

Develop a winning API product strategy

A blueprint for packaging digital value

BY STEPHEN FISHMAN AND MATT MCLARTY



WHITEPAPER

Contents

Introduction	3
Chapter 01	
What is an API product?	5
Chapter 02	
Understanding API users	14
Chapter 03	
Understanding digital business through value dynamics	28
Chapter 04	
Bundling and unbundling	52
Chapter 05	
Developing and executing an API go-to-market strategy	61
Conclusion	
The journeys on the path to profit	69

Introduction

.

Every business is striving for success in the digital economy. As consumers shift their focus from physical products to connected experiences, companies need to change their product design and management practices.

APIs are a powerful enabler of this digital product transformation, either as standalone products or as channels for digital delivery. However, the role of APIs is more profound than this – they also provide a means of unbundling and rebundling an organization's value-creating business capabilities. Enterprises built on this composable foundation can react to market demands faster. They can also construct innovative business models – making them more adaptive in an ever-evolving digital ecosystem.

This book introduces key concepts and practices leading organizations have employed in using APIs as an enabler for their digital transformations. In reading, you will be able to answer these questions:

→ How has the nature of products changed in the digital age, what role do APIs play, and how can an ecosystem perspective help in designing for adoption?

- → What is the best approach to capturing end-user and API consumer needs?
- → What are "value dynamics" and how can they be leveraged to understand and adjust digital business models?
- → What is bundling and unbundling, and how can APIs facilitate both tactics?
- → What are the right steps in bringing an API product to market?
- → What journeys can API product providers expect to travel as their market maturity increases?

APIs are technical by nature, but when used as the gateway to unbundled business capabilities, they offer tremendous possibilities to any organization's digital journey. Our goal is to give you the right mental model, approach, and techniques to unlock that potential.

APIs are technical by nature, but when used as the gateway to unbundled business capabilities, they offer tremendous possibilities to any organization's digital journey.



What is an API product?

This chapter provides an overview of the role APIs play in digital product delivery. It introduces the importance of "outside-in" thinking for API product design and shows how the concept of API ecosystems can help foster this mindset. Lastly, we present and discuss How understanding <u>API ecosystems</u> can help API product professionals stay focused on the playing field where their products are deployed, used, and ultimately judged. "You've got to start with the customer experience and work back toward the technology — not the other way around."

— STEVE JOBS

When examining the dominant leaders in value creation – Facebook, Amazon, Apple, Netflix, and Google, otherwise known as the FAANGs – one key similarity is how optimized each of these companies is in the act of packaging the delivery of value.

Regardless of physical or digital, good or service, free or paid, static or dynamic, large or small, each of the FAANGs excels at packaging delivery of value. We in the consumer economy might see this packaged value as the social network that is Facebook, the brown box with a smile that comes from Amazon, the phone that has the Apple logo on its back, the next season of Stranger Things that streams on Netflix, or the search engine that lies at the core of Google's ecosystem. A different perspective on packaging the delivery of value looks at the open platforms and APIs that ground, extend, and more commonly than ever are directly sold as consumer value by these enterprises.

Amazon's AWS platform is amongst the most notable examples of a fully monetized product line consisting entirely of APIs. It's not only celebrated because of its success in the marketplace, but also because of the famous Bezos API edict that all capabilities and components must communicate through standardized service interfaces. Bezos' insight – which has been leveraged by many of the most respected and innovative enterprises globally - is that a product, at its core, is a unit or vehicle of value delivery from a producer to a consumer. In a digital context, APIs can be enablers of products, components of products, or even products themselves, even if an external customer

never sees them. This gives APIs tremendous potential in any enterprise context, as they can be reused in abstract ways to allow for unbundling and bundling of value.

This means that enterprises that commit to thinking of APIs as packaged products that deliver value to consumers in the model of a repeatable and evolving service position themselves to bundle and unbundle capabilities at scale. This posture towards bundling and unbundling will allow organizations to thrive in the current age where the rules of the global economy have evolved from big beats small, through fast beats slow to where we are now: big and fast wins almost every time.

This mindset allows an enterprise to align around a model where APIs are managed like a product and designed like a service.

Adopting an "outside-in" mindset

With the status of APIs as enterprise products firmly established across software-driven industries, there are several questions worthy of discussion:

- \rightarrow What does it look like to have an intentional model for API product management?
- ightarrow What does it mean to design APIs like a service?
- \rightarrow How can we make our API offering stand out? Is it even possible to make APIs sticky?
- \rightarrow What set of stakeholders and audiences have a role to play in API creation, enablement, and management? How should we consider their wants and

needs in the context of an API-as-product discussion?

