used (vendor lock-in).** This is a typical symptom of traditional all-in-one solutions that have dominated the last decades of e-commerce. Trying to add your own or third-party functionality can be painful and result in costly customizations.

- **A complex custom setup is needed to test the platform before buying it.** A true Composable Commerce platform allows you to quickly and easily put together some services to test your business model without any risk. If this isn't super easy to do without vendor support, the system isn't as composable as promised.

- **Scaling with online demands is limited or expensive**. Monolithic commerce usually can't scale automatically and flexibly, for example, to respond to event-driven or seasonal peaks in online shop traffic. Cloud-based Composable Commerce, equipped and aligned properly, can.

Recognizing true composability also requires a deeper understanding of common technical terms, all of which are related to, but not synonymous with, Composable Commerce.

Terms often confused with (or equated with) "composable”

Modularity: “Ninety-nine percent of the time you hear the word “compositionality” you are being (intentionally?) lied to. What people really mean is “modularity,” says Fabrizio Romano Genovese, head of research at Statebox.[2]

“We call a system modular when it is composed of various parts that can be linked to each other.” This also applies to a modular monolithic system that is organized into components, but is still deployed and maintained as a single entity. In a composable system each individual part is handled as an individual entity.

Service-oriented: Service-oriented architecture (SOA), here used synonymously with microservices architecture for the sake of simplicity, is a software engineering approach that focuses on decomposing an application into single-function modules with well-defined interfaces.

In this respect service orientation is an essential prerequisite for Composable Commerce, but it does not per se enable digital commerce to be assembled and scaled quickly, easily and flexibly in the way that real Composable Commerce does.

API-First: Like modularity and service orientation, the "API-First'' principle plays an important role in Composable Commerce, but is also only one part of this concept. As the name suggests, "API-First'' considers application programming interfaces (APIs) before anything else.
APIs allow services to connect and communicate with each other, no matter if they are homemade or provided by third party developers. That's why at Emporix we strictly follow an API-first strategy. No Composable Commerce without APIs.

---

[2] https://blog.statebox.org/modularity-vs-compositionality-a-history-of-misunderstandings-be0150033568

Each of these approaches is a critical building block of Composable Commerce, but by itself is not enough to provide the high level of design freedom and scalability that companies should expect from Composable Commerce, and as we understand it at Emporix. Our platform combines modularity, service orientation, and API-First to enable true Composable Commerce.

Expert advice: When to go for Composable Commerce (and when not to?)

The success story of microservices and the benefits of modular software design in response to an increasingly fast-moving digital commerce landscape is overwhelming. However, you should be wary of relying on Composable Commerce as a "panacea".

The truth is that Composable Commerce is not the best strategic approach for every business. In some cases, you are better off going for monolithic alternatives such as a customizable all-in-one solution. Composable Commerce might not be truly needed for your business if:

- Your digital commerce is not large enough to be broken down into composable components, that may involve additional complexity in development and maintenance.
- You don't really need to scale individual components of your digital commerce to remain competitive.
- Your digital commerce does not have highly specific requirements that go far beyond usual e-commerce functionality.

On the other hand, Composable Commerce is the best choice to make your business sustainable and future-proof, if you are willing to continuously and actively design and compose your technologies and if you are ready to rethink your technology strategy.

Services: Build or buy?

This is a frequently discussed question in technology management, which also has to be answered in re-platforming projects free of ideology and focused on the concrete objective.

Simply put, if ready-made services are available that solve your business problem or help optimize processes and can be easily integrated into your Composable Commerce, then it doesn't make sense to develop such services yourself. Then buying is the right approach.

For very specific requirements, on the other hand, it may be unavoidable to build a service yourself or to customize an existing one.

However, when customizing, make sure you don't hit the same dead-end that many companies hit running "over-customized" legacy systems.

Example: Featured APIs ready to use on the Emporix platform

Product Management

Serve the product data and content – at the right time, on the right channel.

Order Management

From one-off orders to pre-booked delivery slots. Right down to replenishments.

