The Digital Transformation Journey

Chart your path forward with Apigee Compass

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Aspiration is easy, execution is hard

If there are a few immutable truths in business, this is one of them: Aspiration is easy, but execution is hard. Few concepts illustrate this as well as digital transformation.

On the one hand, the imperative is clear. "Most CIOs will be operating in a state of constant transformation," research firm Forrester states in "Predictions 2018: CIOs Make The Chief Digital Officer Obsolete." [1] "Siloed thinking and digital bolt-on strategies will finally give way to a more holistic approach driven by a clear mandate from the board— and stakeholders beyond."

On the other hand, executing on this imperative—let alone doing so quickly and efficiently— is incredibly complicated. The hurdles are both cultural and technological.

"Although there has been a slight net increase in the scaling of digital initiatives, there is still a major wall of resistance facing CIOs attempting a scale play," market analyst firm Gartner notes in a recent report, "Mastering the New Business Executive Job of the CIO," [2] noting that culture change may be the biggest hurdle.

Trying to overcome these hurdles, both cultural and technological, can take a toll. "Executive leaders are frustrated with the slow pace of digital transformation, as they watch competitors capture new opportunities," the firm notes in another recent article, "Embrace the Urgency of Digital Transformation." [3]

In our work with large enterprises, we've seen this tension between goals and hurdles play out again and again. The leaders of most businesses understand we've entered a phase in which, as *The New York Times* put it last year, "every company is a tech company." But they aren't as sure what this means for *them* or how their organization must adapt to remain competitive.

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[1] Forrester. Predictions 2018: CIOs Make The Chief Digital Officer Obsolete, November 2017.
https://www.forrester.com/report/Predictions+2018+CIOs+Make+The+Chief+Digital+Officer+Obsolete/-/E-RES139879

[2] Gartner. Mastering the New Business Executive Job of the CIO: Insights From the 2018 CIO Agenda Report, October 2017. https://www.gartner.com/technology/cio-trends/cio-agenda/

[3] Gartner, Smarter with Gartner. Embrace the Urgency of Digital Transformation, October 2017.
https://www.gartner.com/smarterwithgartner/embrace-the-urgency-of-digital-transformation/

About Apigee Compass

In response to these disconnects between enterprises' goals and their ability to execute, we launched Apigee Compass, an online tool to help businesses chart a path through their digital transformations. Apigee advocates an outside-in viewpoint that uses customer experiences and expectations to shape strategies, and we've invested in a wide range of research projects to understand how companies (successful and not) navigate digital transformation, including our annual "State of APIs" reports and a collaboration with Boston University scholars to study the ROI of API-first digital transformations.

Apigee Compass curates and delivers the information we've gathered and the lessons we've learned from working with Walgreens, Pitney Bowes, Magazine Luiza, Experian, and hundreds of other companies. The interactive, self-service tool can be used by anyone to assess their organization's digital maturity and chart a path to digital success.

Apigee Compass uses a ten-question survey to assess a company's digital capabilities. This assessment translates into a digital score that places organizations along a "lagging" to "leading" spectrum—think of it as a credit score for digital capabilities—and includes recommendations curated to the business's current position.

The anonymized and aggregated survey results, based on hundreds of enterprise respondents, reaffirm what we've seen in the field and what organizations such as Gartner and Forrester are finding in their research. Most users have the right digital transformation goals—the right vision. They're more likely than not to say their organizations are working on platform and ecosystem strategies, for example. But even if the vision is true, the organizational alignment and execution typically are not.