- \rightarrow How can an enterprise develop an API customer base without a track record of delivering digital products and services?
- \rightarrow How does business context and strategy inform and shape the strategy of an enterprise's API program?

While this list doesn't include everything you need to consider, it's a great starting place for any sophisticated product-centered discussion. Audience analysis with a balanced bias towards external audiences aligns with a widely adopted generic strategy best practice: Envision your brand and offerings "outside-in" and build your offerings "inside out."

Figure 1: Components and sequence to derive an outside-in product vision and roadmap



A specific model for developing an outside-in vision has yet to be standardized by industry, product, or design leaders. However, most models align with the same core ingredients (see figure 1):

- → A grounded prioritization model to allow decisions to be made based on a shared framework.
- → A detailed understanding of the audiences and stakeholders in your ecosystem (including internal stakeholders that support and contribute to your product and the service surrounding it).
- → A value proposition specifically crafted to fit with the wants and needs of the target audiences that consume your product/ service.

It's critical to note that with this model, the specific wants and needs of the audience drive the vision and roadmap – the "outside" perspective – rather than the existing business model or capabilities of the enterprise – the "inside" perspective. Of course, you should consider your enterprise's unique capabilities and model when creating a product set. The difference here is that these factors are predominant in building the offerings (i.e., inside out).

API ecosystems

A product (a unit or vehicle of value delivery from a producer to a consumer) exists in the context of an ecosystem of audiences and stakeholders. Having a reasonable understanding of the key players in an ecosystem is necessary for getting optimal engagement and return within and from the <u>ecosystem</u>.

"Like a biological ecosystem, a digital ecosystem is a complex adaptive system where each element depends on the others via competition and cooperation."

In the business and tech worlds, we sometimes overuse borrowed terms, but in an increasingly complex digital economy, the term "ecosystem" makes sense. Although the components in a connected digital system are not all alive, their behavior mimics many biological ecosystem traits.

Like a biological ecosystem, a digital ecosystem is a complex adaptive system where each element depends on the others via competition and cooperation. It's also important to remember that although we may think of digital ecosystems as being connected machines and software applications, they are more aptly described as sociotechnical systems that include people in many different roles. In the context of APIs, you can think of the API ecosystem as the system of interconnected and interdependent entities that consume and support your API product(s). Thinking about APIs in this broader context has many benefits, but first, let's look at some examples of the API ecosystem perspective.

Let's start with a single API (at the center in figure 2). That API is going to provide value to a group of customers or end-users. However, those customers are not using the API directly. They are likely using an application that directly calls the API. That application was built by developers who needed to find, learn, and code against the API and its associated documentation and other tools. They may have called in for support or worked with developer relations at the API company. Other teams at the company built the API and its underlying assets. Lastly, the API may depend on other third-party APIs provided by partners or use partners for some distribution purpose to other groups of consumers. Even for a single API, there are many elements to the ecosystem.

Ridesharing services like Uber and Lyft provide a real-world example of several externally facing API ecosystems with critical interdependencies between separate organizations, all necessary to deliver an innovative customer experience (see figure 3). There could clearly be disruption to this ecosystem





if any of the players changed their services or a new player entered.

Knowing the broader context of your APIs – what world they live in – can be helpful in numerous ways (see figure 4).

We will explore how to visualize API ecosystems and capitalize on these opportunities in Chapter 3, "Understanding digital business through value dynamics."

But what about an organization that has multiple APIs? In addition to all of those touchpoints, APIs may be interconnected. An internal API ecosystem full of interchangeable components is often required to support these robust digital experiences. Mature en-

Figure 3: API product ecosystem components



"A holistic view helps an API program, product, or platform leader understand each audience's unique needs and stakeholder group, along with how each segment impacts and influences the other segments."

terprises with scalable business models have different layers of APIs (as shown in figure 5) that enable them to provide composable solutions that can be externally or internally facing.

Like the examples in figures 3 and 5, a holistic view helps an API program, product, or platform leader understand each audience's unique needs and stakeholder group, along with how each segment impacts and influences the other segments. Customer and partner segments are interdependent on the staff who make and support APIs. In contrast, the staff who make and support APIs might depend on staff who manage the technical infrastructure. Serving external API consumer segments implies that you must implement formal governance and policies to manage security and resiliency. Enterprise development teams need to know what APIs are available to them before creating another, possibly duplicative, API. These examples all illustrate the value of the ecosystem view.

