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API Management in the Age of AI

The AI revolution is upon us.

It's already begun to change everything – including the API economy. To ensure their enterprises get the most value, organizations need to understand API management's reciprocal role in harnessing and enabling the profound capabilities of AI.

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01

The Next Phase of the API Economy

Take a moment and think about the omnipresence of “the API economy” today. It’s how you have seamless shopping experiences online, access your favorite apps on mobile devices, watch shows on streaming services, and so much more.

APIs (application programming interfaces) are the unseen connective tissue of the digital world and the quiet powerhouses that have helped fuel the global economy over the past 15-plus years. As the means for integrating systems and ensuring they play nicely together, it’s impossible to overstate their importance.

Now, it’s time to prepare for a new phase in the evolution and management of APIs — one where we’ll see their influence grow exponentially.

First, how did we get here?

APIs began as a web-based method of connecting external ecosystems for easy access to specific bits of information. You developed an API idea and then built and published it for consumers.

Later, as the popularity of APIs grew, their use broadened to integrate internal business systems to improve operational efficiencies. The advent of cloud computing and microservice architectures led to the use of APIs as the de facto method of connecting all software components and introducing new API protocols and API-based patterns, such as asynchronous communication.

> Application programming interfaces (APIs) are the de facto method of connecting all software components.

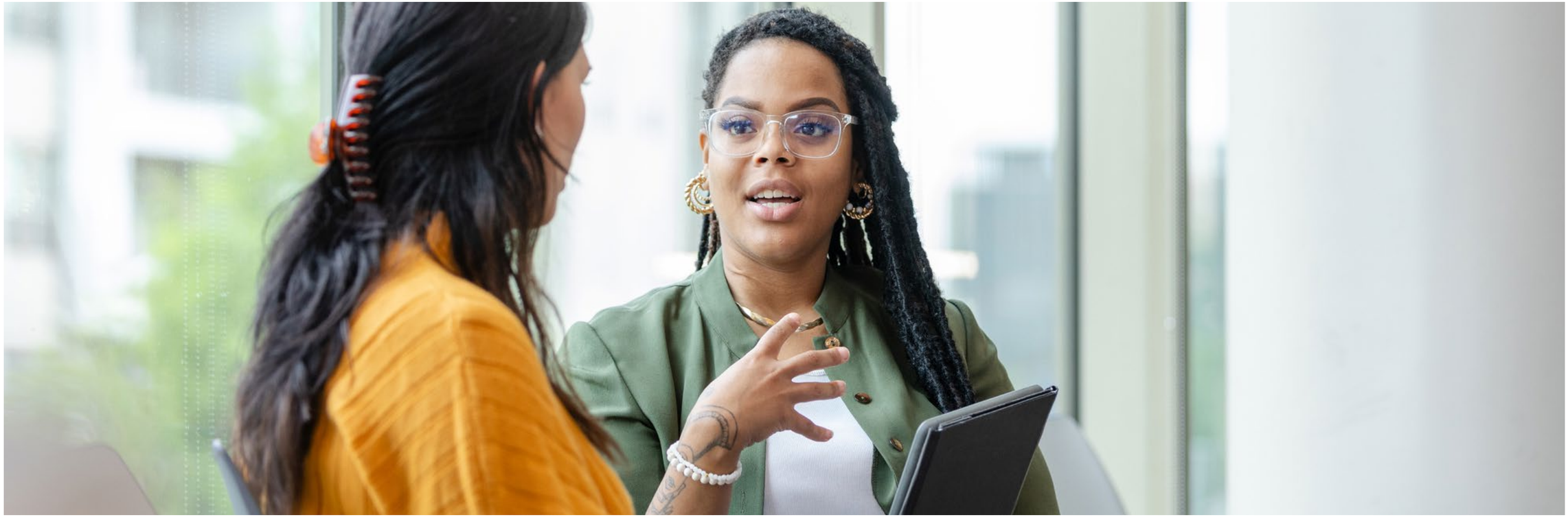
Through it all, we needed API management tools to write, test, document, deploy, and manage those APIs.