For example, the data indicates companies are more likely to dismiss APIs, or application programming interfaces, as simply integration technology than to recognize them as a base ingredient in modern digital business. This is a potentially grave misunderstanding. We typically
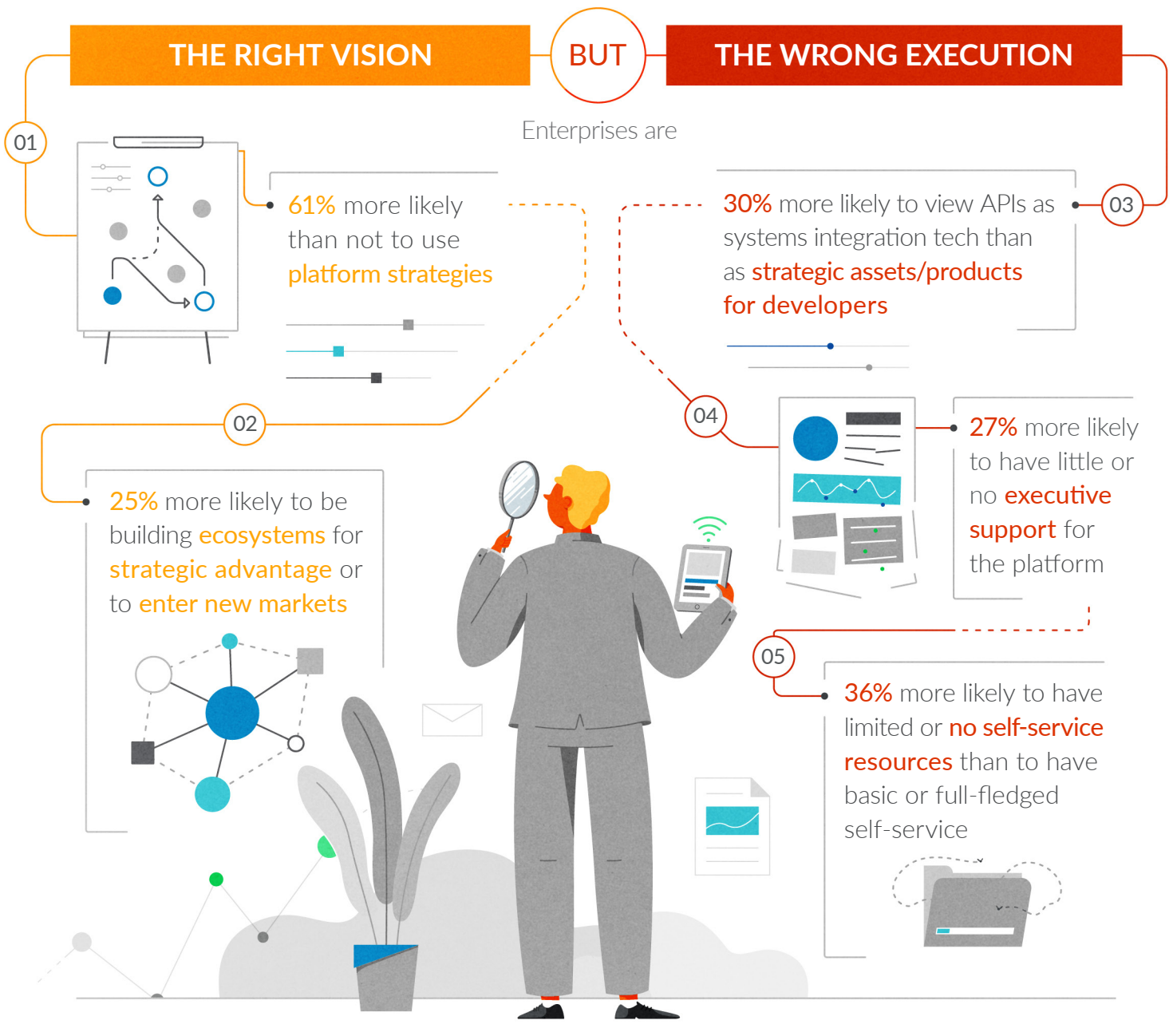
Ready to get your digital score?

Informed by Apigee's research and work with hundreds of the world's largest enterprises, Apigee Compass helps your business chart its digital transformation journey— *for free and in minutes*:

- **Get your company's digital score** across three categories and ten dimensions of digital transformation

- **Download your customized recommendations report,** tailored to your business's current position and needs

- **Create a team** to align on next steps and execute your action plan to accelerate your digital journey

Ready to turn aspiration into action? Head over to Apigee Compass and get your digital score now.

see companies that dismiss APIs land in the "lagging" end of the spectrum while those that design and manage APIs as products for developers tend to be more competitive. Gartner has come to similar observations; "APIs are the basis of every digital strategy," according to the firm's recent article, "Put APIs at the Center of Your Digital Business Platform."[4]

Many Apigee Compass survey respondents also report lacking the self-service resources, funding and governance models, and executive support to empower their developers—and as long as that's true, even if these respondents have the right vision, their digital transformation goals are confined to aspiration, not action.

THE RIGHT VISION   BUT   **THE WRONG EXECUTION**

Enterprises are

01

61% more likely than not to use **platform strategies**

03

30% more likely to view APIs as systems integration tech than as **strategic assets/products for developers**

02

25% more likely to be building **ecosystems** for **strategic advantage** or to **enter new markets**

04

27% more likely to have little or no **executive support** for the platform

05

36% more likely to have limited or **no self-service resources** than to have basic or full-fledged self-service

We created this book not only as a supplement to Apigee Compass, so that users can get the most from their curated recommendations, but also a description of the common ingredients we've discerned working with hundreds of enterprises on their digital transformation journeys.

Understanding digital transformation:
two principles

In unpacking digital transformation and modern business, let's focus on two principles.

> ### THE FIRST PRINCIPLE:
>
> *Modern business isn't (just) about adopting a mobile strategy or using the cloud to generate efficiency savings. Most crucially, it's about embracing a shift in the nature of supply and demand.*

Consider Apigee customer Ticketmaster. Decades ago, it was an analog business: customer interactions occurred via physical locations or a phone number—a limited supply delivered through limited, often purpose-built channels. This changed when Ticketmaster moved online but only to a degree. Transactions were still channeled through a limited set of pipes, such as core websites, and offerings were still constrained, relying on customers to seek them out.
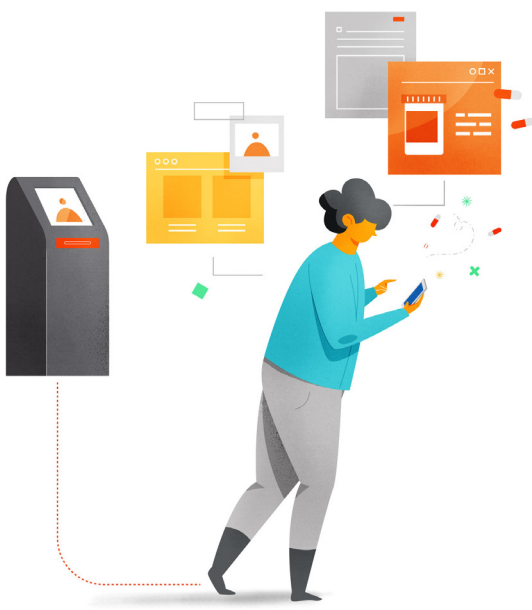
Contrast that with today's Ticketmaster, which makes its core business services, such as ticket purchasing and event discovery, available via APIs. This provides a programming interface that empowers partners Facebook, Broadway.com, Costco, and Fox Sports, among others to combine these services with their own. Rather than shouldering the full burden of building channels and attracting customers to them, Ticketmaster can now benefit from demand generated by third parties and transactions fulfilled in channels it didn't have to create.

