



# Engineered Ecommerce: A Digital Transformation Methodology

The foundation for adaptable solutions  
that solve today's complex digital  
business pains

# ENGINEERED

/ˌenjəˈni(ə)rd/

*“Skillfully and deliberately arranged rather than arising naturally or spontaneously.”*



**This is how the Oxford English Dictionary describes the word “engineered,” and so engineered ecommerce is how we describe our methodology for creating an ecommerce environment that is purpose built for your ecommerce success.** In fact, global research institutes, such as Gartner, are already showing through research that engineered ecommerce is not only the way of the future but that it’s already beginning to happen.

This ebook is a journey into the future of digital business. Within these pages, you’ll find several unique examples of how our engineered ecommerce methodology eliminates common business pains. You’ll discover how each progressive step forward is beneficial to not only the business as a whole, but also the individual departments within. **When realized, our methodology is capable of transforming online retailers of today into the powerhouses of tomorrow.**

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# WHAT IS OUR METHODOLOGY, AND WHAT MAKES IT DIFFERENT?

But what makes our methodology different? To explain, let's first establish some background. In the beginning of online retail, businesses built custom, in-house software solutions for conducting their business online. While extremely flexible, building a custom platform and all of the components and integrations required is extremely expensive and complex. The cost and technical challenge is prohibitive to many small and medium sized businesses, meaning this is a solution primarily used by enterprise-level businesses.

Then along came SaaS (software as a service). Businesses jumped on the opportunity to take the extreme cost and complexity out of the equation by giving online retailers a managed platform that they simply just need to sign up for and use. Online retailers now have access to a plethora of SaaS platforms for ecommerce, marketing, customer service, analytics, and much more.

Today, there is no single platform capable of everything an online retailer needs. Instead, these businesses rely on an ever-changing landscape of individual platforms — a mix of SaaS, open source and custom. When you stop to take inventory, dozens of different platforms typically make up the toolkit of a single business. In this situation, it's nearly impossible to keep track of it all which leads to a new set of business problems that many businesses are feeling today.








**This is what makes our methodology different. This methodology was specifically designed to take a critical look at the big picture. It seeks to understand the purpose of all platforms used, then skillfully and deliberately arrange them in ways that increase operational efficiencies, ultimately creating a unified ecommerce architecture tailored to the business.**

This methodology isn't just a connector or integration, it's an architecture.



# A METHODOLOGY THAT SOLVES DIGITAL BUSINESS PAINS

While arranging and connecting business platforms into a unified architecture is the end-goal, the methodology was designed specifically to solve today's digital business technology pains.

Technology pains	Impact on business
 Ending the replatforming cycle	<ul style="list-style-type: none"><li>➤ Replatforming is expensive, time consuming, and takes business operators away from day-to-day operations</li><li>➤ Replatforming may lead to unforeseen complications and loss of functionality</li></ul>
 Unable to integrate desired system & platforms	<ul style="list-style-type: none"><li>➤ Manual workflows lead to increased overhead and decreased operational efficiency</li><li>➤ Difficulty reacting quickly to market changes</li></ul>
 Slow load times and decreased performance during major sales events	<ul style="list-style-type: none"><li>➤ Lost revenue</li><li>➤ Negative customer experience &amp; low retention</li></ul>
 Inability to access new sales channels	<ul style="list-style-type: none"><li>➤ Limits growth and revenue</li><li>➤ Loss of competitive edge &amp; market share</li></ul>
 Unable to deliver the desired customer experience	<ul style="list-style-type: none"><li>➤ Low conversion rates and customer retention</li><li>➤ Inability to innovate &amp; gain competitive advantage</li></ul>
 Data management issues	<ul style="list-style-type: none"><li>➤ Manual workflows and data entry is inefficient and prone to human error</li><li>➤ Increased staffing requirements leads to higher overhead and less profit</li><li>➤ Out-of-sync data complicates reporting and a businesses ability to react</li></ul>
 End-of-life software and platform upgrades	<ul style="list-style-type: none"><li>➤ Insecure platform that is vulnerable to attack</li><li>➤ Forced or unplanned replatforming which is expensive &amp; affects business operations</li></ul>

As you can see, these common pains have a big impact on business. Solving these pains will help a business reach new levels.