The ecosystem view is particularly valuable for API product owners. Using this perspective, a product owner can prioritize creating and maintaining enablement materials for

"The ecosystem mindset also helps product owners work with operational and legal teams to ensure terms and conditions of use are appropriate and enforceable."

external consumers to meet their needs while also saving staff members from routine technical questions. The ecosystem mindset also helps product owners work with operational and legal teams to ensure terms and conditions of use are appropriate and enforceable. Inside the enterprise, ecosystem thinking helps API product owners work with enterprise IT and application development teams to drive awareness of existing APIs that can be reused,

Figure 4: Details on API benefits

BENEFIT	HOW AN ECOSYSTEM MAKES THE BENEFIT REAL
FOSTER OUTSIDE-IN THINKING	The ecosystem perspective helps you establish a customer- driven view of your API and its value proposition.
DETERMINE THE BUSINESS MODEL	Outlining the overall ecosystem helps you understand the best <u>business model</u> for your API products that optimizes value for customers and value for your organization.
DRIVE THE RIGHT CONSUMPTION	Knowing the business model means knowing what API consumption profile to aim for and how to incentivize that consumption.
IDENTIFY NEW CHANNELS & SEGMENTS	Getting a picture of your API ecosystem helps to identify channel gaps and potential new customer segments.
CREATE NEW CONSUMER VALUE	Seeing how value flows in the ecosystem will enable you to find new opportunities to create and deliver value to customers.
OPTIMIZE DIGITAL SUPPLY CHAIN	Understanding the dependencies of your API will help to find potential efficiency gains.
FACILITATE INNOVATION	Mapping the API ecosystem for your API products and even your partners' and competitors' ecosystems will help you take advantage of all innovation opportunities.
CO-CREATE VALUE WITH PARTNERS	Visualizing the API ecosystem can facilitate pattern matching of API co-collaboration archetypes.
ESTABLISH FEEDBACK LOOPS	Examining the ecosystem from a system dynamics perspective can help you deeply understand the impacts of changes to the ecosystem and manage accordingly.

With the ecosystem in mind, a product owner can more effectively manage a backlog of activities and capabilities and then prioritize these efforts with different parts of the organization while talking through dependencies and concerns. While not every enterprise has needs for a formal portfolio of customer-facing API products, it's clear that having an ecosystem map can give stakeholders from across your team and company a common lens and context from which to discuss and drive decisions. This common lens across stakeholder groups is critical for large scale success because API programs are a team sport and not an individual one.

Figure 5: An internal ecosystem of API-enabled components that support multiple consumer experiences



Key takeaways What is an API product?



API products – like all products – are vehicles for delivering value from producers to consumers.





04

APIs are best managed as products and designed as services.

It's essential to have an outside-in perspective for API products, viewing them as part of an ecosystem serving consumer needs.

To build on this, let's now shift our focus to API consumers.



Understanding API users

02

This chapter articulates how to bring industry accepted models for product ideation and development into the world of API program execution. We introduce the importance of "outside-in" thinking for API product design and show how the concept of API ecosystems can help foster this mindset. Lastly, we discuss user experience (UX) techniques used in API design to keep the consumer at the center.

"All systems have a design. The question is, 'Is the design intentional or random?""

- PATRICK QUATTLEBAUM, CEO, HARMONIC DESIGN

4

In the pre-iPhone days, during the product wars between Bill Gates and Steve Jobs, there was and remains a general perception that held Apple as a company focused on great design for users while Microsoft was not. Some may agree with this and point to how Microsoft has transformed under the leadership of Satya Nadella.

There is, however, another perspective. Microsoft has always been a company focused on great design for users. The actual difference was that Microsoft initially focused on a very specific set of users: the software development community.

Microsoft hasn't been consistently dominant with consumers over its lifespan, and their flagship Windows platform is now but one of many popular options. Where Microsoft shines historically is in development platforms. Of all the platforms that have come and gone from MS-DOS to Access to Visual Basic to .NET to Azure, Microsoft has consistently remained relevant to a vibrant and evolving developer community for the last 30 years.