APIs have proven to be remarkably flexible in their functionality. Another use case is always around the corner. And what's coming next?

Hello, AI!

Every organization, regardless of size or industry, wants to find ways to take advantage of generative artificial intelligence (AI) tools that tap into the vast possibilities of large language models. This isn't driven only by a desire for increased agility and productivity — there's also a palpable fear of missing out on this next big thing. But as gung-ho as every business is about AI, it's just as important to think about how it will make sense for your business model.

API management, like all things, will be changed by AI. At the same time, APIs will impact how businesses get the most from AI. In this ebook, we'll explore some key ideas to consider for AI-native API management.



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Five Points To Consider for AI-Native API Management

#1 APIs Will Be Everywhere

If you think APIs are pervasive now, wait until AI establishes a larger foothold. The ubiquity of APIs will only grow as the influence of AI expands.

Historically, much of the value provided by APIs has been around integrating user-facing applications with the critical systems that are the foundations of every business. Think of APIs as the connective thread between two distinct technology layers:

- **Systems of Record**: Customer resource management (CRM), enterprise resource planning (ERP), IT service management (ITSM), human capital management (HCM), and other critical technologies.
- **User Engagement Applications**: People-facing systems like web, mobile, and chat.

With AI, a third layer will sit between them: Systems of Intelligence. This layer is where data analytics and AI converge.

Today, people crunching numbers go through a protracted process of moving information between systems of record and engagement. It's primarily a manual, offline function. But fast-moving advances in AI, machine learning, and big data can automate processes to make everything available in real time.

This level of automation has enormous implications for integrating systems. We'll see an explosion of APIs to handle interactions between three layers in the business digital topography. There will be a broad expansion of APIs – and of their use.

#2 API Consumer Management

We'll see more use cases for APIs because AI will raise expectations for everyone to have access to the information it can provide. More people will want what AI delivers, which means more consumers.

The challenge here is that API management has generally focused on the producers (those who publish APIs) while the consumers (those who use APIs) have received short shrift. Traditionally, when you think about API gateways, policies, keys, and governance, you've thought about it mainly from the providers' perspective, even though the value has always been around consumption.

That idea is about to be turned on its head. With the AI boom, there will be an explosion in API consumption. You'll have *fewer* companies that can make the financial investments required in building large language models to generate AI services and *more* consumers wanting to use those AI-infused capabilities. There will be a massive change as the API management pendulum swings in favor of consumers over providers as consumers use these AI data models more.

A whole category of risk management and governance will arise on the consumer side when it comes to third-party APIs, including:

- Data privacy and security
- Profound legal implications
- Transparency around API terms and conditions
- Throttling access to APIs to prevent cost overruns
- Things no one has thought of worrying about yet

The bottom line is that guardrails around managing the consumption of APIs will become even more essential to manage risk, costs, control access, and usage.

#3 Managing API Sprawl

The API environment within most mature organizations is the culmination of years of moving as fast as possible to keep up with or ahead of competitors. The unintentional consequence often is digital chaos.

Businesses are in the middle of cloud migrations. They still have some legacy on-premises systems. They're using third-party SaaS applications. They have so many APIs integrated everywhere that it's hard for them to grasp how many they have or where they're located.

Welcome to API sprawl.

Tools in the API management space allow organizations to find and oversee them. But the reality is that managing the API lifecycle today tends to be a manual process for most businesses, despite the increasing scale of API usage. How do you address that sprawl at a time when AI will grow the dependency on APIs?

Dynamic discovery will become crucial for organizations to govern their complete set of APIs. Identifying and managing APIs must be a fundamental capability that becomes a continuous, organic part of your system – even sensing when things change in your environment.

The good news is that AI will play a role because there's so much ground to cover and complexity to decipher. You'll need to automate the discovery, find the anomalies, and assimilate a magnitude of information to make sense of it. AI will be vital in assessing the purpose and quality of your APIs in an effective, efficient, and non-intrusive manner.