This sort of example represents a fundamental rethink of traditional supplier-distributor and value creation paradigms. Strategies no longer focus on piping a finite set of goods and services through limited channels toward a rigid set of possible customer interactions. Instead, businesses can infinitely scale digital assets. Unlike physical resources, these assets can be reproduced at virtually no marginal cost; whether they're purchasing and discovery services such as Ticketmaster's, navigational

services such as those offered by Google Maps, or almost any other digitized enterprise capability, the assets can be endlessly extended to new developers, partners, and users. This scalability enables organizations to leverage software—both their own and software from others—to not only provide products and services when and how the customer wants but also to distribute value creation across ecosystems of digital participants, allowing businesses to benefit from resources they didn't have to build themselves.

Pitney Bowes and Walgreens, also Apigee customers, further exemplify this idea. After nearly a century in mailing and shipping solutions, Pitney Bowes has transformed into a provider of digital shipping and e-commerce solutions. It's done so by making its core services, such as location intelligence and shipping capabilities, available to partners and developers who can build them into third-party applications.

Similarly, Walgreens has made its services, such as photo printing and prescription fulfillment, available to software developers. This has helped the company transition from a brick-and-mortar business into an omnichannel organization that interacts with customers across both physical and virtual space. It now fills a prescription every second via mobile devices.
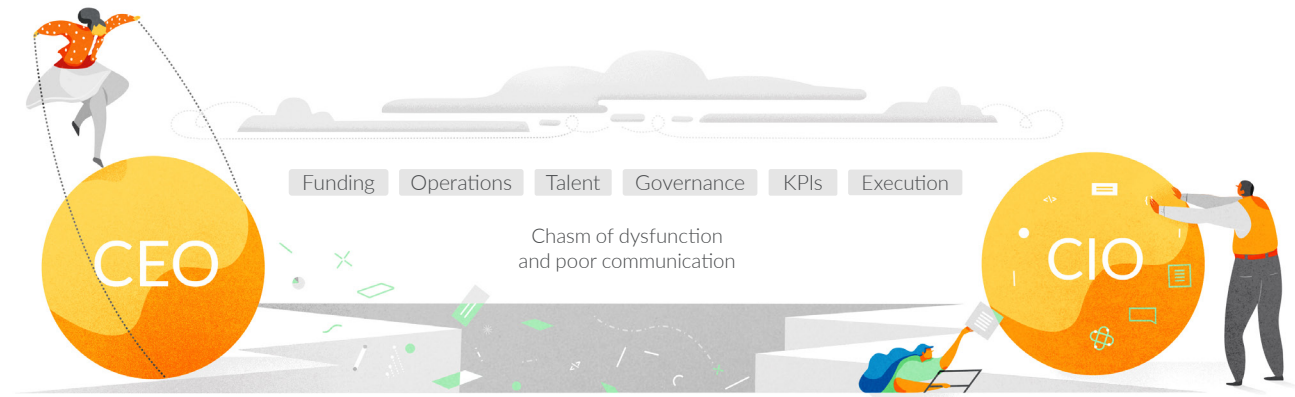
As these companies' respective successes demonstrate, digital transformation and the modern business dynamics it enables rely on a company's ability to package its services, competencies, and assets into software that can be repeatedly leveraged. This requires APIs.

Building APIs doesn't automatically transform an organization, of course. Indeed, because APIs are the means through which developers connect data, systems, and applications—that is, the mechanism through which software talks to software—most companies are already using APIs. What's important is how the APIs are operationalized to support platform and ecosystem strategies. This brings us to the second principle.

THE SECOND PRINCIPLE:

Digital transformation is bigger than IT investments or even platform strategies. Successful digital journeys require overhauling the organization's operating model.

Successful organizations recognize IT is an enabler of business opportunities, not a curator of infrastructure, and that APIs are the strategic levers that make those opportunities possible. Technology leaders and business leaders should break down traditional silos and work together to solve business challenges. If legacy mindsets persist, they can open operational chasms throughout the organization, as the following graphic illustrates.

Funding   Operations   Talent   Governance   KPIs   Execution

Chasm of dysfunction
and poor communication

CEO

CIO

For example, many companies want to drive new sources of revenue via an API program—but because these companies classify APIs as "technical infrastructure," they don't make other necessary adjustments to their go-to-market, sales, marketing, and product management approaches.