## Ending the replatforming cycle

Online retailers have been led to believe that they have two options for development; proprietary (buy) or custom (build). While many companies are able to choose one or the other and live there comfortably early in their lifecycle, most established retailers don't fit nicely into either end. These businesses feel growth and workflow challenges related to frameworks that are either too rigid (proprietary) or too expensive and complex to maintain (custom). The gap between these solutions seems too big to overcome either way and they are left struggling, going around in circles searching for new solutions.

**The effect of this struggle is that these businesses enter a replatforming cycle where they believe changing their ecommerce platform will solve their pains but, without looking at the larger picture, they will most likely be in the same situation again in 2-5 years.** A report by Internet Retailer titled 2019 Leading Vendors to the Top 1000 E-retailers reported that “49% of retailers say their ecommerce platform is their top budgeted priority over the next year.” How many of these businesses are entering a replatforming cycle that they are destined to repeat? To this we don't know, but experience tells us it's likely many.

An open ecommerce framework, based on open source technology, is at the heart of our methodology and is designed to address these common platform pitfalls, workflow challenges and inevitable replatforming cycles. It's a framework that takes the best of both sides of the spectrum, settling somewhere in the middle and is driven by business requirements. It has ample core functionality so that businesses aren't reinventing the wheel, but is completely customizable, ensuring unique business edge-cases can be met. It's extendable, supporting innovation and the development of new features, custom functionality, and integrations. Finally, it's built upon widely recognized and modern programming methods and coding standards which makes onboarding development teams, either in-house or third-party, much easier. **An open ecommerce framework is meant to be the middleware that connects all of the components within a business's ecommerce architecture together — a mix of proprietary, custom, and open source — as much or as little as the business requires.**



## ✂ Unable to integrate desired system & platforms (including third-party, legacy and custom/homebrew)

An API (application programming interface) is the term used to describe the communication protocol that different platforms use to send data between them. So for example, when a customer completes the checkout process, a checkout API can be used to send information about the customer and transaction to other systems, like fulfillment and accounting. Another common API example is for taxes. Tax calculation in countries like the United States is extremely complex. Instead of trying to maintain the list of taxes in-house, integrations with services like Avalara and TaxJar have APIs that software can pull from to always use the most up-to-date tax information. **For digital business, integrations and APIs are used everywhere.**

But the availability of an integration or API isn't always guaranteed. Proprietary (buy) ecommerce platforms are in control of their own APIs and may or may not give software developers enough access to make an integration that relies upon them. Many integrations will already exist, especially between large, common platforms and partner platforms, but they still might not be complete. Custom integrations with legacy or custom/homebrew systems may not even be possible. It all depends on what APIs are made available on both sides. Businesses using proprietary platforms most likely do not have any control over the development roadmap for APIs, integrations, or the quality of the final product.

In contrast, a fully custom (build) ecommerce platform can have all the APIs and integrations it wants limited only by

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*"Through 2021, 85% of the effort and cost involved in a digital experience platform (DXP) program will be spent on integrations with internal and external systems, including the DXP's own, built-in capabilities."*

*Gartner, "Don't Wreck Digital Engagement With Bad Deployment Decisions for Your Digital Experience Platform," 31 July 2019, Gene Phifer.*

the businesses ability to make it happen through investment and development capabilities. However, building all of the APIs and integrations alongside an entire ecommerce framework is a monumental task that cannot be understated. The cost associated is huge and gaining the expert knowledge required to architect and build it all is not easily done.

**Our methodology, utilizing an open framework with an open set of APIs, gives businesses the ability to choose the platforms they use and the integrations that are required.** It

guarantees that a business is able to integrate with other systems, including proprietary, open source, legacy and custom/homebrew, through the use of already established APIs for common functions such as account authentication, database management, form interaction, page rendering, cart manipulation, checkout handling, order management, and much more. This is essential for business automation and streamlining workflows. Building all of these APIs and the associated integrations in-house would be incredibly time consuming and expensive, but building on top of them and extending them is much more reasonable. Open APIs and integrations can be added to and modified at will, freeing businesses to only invest in building additional APIs and integrations where it makes sense. Of course, there is no guarantee that the platforms and systems a business is attempting to connect with will have an API available to integrate with. **In these instances, and the whole point of viewing your ecommerce architecture as a whole, the platform or system in question could be swapped out with something better suited to the requirements of the business.**