It shouldn't come as a surprise given that the very same Alan Cooper who birthed UX into the world by creating both personas and user-centered design is the same guy who's also known as the godfather of Microsoft's Visual Basic. In 1988, Cooper created a visual programming language called "Ruby," later purchased by Bill Gates and went viral as Visual Basic. The VBX interface allowed for the creation of reusable widgets that could be dropped into a software development environment that would ultimately run as "dynamically installed controls." Software developers from novice to expert were captivated by how quickly they could make what they imagine come to life – all because someone made an easy to understand set of reusable building blocks. Imagine that. An app store before iOS. Controls as simple as HTML, controls before the World Wide Web (WWW). When viewed from that angle, one could say that Steve Jobs was the one who learned from Bill Gates when he decided to open up his walled garden and embrace an ecosystem of developers.

The secret behind Microsoft's lasting relevance with developers is the ultimate devotion to the idea that developers are customers, whether they write the checks or not. Microsoft's fundamental insight at that time is the same one that drives platform growth today – the constraint on adoption and growth for a technical product is in the ecosystem of resources capable of leveraging it to create value.

The constraint on adoption and growth for a technical product is in the ecosystem of resources capable of leveraging it to create value.

Planning an API program starts with the users

The design of interfaces created inside an enterprise (graphical or not) communicate how much that organization values its users' time and effort. Also, these interfaces share your enterprise's commitment to low-friction experiences. In the world of APIs, an organization can show this commitment by creating consistent, intuitive, and coherent taxonomies and signatures. Like the design of interfaces, the way APIs work together cohesively communicate that an enterprise values the API consumer's time and effort.

The list of human factors to consider in your design process can quickly become overwhelming without a framework to understand, contextualize, and prioritize them. Luckily for the API community, the UX and service design disciplines have been around long enough to provide a set of approaches and tools to leverage for our API transformation initiatives.

Artifacts and archetypes

If you're working in an API context and have never encountered user types, personas, or journey maps, you're not alone. Even if you have seen these types of artifacts, it's uncommon for organizations to use them within an API context, given that many people think UX is a discipline that is just about "pretty pictures and wireframes." In recent years, as developer relations and API ecosystems gained traction in the enterprise, many longtime advocates of the developer experience created different approaches and tools to formalize a path for making an intentional and optimized experience for API consumers. Within this chapter, we'll speak to three key artifacts that allow an organization to plan and design compelling experiences for their core audiences: user types, personas, and journey maps.

User types

While personas are high-fidelity artifacts that provide insights on users' attitudes and emotions, user types are less concerned with demographics and backstories. User types are lean artifacts used in product strategy to support decision-making from a behavioral perspective with high-level factors like observed behaviors, opportunities, painpoints, and frequent scenarios in which users find themselves.

A typical model for user types is to compare two aspects that allow for conversations and decision making to happen with a common frame of reference about what's important to different ecosystem players. For example, consider the different types of shoppers a large retailer might service. How would they compare on a two-dimensional diagram with an expected level of customer service on one axis and purchase likelihood on the other? You might end up with user types like those in figure 6.

You can apply this same approach in an API consumer context, where a user-type map might look like figure 7.

In figure 7, the vertical axis represents the amount of influence a user type has over the decision to use a particular provider of APIs, while the horizontal axis represents the direct interaction that exists between the user type and the actual API products.

The hypothetical user types below can be annotated with details (as shown in figure 8) to help understand the goals a prospective user might have in a particular interaction. The user types in figure 8 are relatively generic and need more grounding to be useful as planning tools in an API consumer experience initiative. Practically speaking, this means committing to perform user/market research to inform and validate the hypothesis, which is too flat and speculative for a business-critical initiative. Depending on the scale and goals of your effort, this research can be a series of interviews, surveys, or a mix of qualitative and quantitative activities designed to surface unique insights and unmet needs.

In figure 8, it is important to note the non-API consumer types because these user types are often deeply embedded in co-creation activities. For example, the "enabler" user type, which represents the set of actors who live in between API creators and API consumers, has the potential to make or break your API consumer experience in the eyes of the API consumer (who is often your most crucial



Figure 6: Simple user type/segment map

FREQUENTLY BUYS

user type). In your organization, this might be a developer relations team member who focuses on public events or a support team member who helps customers get credentials for sandbox experiments.

It might be tempting to ask, "Why do we need to understand the enablers when they aren't the direct users of my consumer experience?" This perspective has a couple of gaps within it:

→ Consuming users don't engage in a vacuum. They will need support, whether you have dedicated staff or not. The question here is, "How will the needs be surfaced and met?" Ask your product

Figure 7: API stakeholder user type/segment map

leadership whether they want to trust random/ad-hoc channels outside of their influence to help their customers or if they'd prefer to have a fully functional channel that can support API consumers, just like they would get help with any other type of scaled product or service.