This will be especially helpful in managing the increasing convergence of data analytics and user-facing applications. API management will become more than just APIs. It will be workflow, data products, event streams, and everything else that requires governance.

#4 APIs Won't Be Just for Developers

As organizational complexity grows, IT becomes a chokepoint for digital modernization efforts. Stuff isn't getting out the door fast enough.

That's why enterprises are shifting their development structures from one centralized team to spreading traditional IT responsibilities throughout the organization. That's now possible because tools exist that "democratize" API development, so people with non-technical backgrounds can play a role in their design, management, and consumption.

In the age of AI, businesses *must* think about the multi-user experience, because AI will lower the barrier to entry even further for non-tech roles. API management will have to cater to multiple personas and structures for providers and consumers to get the total value from solutions.

The developer experience will continue to be crucial going forward. At the same time, API management can no longer be biased toward centralized groups, technical users, and IT ownership. As the scope of API usage grows, more people need to be involved. AI allows you to automate and streamline the user experience for all these different personas across the business.

If we think about APIs as products, they should be packaged appropriately and have good business models that consumer personas can understand and manage. It would be a big mistake to assume that our only interaction in the consumer space will be with those who have developer skills.

#5 APIs and the Ethical Use of AI

When we talk about artificial intelligence, it's understandable if our minds drift into science fiction and we have visions of Skynet and AI becoming sentient. But the reality is that AI is nowhere close to those kinds of dystopian outcomes. Still, even at this early stage of AI's evolution, it's the right time to begin considering legitimate ethical concerns.

For instance, because you will be consuming a lot of third-party APIs, there will be a lot more sensitivity around the data you're sharing. We're already seeing spirited discussions around a much greater emphasis on data privacy and protection of personal information and that whole realm of fair use of information. Thanks to all those years of science fiction stories, there's already a healthy risk aversion to giving AI too much control over our lives. And that doesn't even include the workplace concern summed up in the sentiment: "The robots are coming for our jobs!"

The last thing anyone wants to do is introduce something that interferes with what our business does, disrupts our employees' day-to-day work lives, and impairs our relationships with customers. We want to enter this new space and consume these models safely. That places the onus on companies to determine how they want to manage and govern APIs that provide AI-infused capabilities.

If you use AI in your business, you need to consider the human experience for the customers and the employees. If you do what's right for the people, you'll be using the technology responsibly. It's always wise to align what's good for society with what's good for business.