## Slow load times and decreased performance during major sales events

Server architecture is a critical aspect of site performance, yet is easily overlooked. It's the background hosting and management of all of the elements required to run a large ecommerce website tick; database(s), file storage, load balancing, caching, traffic monitoring, bandwidth, backups, etc. **Without the correct server architecture in place, load times increase and customer experience is negatively impacted. Major sales events like Black Friday or product launches can strain server configuration to the point of failure.**

Server architecture may or may not be managed by the business. With proprietary (buy) platforms, servers are typically managed by the service provider. This hands-off approach is beneficial to online retailers who do not have budget or expertise to manage the servers on their own. Startups and small businesses tend to gravitate to this type of solution. Of course, if the service is great, business is in good hands. If not, business can suffer. Businesses under a hosted package are beholden to the provider and have little to no control over the server architecture.

On the other hand, a business managing its own server architecture, either internally or through a third-party, has much more flexibility. These businesses can tweak server configurations for their specific needs and implement unique server-level tooling that they might not have otherwise. Of course, the tradeoff here is managing servers does come with additional expense because someone, either internally or through a third-party, must be involved. This additional expense may very-well be worthwhile in gaining that ideal performance benchmark to satisfy the customer experience.

**Our methodology takes a hard look at business technology and performance requirements, and is used to suggest the best course of action to take.** However, know that an open ecommerce framework isn't a one-size-fits-all approach and thus will most likely require a managed server solution. If this is the case, the process which arrives at this conclusion makes the reasoning crystal clear and provides the configuration, optimization and support requirements to maximize blazing-fast site speed for all customers regardless of the amount of traffic visiting the site.



## Inability to access new sales channels

Accessing new sales channels is instrumental in growing a digital business and reaching new customers, but it isn't always going to be straight forward. Customers will most likely have access to a business's products through traditional formats such as the business's website on their computer or mobile device, but many customers will choose to shop in other ways. Online marketplaces (Amazon, eBay, Alibaba, etc.) and other third-party distribution channels see a massive amount of customer traffic that a business may want to tap into. B2B, trade shows, kiosks, resellers, dropshipping and volume-based channels are other channels that may require an entirely different or unique sales flow. Then there are non-traditional channels emerging such as IoT (internet of things) and voice assistance (Google Home, Alexa, Siri, etc.) that break the mold of the traditional interface. **Whatever the sales channel looks like, having the flexibility to access it might not be critical right now, but being able to adapt to new and changing markets may be important in the future.**

In a traditional business website setting, the ecommerce platform typically provides the website frontend (the presentation layer that customers interact with). So, how then does a business get it's product information and possibly a whole new user interface to other sales channels that are separate from the ecommerce platform? Doing so requires that the ecommerce platform and associated components are capable of running decoupled from the frontend. This is also commonly referred to as running headless. To do this, APIs are once again used to push and pull data between the digital ecommerce architecture and whatever frontend interface is being used, such as a phone app, third-party marketplace or reseller, kiosk, voice assistant, etc.