This sort of schism isn't uncommon, as the preceding Apigee Compass statistics alluded. Closing the gaps requires that businesses not only use APIs but design and manage them as products for developers. The point isn't merely to expose systems—it's to create an interface that lets developers reliably leverage assets to create new apps and digital experiences. Managing APIs as products involves offering self-service features that enable developers to quickly access the resources they need, adopting operational models that support agile development, supporting evangelism and other marketing strategies to promote the APIs, and much more.
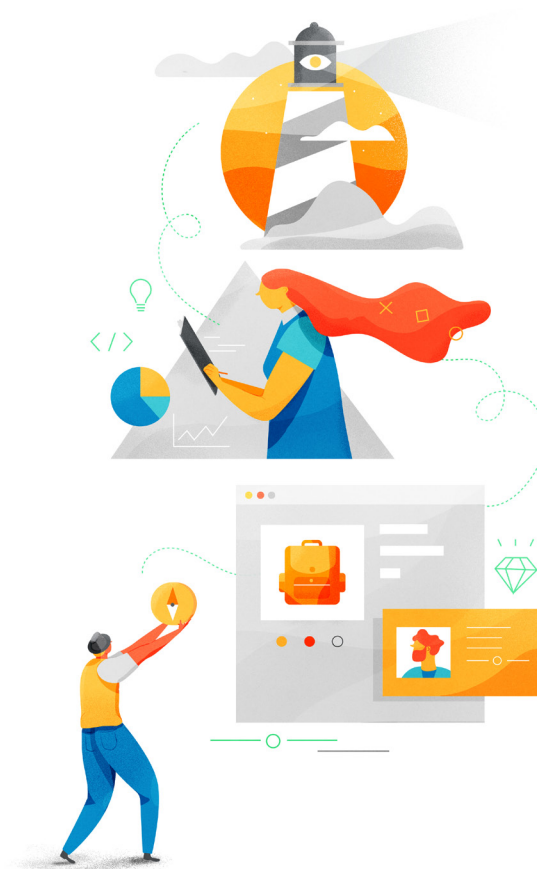
Companies that fail to make operational changes might succeed in building APIs—but they'll struggle to achieve the desired level of adoption and impact. Many organizations want to gain speed and agility by using APIs, for example, but API programs in organizations that continue to employ legacy funding and governance processes often succumb to long delays and stifling bureaucracies.

The 10 ingredients and interdependencies of digital transformation

While partnering with enterprises on their digital transformations, we've observed several of patterns that businesses fall into at different stages during their journeys. From these patterns, we've discerned 10 core dimensions of digital transformation (described below) that span three areas.

- The **Vision** area measures whether your organization has the right mindset to achieve digital transformation, and whether leaders understand the scope and core concepts involved. It encompasses the Platform, APIs, Outside-In, and Ecosystem dimensions.

- The **Alignment** area gauges the business's commitment to digital transformation and whether it has the resources and governance to support agile API product development. It encompasses the Leadership, Funding, and Metrics dimensions.

- The **Execution** area assesses how effectively the business can build and scale available APIs. It encompasses the Software Development Lifecycle (SDLC), Talent, and Self-Service dimensions.
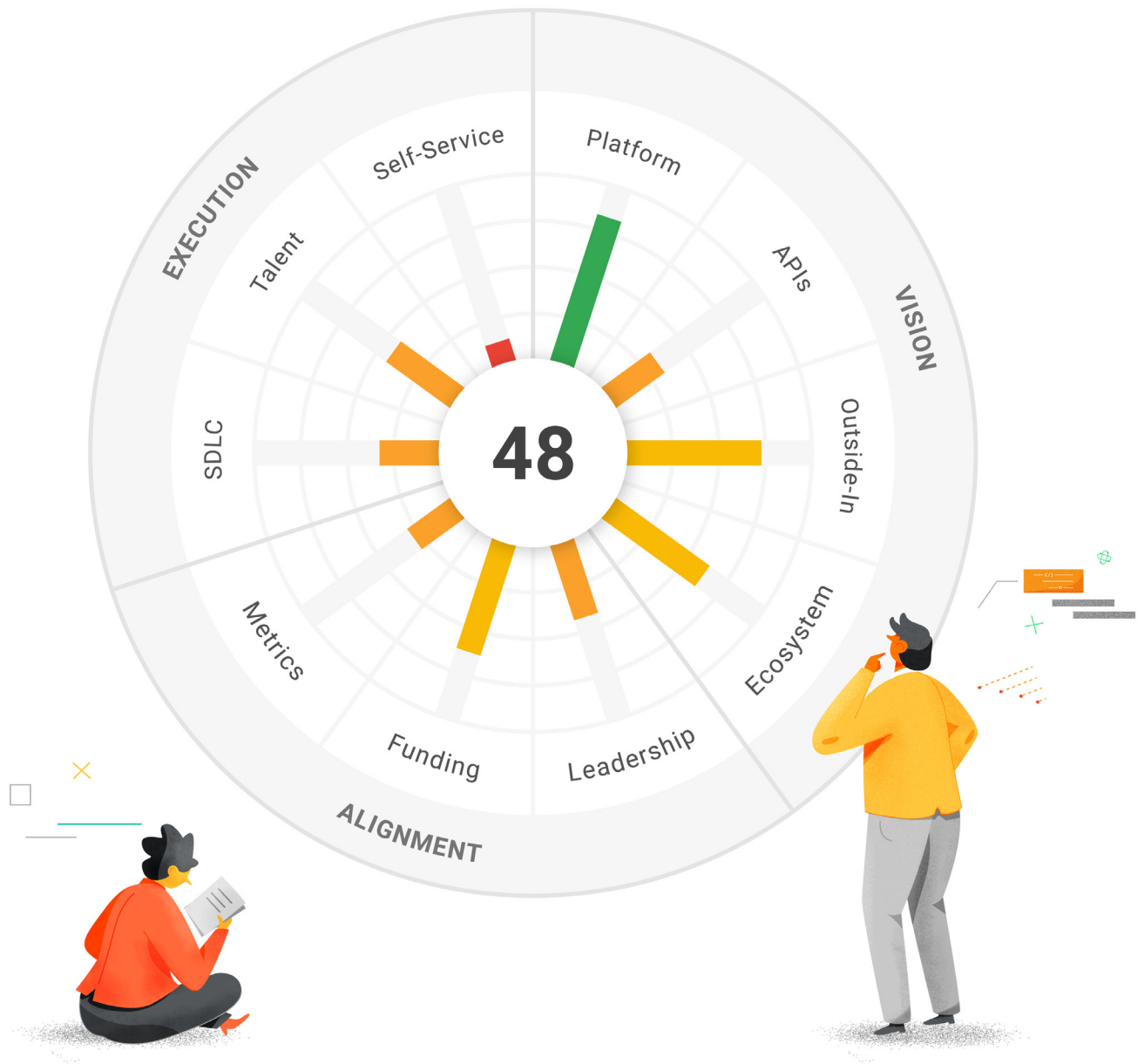
Typically, a strong vision helps a company to more easily align, which can enable more effective execution. That may not sound revelatory, but over the years, we've observed many companies that try to jump into execution but encounter strong headwinds due to lack of executive support, basic agreements about goals, and other problems stemming from insufficient vision and alignment.