03

The AI Revolution Will Be API-Enabled

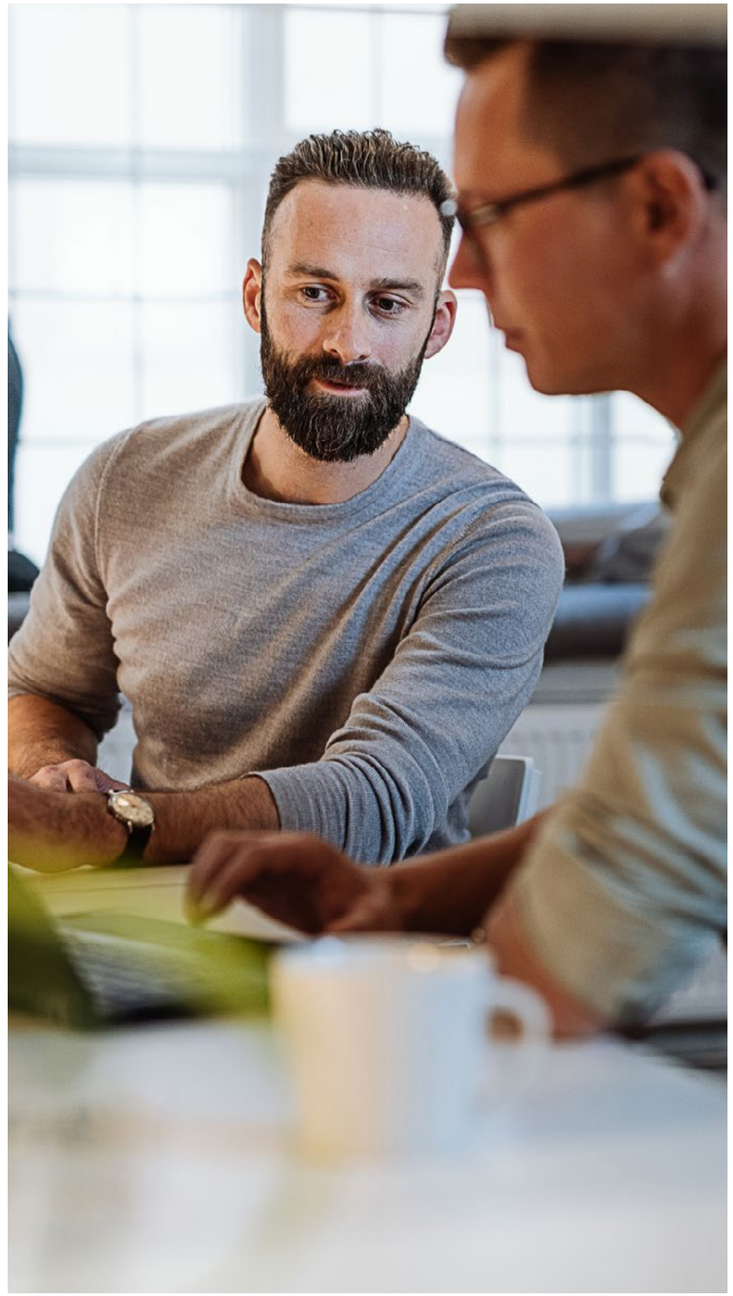
APIs are everywhere. In everything you do when interacting with technology, APIs are there. But they've never been all created equally. They're not all secure. Nor are they all managed well, enabled for the best usage, or optimized for performance. Those issues have always required the kind of visibility and governance that good API management provides.

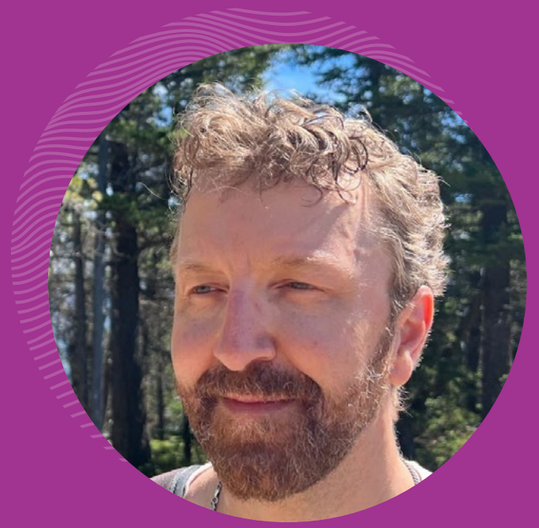
In the age of AI, that will be even more important.

The connection between API and AI is incredibly close (and not just because their acronyms share two letters). APIs will become an essential gateway by which we manage the influence of AI on our daily lives, society as a whole, and, yes, our businesses. APIs will be a fundamental enabler for business in the age of AI.

Getting value out of what's coming next will require you to become an API-enabled organization that can easily provide, integrate, and deliver APIs into your user experiences. The possibilities for improving automation, personalization, customer experience, and more are endless.

But only if you are ready.





ABOUT THE AUTHOR

Matt McLarty

Matt McLarty is Boomi's chief technology officer. He helps organizations around the world thrive in the digital age. Matt is an internationally known expert on APIs, microservices, and integration. He has co-authored books for O'Reilly, co-hosts the API Experience podcast, and is co-author of the upcoming book "Unbundling the Enterprise from IT Revolution."

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