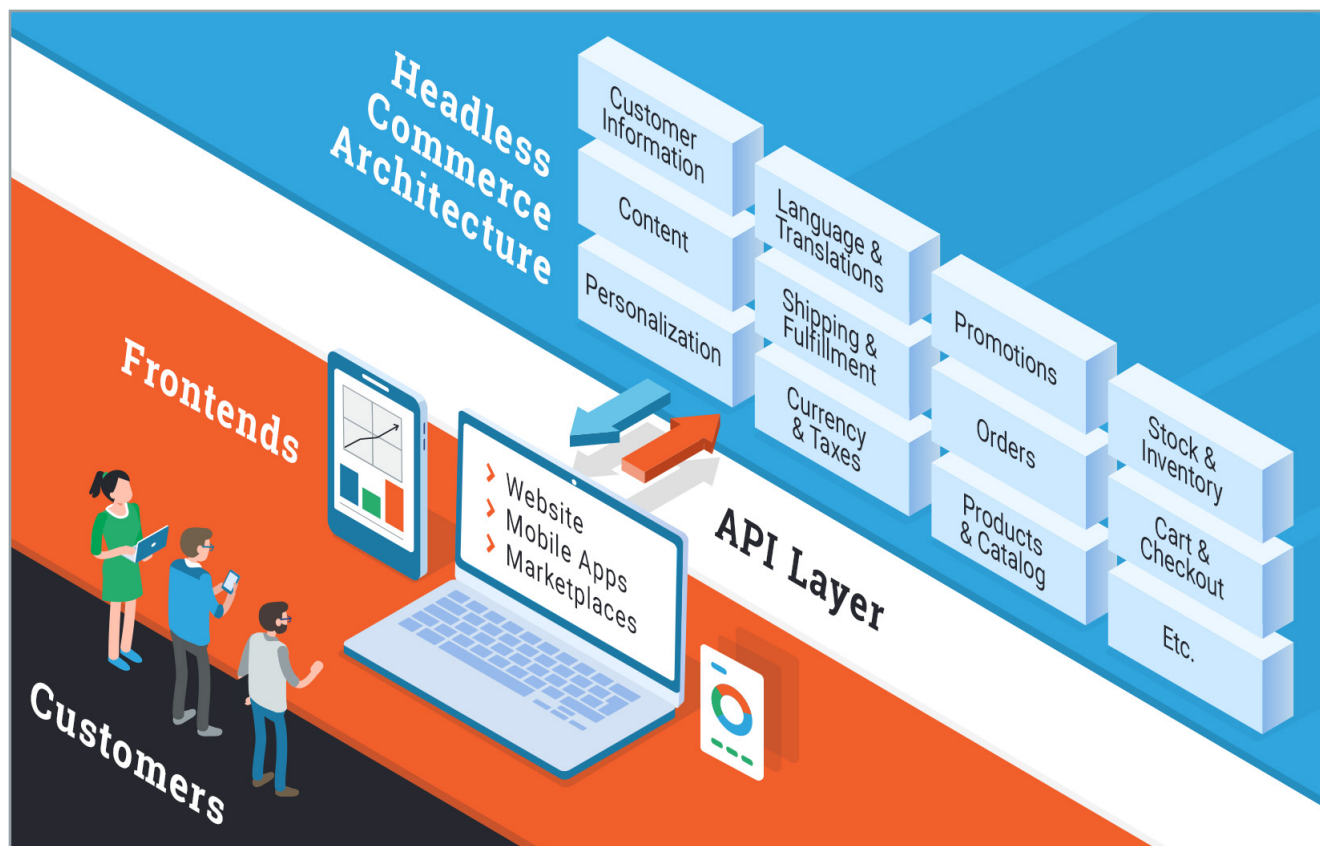
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*"In order for digital commerce to achieve scale and leverage IT expenditure, organizations need to focus on transforming the business with product and service innovations, differentiated customer experience, and use of Internet of Things (IoT) technologies. This will help organizations generate growth from new product offerings, new ways of selling, new sources of revenue and new business models."*

*Gartner, "Survey Analysis: Organizations Need to Improve the Customer Experience to Fully Exploit Digital Commerce," 4 February 2019, Penny Gillespie*



Figure 2: Example of the Decoupled Experience Layer



**Our methodology uses the open ecommerce framework and its APIs to provide the foundation for opening up new sales channels and business models.** From here, opening new sales channels may be as simple as installing and configuring an already created integration. For anything else, an integration can be built or new frontend technology adopted to provide the connections and interfaces needed to expand the business in new ways. Having the right ecommerce architecture in place provides the capability for unlimited potential and business growth.

**Figure 2 shows a visual representation of a decoupled or headless digital ecommerce architecture.**



## Unable to deliver the desired customer experience

Content delivery in the form of blogs and articles has been around for a long time and delivering that content in many ways is not uncommon. Think website blog feeds, email newsletters, RSS feeds, newsgroups, etc. **But, combining content with ecommerce functionality is still a new battleground for engaging customers and selling products in new experience-driven ways.** Businesses are exploring content capabilities and buzzwords like personalization are now a part of everyday discussions. The goal is the same for all, provide an unique and personal customer experience to gain loyalty and drive sales.