Smart Pricing

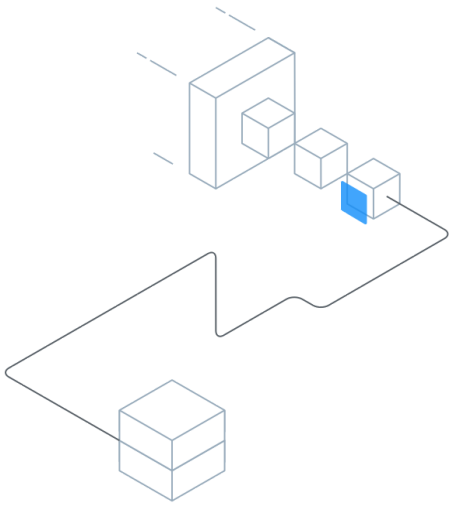
Calculate prices based on various factors like net and bulk pricing, volume and quantity rebate schemes

In-Store Fulfillment

Turn your store into mini distribution centers with support for wave-picking and substitution handling.

Checkout

Powerful checkout tool that adapts to any use case. A/B test checkout, cross & upsell, and support complex processes like deposits and custom requests.



A true composable platform like Emporix gives you full freedom to choose and combine. You decide which services you want to use, regardless of where they come from.

Infrastructure: on-premise or cloud?

Over the past decades, information technology has undergone tremendous change. Cloud computing has transformed the way we all work, use software and organize systems. Cloud services by Amazon, Microsoft and Google have contributed significantly to the rise of the cloud in digital commerce and many other industries.

Quite a few IT experts conclude that cloud killed on-premise computing, which has long dominated enterprise IT ecosystems.

Many companies have shut down their own server infrastructures long ago in favor of public cloud services. Why maintain and renew servers, bearing costs and risks, when you can get them as a service?

Using cloud services, companies can focus on their core business and reduce costs that come with owning IT infrastructure. Cloud services offer not only scalability but also availability, which makes many digital commerce managers sleep better at night.

If you are one of those who rely on cloud computing, then you have already laid the foundation for highly scalable and highly performant Composable Commerce. If not, then you should consider it as part of your transformation strategy.

After all, what good is a flexible system if the underlying infrastructure is too rigid and does not support this flexibility? If you still want (or need) to stick to hosting on your own servers, then they should meet the requirements of Composable Commerce, as should cloud computing.

Organization: Integrate adjacent systems and data

As mentioned above, technology is only one building block of composable business. Thinking and business architecture must also be composable so that composable technology can unfold its full flexibility and sustainability.

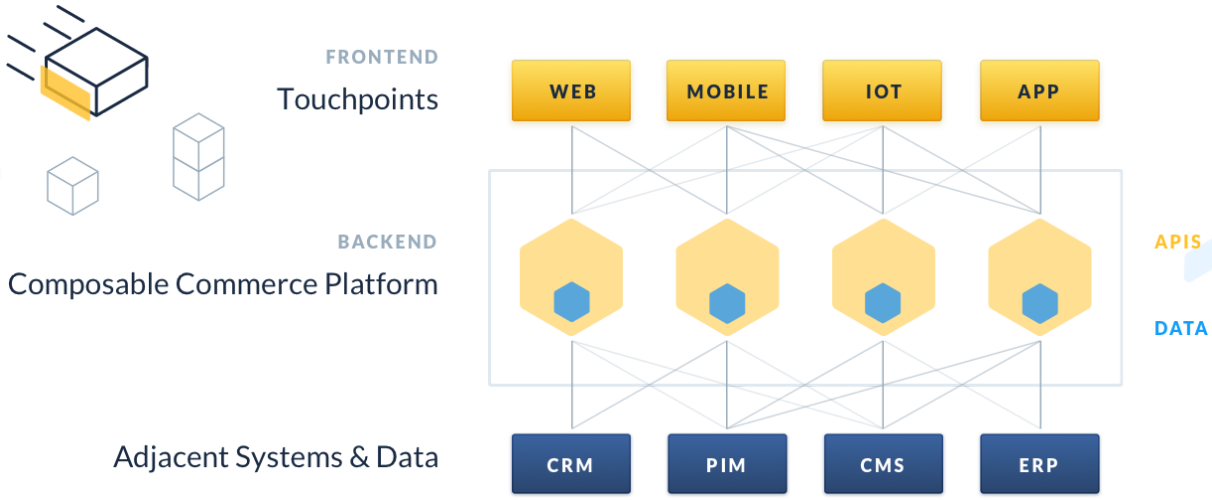
This may be a challenge for companies where resources, infrastructures, and processes are siloed and thus are not “composable".

Implementing Composable Commerce alone will not transform a rigid and isolated organization, but it can trigger a gradual transformation of the entire enterprise architecture towards composability, starting from business areas adjacent to Digital Commerce, such as Sales, Marketing, Procurement, ERP, and others.