The 10 dimensions help to bridge these gaps by highlighting where to apply support and reinforcing that API-first digital transformation impacts the whole enterprise. The dimensions are meaningful in relation to one another. This is where the digital score comes in, packaging a business's specific combination of dimensional strengths into an overall measure of digital competitiveness.

The score applies across industries. Vertical-specific expertise is still relevant in the digital world— but we also live in a world in which Amazon is a grocery store, companies such as Alphabet

and Apple are innovating in the automotive space, and scores of digital upstarts are impacting insurance and finance. This means that certain core capabilities—described by the dimensions, categories, and digital score in Apigee Compass—are relevant regardless of industry.
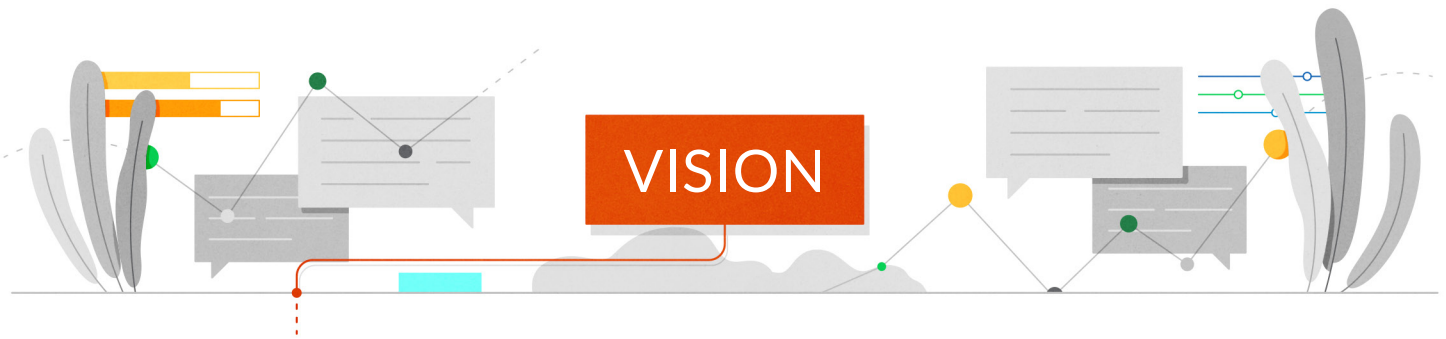
Consider the following digital score from Apigee Compass.

This is a fairly typical pattern, with the organization on the cusp of moving from a lagging position to a progressing one. The company leaders have a fairly advanced vision and recognize the importance of platforms, an outside-in perspective that uses data to improve customer experience, and the ability to leverage software for greater ecosystem participation.

But there are also glaring weaknesses that stop the company from executing on and advancing this vision. Chiefly, the company treats APIs mostly as a way to expose assets and hasn't recognized their role in the processes mentioned above. Additionally, the lack of self-service resources blocks developers from moving fast, and the persistence of legacy approaches across the company's metrics and software development models aren't helping either. C-suite leaders will likely need to better align around the value of APIs in order to push the organization forward.

Let's look at the dimensions in detail.