How much integration of content and commerce needed all depends on the product being sold. For example, a large marketplace like Amazon, full of a variety of products, uses very little extra content on it's pages. You might see a bit of content in the form of category images or a topical message at the top of the page, but mostly the site uses data gathered from a customer's browsing history to personalize product suggestions. This type of personalization and predictive programming is becoming increasingly popular, especially for a site like Amazon where there are so many product categories to view. It just makes sense.

Now switch gears and consider a niche product like Fitbit. Fitbit only has a handful of products and they are all centered around fitness tracking. The content requirements for

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*"The rise of experience-driven commerce means that this traditional buying funnel is no longer the only journey. Richer product experiences, narrative driven, social, or lifestyle-oriented journeys can better drive conversion for some product types. Integration to social networks, home digital devices and other touchpoints create new journeys that require interoperation with the digital commerce platform."*

*Gartner, "Harness the Core Capabilities of a Digital Commerce Platform," 4 September 2019, Mike Lowndes, Christina Klock.*

each fitbit product is so much more than just showing a product image, price, and color variations. They do that, but Fitbit also strives to create a personal buying experience around an idea that their customers share; their customers want to feel active and healthy while sporting a unique personal accessory. To create this experience, Fitbit uses rich, activity-centered media, highlights integration capability with other personal apps, focuses on how their activity trackers fit into daily life, and shows customers how they can customize their Fitbit through accessories, making it their own. The experience is what creates a desire to buy a Fitbit and drive sales. The actual device specifications are secondary to the experience.

**But delivering the desired customer experience across all sales channels is hard. Many proprietary ecommerce platforms simply lack sufficient content-creation and/or personalization capabilities. Third-party platforms and integrations may help some, but most of these platforms are siloed and not integrated with the entire system as well as they could be.** With one problem solved, new problems arise, complicating other department efforts such as marketing and customer service.

Whether a business is like Amazon or Fitbit, implementing the desired customer experience through a content strategy, personalization, UX design, or any other means, requires the same level of foresight and big picture understanding as anything else within a digital business's ecommerce architecture. **Our methodology is the mechanism to make it click. It provides a holistic approach through the understanding of business and department workflows and processes, the technology they use, and their desired customer experience outcomes, to effectively market their brand and products on all channels.**

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*"Despite the need to deliver great customer experiences, a large majority of survey respondents report poor performance in this area. Delivery is not easy and most organizations rate themselves low in their ability to do so."*

*Gartner, "Survey Analysis: Organizations Need to Improve the Customer Experience to Fully Exploit Digital Commerce," 4 February 2019, Penny Gillespie.*



## Data management issues

Another critical piece in engineered ecommerce is managing the vast amounts of data captured and used on a daily basis by the many platforms that make up a digital business's ecommerce architecture. But the reality is that the data within many platforms is siloed and not shared. In this case, someone needs to manually gather that data and share it, which can be a slow process, especially if people are busy (which they likely are).

Data management issues typically emerge as a business grows. Manual data entry workflows that may have once been fine become increasingly time consuming as the same process must be used whether the business scales from 2x to 100x. Without a strategy to manage this data automatically, additional personnel must be added to manage it instead. Not only does this affect the business's bottom line, but this practice is prone to error and requires greater oversight.

Disconnected data is also a cross-department issue. Purchase and sales information must be shared with accounting, payment and checkout details must be shared with fulfillment, product details must be shared with any third-party marketplaces, customer details must be shared with marketing, inventory and stock levels must be shared with supply management, and the list goes on. Whether it's realized or not, the flow of data is the life-blood of digital business.

Our methodology, utilizing an open ecommerce framework and open APIs, provides the solution to data management. It involves mapping exactly where business data is being generated, what platforms contain what data, how it's stored, how it's used, and, most importantly, whether or not it can be shared. **Mapping the flow of data quickly shows where workflow efficiencies can be made, where system automation makes sense, and where opportunities lay. From there, a data management strategy can be formulated that works towards connecting and improving the flow of data through platform integrations and workflow automation.** Once realized, this strategy frees up an incredible amount of time, improves the bottom line, enables business scalability, promotes marketing capabilities, and supports customer experience and customer service.