Here, the first step could be to improve the seamless exchange of data and reduce redundant data storage.

Example:

Integrate data from multiple sources into Composable Commerce



In Composable Business, the entire organization is no longer a monolith that can only be adapted to new requirements very slowly and with a lot of effort.

Agile organizations are modular and flexible, even beyond the boundaries of the company, for example when it comes to integrating subsidiaries or third parties worldwide into Composable Commerce.

Conclusion:

The strategic goal of re-platforming is to lay the technological foundation for flexible and sustainable digital commerce that does not end up in a technological dead-end like many monolithic legacy systems.

A composable commerce platform like Emporix is a key building block that allows you to adjust or revise technology decisions you make today as needed tomorrow to maintain full control of your business at all times.

You are also completely free to decide whether to develop or buy the technologies you compose. To unleash full composability, the platform you use must be truly composable (beware of fake) and your server infrastructure, whether cloud or on-premise, must support composability.

Replatforming in action

Even though moving to Composable Commerce will take your business to the next level technologically and can also be a historic opportunity to make structures and processes in your company more agile, you should start small with manageable value-adding initiatives instead of turning it into a gigantic project right at the beginning.

Replatforming is an opportunity to downsize technology and streamline legacy processes, you should take advantage of.

Vision

- Identify the overall vision for your digital commerce
- Set SMART business goals, framed as KPIs, that serve your vision

Assess

- Determine why you need to re-platform
- List shortcomings of your existing E-Commerce platform
- List requirements and benefits you are seeking in a new platform

Plan

- Create initial project scope for re-platforming (Minimum Viable Product)
- Determine whether to build from scratch or transform step by step
- Get stakeholders and teams onboard with the re-platforming
- Evaluate budgets for each team and the project as a whole

Discover

- Research viable ecommerce platforms and services
- Create a shortlist of platforms and suitable services
- Schedule demos with top choices
- Choose a platform and service that suits your needs

Prepare

- Backup data and content from the old E-Commerce system
- Audit, consolidate and enrich data and content, if necessary
- Hire a data and content migration service

Build & Test

- Design Composable Commerce site on a new platform
- Migrate data and content to the new site
- Pair integrations, extensions, and plugins
- Test your entire system for performance, design, and structure

Launch

- Train your teams to use the new system admin
- Launch your new Digital Commerce Site
- Communicate the launch to your existing customers

Key takeaways

Reasons for change:

There are good reasons for transforming your digital commerce right now. However, these reasons should always be based on an objective perspective on your business - weaknesses, risks, and opportunities - rather than more subjective criteria such as market trends or technology hypes.

If your legacy system is not only wasting your teams' time and nerves but also paralyzing your business, it's definitely time for a change. Composable Commerce could then pave your way to greater reliability, flexibility, and sustainability.

Approaches to change:

Changing from a monolithic to a Composable Commerce architecture is a paradigm shift that affects not only technology but also the entire organization. The decision on how to transform, in one go or incrementally, should not be made in the heat of anger and frustration about your legacy system.

Rather, strategic goals, costs, and benefits must be analyzed and balanced very carefully within the specific context of your digital commerce strategy.

Building for sustainable commerce:

Replatforming is to lay the technological foundation for flexible and sustainable digital commerce that does not end up in a technological dead-end like many monolithic legacy systems. A composable commerce platform like Emporix is a key building block that allows you to adjust or revise technology decisions you make today as needed tomorrow to maintain full control of your business at all times.

You are also completely free to decide whether to develop or buy the technologies you compose or what server infrastructure, cloud or on-premises, you use (it just has to support the composability).

If you're ready to rethink your digital commerce for greater flexibility and sustainability, then Composable Commerce, as enabled by Emporix, might be perfect for you.

To learn more about Composable Commerce, contact us or book a demo today.

About Emporix

Emporix provides an enterprise-grade digital commerce platform.

The Emporix Digital Commerce Platform (DCP) manages advanced commerce in B2B and B2C with a state-of-the-art composable commerce architecture.

Retailers, wholesalers, manufacturers, and brands can innovate their business models and differentiate themselves through technology.

Companies can implement their unique business processes by consuming existing core commerce services à la carte and focusing their own resources on what makes them special.

They can serve any kind of touchpoint in a consistent way, integrate best-of-breed capabilities, and enable agile development. They benefit from automatic scaling with online demands, zero downtime, predictable cost, and unparalleled security.

Schedule a free consultation with our commerce experts →