01

Platform

Modern businesses are agile: they combine and recombine software to repackage their core capabilities for new use cases, interaction models, and digital experiences. Legacy IT architectures and traditional systems integration techniques can't achieve this kind of speed. A platform approach is required. Enterprises build platform capabilities by creating APIs that empower developers to leverage core systems and data to build new services and products.
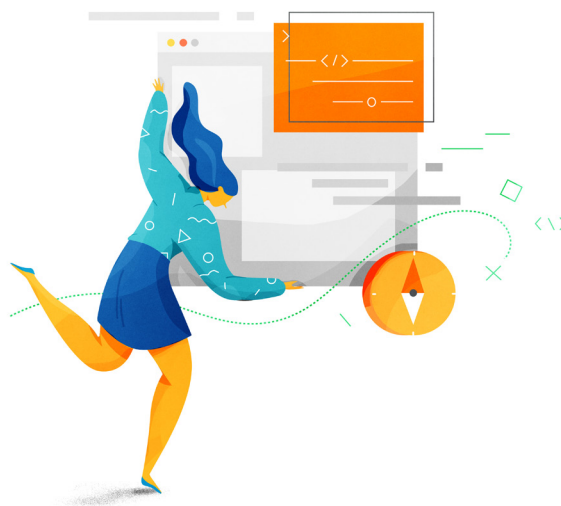
Apigee customer Magazine Luiza, one of the top retailers in Brazil, has leveraged its API platform in numerous ways. In June 2016, for example, the brand launched a new digital marketplace that enables third parties to sell under the Magazine Luiza banner, with new participants entering the ecosystem via Magazine Luiza's API platform. This approach means the company incurs virtually no marginal cost to add new marketplace customers. Magazine Luiza's marketplace dramatically expanded the company's e-commerce capabilities, supplanting a legacy sales and distribution system that supported only 35,000 SKUs. As of late 2017, the marketplace offered over 1 million SKUs.

Magazine Luiza's other platform initiatives include an ecosystem of mobile apps that enable new services, from an app for in-store associates that provides real-time inventory information and enables customers to pay on the spot to a logistics app that coordinates hundreds of delivery contractors across Brazil.

02

APIs

Modern, RESTful/JSON APIS are the backbone of a digital transformation. They encourage developer productivity by providing both programming flexibility and an intuitive, accessible interface for accessing core systems. Leading digital businesses typically recognize APIs as strategic assets—to be designed and managed as products that empower developers. If an enterprise treats APIs as middleware—as a way to do systems integration or to expose assets—it can undermine virtually all of its digital transformation efforts.
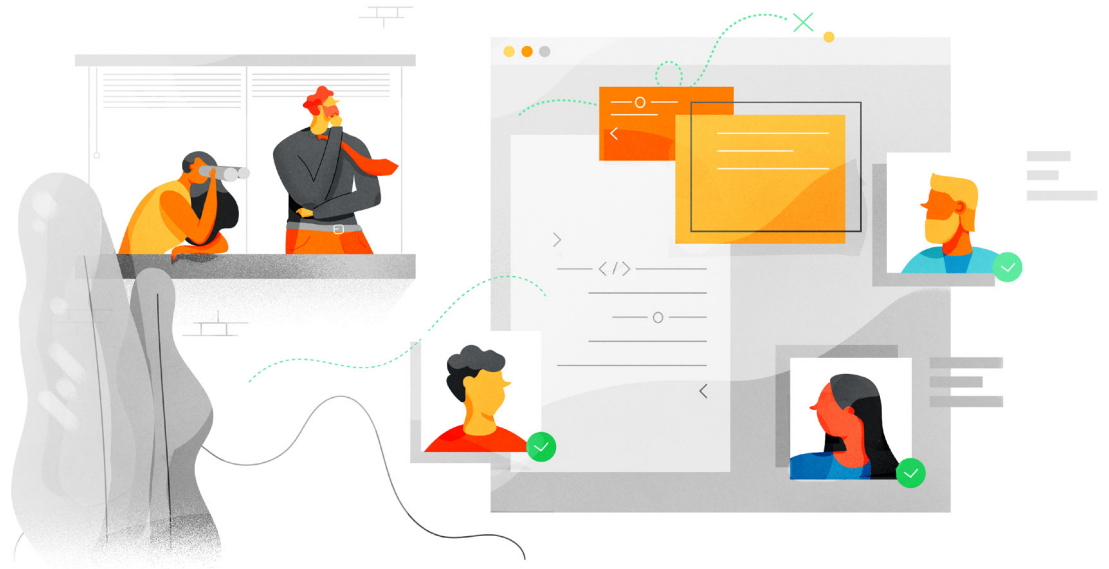

Sophisticated organizations monetize their APIs by packaging them for the needs of different developers. When Apigee customer AccuWeather began designing APIs for individual external developers, for example, it recognized that some developers would need up-to-the-minute weather information, which would generate billions of API calls, whereas others would prefer daily forecasts, which impose a much lower data overhead. The company customized multiple API packages to let developers purchase according to their needs.

03

Outside–In

Successful digital businesses adopt an outside-in perspective that focuses on how customers and partners experience the brand. Our most successful customers are typically also those most fanatical about exceptional customer experiences. Organizations that master this dimension use analytics to understand the needs of both customers and the developers translating APIs into experiences for those customers.