## End-of-life software and platform upgrades

Many ecommerce related platforms and software, whether it has to do with your website, marketing, payment, inventory, fulfillment, and more, may eventually reach end-of-life (EOL).

**EOL means that the vendor or whoever is actively creating, supporting and marketing the platform, will cease to do so from a given point onwards.** Often, the decision to announce a platform EOL is because the next version is being released. Sometimes, EOL can be because a platform is being shut down entirely. In either case, EOL can have a significant impact and potentially leave a business in a difficult position.

All of the elements of our methodology are working towards a future-proof design where the big picture is understood and the ecommerce architecture of a digital business is skillfully and deliberately arranged to meet its needs. This doesn't mean that the ecommerce architecture won't ever change, it means that the design of the system is done in a way that allows for change if and when change is required. **If a new platform is needed or an old one must be removed or swapped for any reason, including EOL or version upgrades, any pain of doing so is mitigated as much as possible through the understanding of how everything is connected and what areas of the business will be impacted.** In a constantly changing world of digital business, the future of digital business requires a design that is adaptable and agile to meet the needs of both business and consumer.



# ACHIEVING ECOMMERCE SUCCESS THROUGH OUR ENGINEERED ECOMMERCE METHODOLOGY

**Our methodology is an incremental process that won't happen overnight. While it can be transformative, by no means must the business be rebuilt from the ground up. Much of what this methodology is designed to do is simply finding and closing gaps, automating manual workflows, integrating systems, and enhancing the user experience of both staff and customers.**

Our methodology starts with a series of possible exercises meant to review and evaluate the current state of the business, its capabilities, its technology, its brand, and the people behind it. From there, meaningful change can be prioritized. Throughout the process, businesses may find that leaning on the expertise of digital commerce consultants is beneficial. Though not necessary, these experts will outline a method, provide guidance, and assist internal teams who may not have the depth of experience needed to complete the required steps

## First steps

Below are a number of possible first step exercises that we often complete with our clients. When tackling this on your own, you can do them too. Pick the exercises that make sense to you.



### **Stakeholder interviews**

Identify the different pains and needs of your whole team. Make sure their voices are heard and understood.



### **Online surveys**

Gather input and sentiment directly from your website's users. An outside point-of-view may uncover priority areas that were previously unknown. These surveys can also be used to set a benchmark to compare against in the future.





### **Analytics review**

Understand the consumption of your existing site, providing insights on popular content, user flows, conversions, etc.



### **Competitor review**

Review your competitors and take note of any likes and dislikes that may be important for your own business.



### **Technical audit**

Have a competent IT team review your existing ecommerce technology, your website and your hosting to assess it's overall health.



### **Technical discovery**

Map out the technical and business logic information for your business, including parts outside of the direct scope of the website. Compile an overview of all the systems that may need to integrate, any major functionality that is important to your business, and list where precision or special details are important.

# Your partner in digital commerce

## LET'S TALK

### **Build a plan for successful digital transformation**

Our team of business analysts and solution architects are available to walk you through any of the above steps to start your journey towards engineering an ecommerce solution that is tailored to your digital business. These steps are the foundation of a successful project so it's imperative they are thorough.

To discuss your needs and get connected with an analyst contacts us through the pages below.



**View our process**

**Visit [acrocommerce.com](https://acrocommerce.com)**

# THE FUTURE OF DIGITAL BUSINESS

**With the implementation of our engineered ecommerce methodology underway, a business will start to realize the benefits of the bright future ahead.** Resources and capital freed can be repurposed to implement new business initiatives, open sales channels, innovate the customer experience, and scale the business to new levels. The future of digital business looks bright indeed.



*"We wanted to begin by protecting our revenue streams overall, and those associated with our digital platform. And there's no doubt in our minds that the work Acro has done for us has provided that protection and has enable us to grow in a couple of dimensions: one, we're seeing growth in terms of revenue; we're seeing growth in terms of new customer acquisition; we're seeing growth in average order size; and we're seeing growth indicators in areas of a satisfying customer experience."*

USI Laminating, "USI Laminating Case Study,"  
Gregory M. Sottile, Ph.D., Director of Sales & Marketing.