Armed with this information, companies can produce a more relevant set of APIs and offer apps and experiences that seamlessly cut across product, service, and internal organizational boundaries.
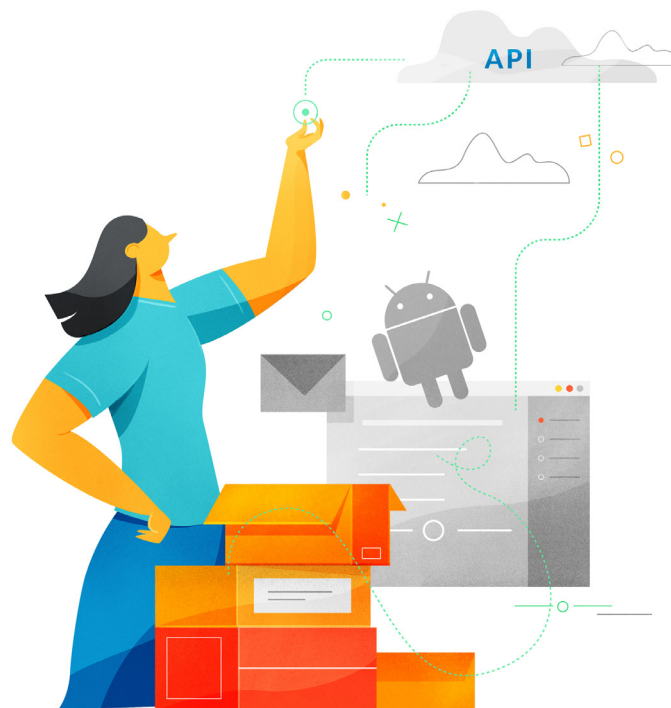
04

Ecosystem

As the preceding examples demonstrate, digital ecosystems enable companies to focus on their strengths while relying on developers, partners, and other ecosystem participants for the infrastructure and services that turn those strengths into fully-featured digital experiences, expand the reach of those strengths, generate more demand, and facilitate entry into adjacent businesses. This enables enterprises to distribute demand generation and value creation across potentially infinite digital networks. In many situations, it can also create network effects that cause momentum in one part of the ecosystem to spread elsewhere, creating the conditions for non-linear growth.

Competitive businesses recognize that ecosystem strategies are diverse—that a business doesn't always need the gravitational center of an ecosystem to be successful. Often, rather than attempting to build a platform on the scale of Android or Facebook or attempting to be *the* central platform for an industry, companies grow simply by partnering with other ecosystem participants to expand their reach.

APIs can enable ecosystem participation by enabling companies to combine and recombine software and data without friction—but only if those APIs are designed and managed for this purpose, with developer and partner ease-of-use in mind.

Pitney Bowes, for example, has expanded its ecosystem by offering productized APIs to developers via its Commerce Cloud, as mentioned above. The company also leverages the Android operating system for its SendPro C-Series of all-in-one mailing, shipping, and tracking solutions, opening the devices up to the ecosystem of Android developers. It will soon launch an online marketplace, built with Google Cloud's Orbitera platform, to deliver apps built around its services. These ecosystems of external software, infrastructure, and developers have combined with the company's internal strengths in shipping, logistics, and technology to open new revenue opportunities that arguably wouldn't have been available without an ecosystem approach.
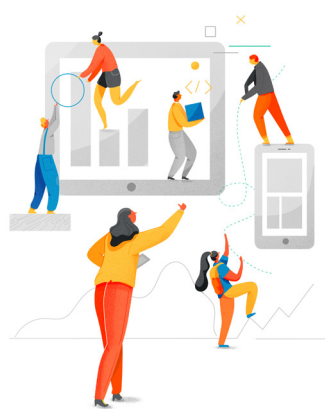
05

Leadership

As Conway's Law observes, systems reflect communication patterns. If your organization is siloed, your systems will be too. These divisions can fragment the brand experience your company presents to end users and hinder your company's ability to change. Teams typically grow accustomed to existing methods and incentives, so don't expect change to occur organically. Because digital transformation relies on not only deploying new technologies but also adopting new organizational approaches, leading organizations drive change from the top.

A top-down commitment is required to achieve the necessary cultural alignment. Magazine Luiza, whose omnichannel strategy has helped it thrive in a tough Brazilian economy, made this point clear in its Q4 2016 earnings statement, writing, "Technology [must move] from the background to center stage— and [be] seen as the brain of the business ... Hierarchical structures, paralyzed by excessive bureaucracy, the fear of change, and attachment to past successes, usually strongly reject the digital culture."

06

Funding

Modern business demands agile operations. API programs typically struggle when saddled with funding models, development cycles, and governance processes built for waterfall methods or other legacy approaches. Explicitly funding the API program as a platform can free teams to use data and iterate without having to frequently lobby for more money or navigate organizational bureaucracy. Organizational processes that support agile digital product teams are mandatory.

07

Metrics

Because APIs are at the heart of modern business interactions, leading enterprises typically embrace metrics rooted in API consumption patterns. Traditional enterprise ROI metrics assume certain conditions: long payback periods and predictable patterns around transaction volume and pricing strength, for example. Digital business operates under different conditions, such as shorter opportunity windows and more fragmented customer segments, and these require different metrics.

Arbitrary metrics are even less useful than no metrics. Avoid measurements that are not connected to business results, such as the number of APIs produced. Focus on metrics that reflect API consumption and how APIs drive transactions; for example, which APIs produce the highest-value transactions per call, which APIs generate the highest partner and developer engagement, and which APIs are decreasing time-to-market for new products.

Leading businesses use metrics not only to inform new strategies but also to align leadership. Executive sponsors support things they can see—such as an API that's attracting substantial developer attention or accelerating delivery of new products. Enterprises can accelerate their transformations by using API metrics to unite leaders around digital strategies and justify continued platform-level funding for the API program.

08

Software Development Lifecycle (SDLC)

If you attempt to deploy an API-first approach using old governance and waterfall methods, you won't achieve the speed, innovation, and cost reduction goals that motivated the transformation in the first place. Executing in the digital world means maintaining leverage amid ever-changing customer preferences.

To accomplish this, leading companies build APIs using modern, agile, iterative methods. Test-driven and behavior-driven design, as well as a focus on automation, are all parts of an API-first approach. Your SDLC is tightly coupled with how you fund and measure project success—in fact, it is an expression of how projects are funded and what is valued (project forecasting accuracy prioritized over customer experience, for example). Therefore, maturity in this dimension is predicated on proper alignment in leadership, metrics, and funding.

09

Talent

Developers are a key link in the digital value chain; they translate the raw materials of a company's data and functions into apps and digital experiences that create value for the business. An organization's ability to attract and develop strong technical talent is among its most important digital competencies.
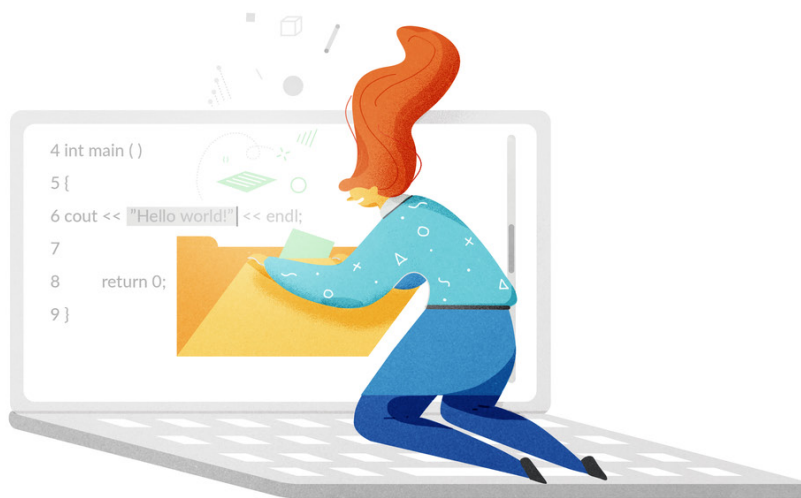
Leading companies often require API skills of all software developer roles, and a solid understanding of digital business—including the role of APIs—should be required of all business roles. The API program will only produce results if it is paired with agile governance and funding, so organizations should empower developers to adopt modern development best practices such as automation and DevOps.

Talent retention is also crucial, especially as digital business skills have become more hotly coveted by employers. To keep developer engagement high and help teams produce impact, competitive enterprises establish communities of practice, including API evangelists and a developer portal to share updates, distribute best practices, and help developers more quickly and easily explore, test, and use APIs.

10

Self–Service

Self-service is where concepts—such as API-first strategies and developer-driven value chains—meet reality. If the developers you engage (internal or external) are not able to quickly consume your APIs, the program will fail to deliver impact. The gold standard for TTFHW, or "Time to First 'Hello World,'" is five minutes.

To meet this goal, enterprises frequently build developer portals. Fully-developed portals typically include API catalogs to help developers quickly find the resources they need; API keys, sample code, interactive documentation, and testing tools that let developers start using APIs immediately; and forums and blogs to foster community.

Next steps

Companies have always relied on one another to create business value: component suppliers feed manufacturers who feed distributors, and so on. But in the digital world, the complexity and fluidity of these relationships reach a new level.

Enterprises can extend their services with scale and speed that would have been unthinkable just a few years ago. They can focus on their core strengths while leveraging resources from other ecosystem participants, creating richer, more valuable digital experiences than most companies have the resources to produce alone and spreading their businesses to new audiences and markets. The speed of change and the range of opportunities are dizzying—which is why it's so easy for businesses to hit hurdles or chart the wrong course.

Though there is no single "correct" path to digital competitiveness, there are common dimensions that virtually all digitally sophisticated organizations share and common relationships among those dimensions, regardless of industry.

To chart next steps, businesses should understand not only how these dimensions currently manifest within their organization but also how the dimensions interrelate—how strength in one area, such as funding, may be a prerequisite to excellence in another, such as agile software development cycles. This perspective helps business leaders to prioritize which steps, among seemingly infinite options, will actually bring the company closer to its digital transformation goals.

Once you've assessed your business using Apigee Compass, focus on the dimensions in which your organization is weakest. Use the recommendations to understand what other dimensions this weakness affects as well as the steps you can take to remedy this weakness and advance to the next level of digital capability.

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