→ User types and personas aren't an experience/service design. They are essential but separate components of API planning and design. In addition to user types and personas, journey maps are a critical part of creating modern online experiences (inclusive of API engagement) across multiple channels. Journey maps will help you plan a curated and low-



friction path for an API consumer to move through a funnel process to an ultimate conclusion of production API usage.

.

Personas

Personas are fairly commonplace artifacts for planning offerings and experiences targeted to specific audiences. UX and other design disciplines have refined the persona generation and validation process for more than two decades, and many technology professionals use them to empathize with user concerns. It's important to understand that personas alone are insufficient to craft a holistic experience design that crosses channel boundaries (both online and physical in many cases).

Personas have more detail in high-fidelity artifacts that give insight into the attitudes and emotions of users as they approach and execute a task, whereas user types are less concerned with demographics and backstories. Personas are used in detailed design contexts to support decision making from demographic and emotional perspectives with factors like age, cultural concerns, or technical ability. For example, the "maker" user type in figure 8 may relate to two or more personas representing the breadth of expertise represented in your developer community (e.g., hobbyist developers vs. enterprise full stack experts).

Personas are more context-specific than user types as well. For example, if you're in the financial services sector, the user types might apply to your scenarios, but personas would require specifics connected to financial services contexts. These details would typically come from qualitative user research (e.g., interviews, shadowing, or focus groups). It is possible to make detailed personas based on "educated guesses," but it injects the risk of insular thinking, which you need to weigh against the criticality of your API initiative.

Journey maps

User types and personas are critical components for planning an API program. However, alone, they aren't enough because they don't provide context. That's where journey maps come in.

So, let's now go one step further into the API ecosystem and map out how the consuming developers (i.e., the direct users of the API) work with other user types to achieve their goals. Understanding how all the players come together to support your API consumers is fundamental to developing the right API product, set of services, and support offerings to make your users successful. Journey mapping is a technique used by leading UX and service design organizations to articulate the steps and activities necessary to complete complex, multi-faceted tasks that involve multiple actors across multiple channels. Journey mapping can be effectively applied to API consumers and give some insight into the various forms and levels of detail that different teams align around when planning different types of experiences.

Journey maps for API consumers are paradoxically less common (compared to user types

44 P P

Mapping the API consumer journey, both in current and future/desired state, provides product owners with a holistic understanding of their target user-base, developer relations, collaborative interactions, marketing strategies, and on-boarding approaches that your enterprise will create and support.

Figure 8: Low-fidelity API consumer user types



M

and personas) in enterprise API programs while also being the most actionable and useful of the three experience design artifacts covered in this chapter. The main difference to pay attention to here is that the user types and personas can be helpful as tools, but neither reflect the actual experience people will have as they engage your enterprise. Journey map artifacts, on the other hand, are more than representations of people – they are models of the experience that guides a consumer through each step that developers go through as they engage with your product/ platform/organization throughout their application creation experience.

.

Mapping the API consumer journey, both in current and future/desired state, provides product owners with a holistic understanding of their target user-base, developer relations, collaborative interactions, marketing strategies, and on-boarding approaches that your enterprise will create and support. This removes friction from the process of taking an application from the drawing board to full-scale production. Journey maps can show your API product owners that application creation and API consumption are a teamsport – requiring each of the user types to achieve the desired end. This all leads to a pleasant and satisfying experience of leveraging your enterprise's APIs to make something valuable to your stakeholders and customers.

You can map a general framework for the API consumption journey in the following phases: discovery and learning, envisioning and experimenting, developing and troubleshoot-

ing, deploy and monitor, and learn and evolve stages (figure 9).

As consumers move through each of the above phases, each of the other user types interacts and collaborates with the consumer and each other ultimately to deploy, scale, and evolve their API-powered applications.

There is no industry-standard template for documenting a journey map, and there are many good examples to choose from. When looking at examples for inspiration, the key distinction to pay attention to is the level of detail in the diagram to see if it would give your team:

- → An accurate picture that communicates the true level of complexity and duration of the process that people go through.
- → Sufficient insight into the likely mindset of actors inside the journey.
- → Visibility into areas/interactions of pain/ delight for the actors inside the journey.
- → An understanding of the moments where value creation is realized for the consumer, your enterprise, or all parties involved.

For comparison purposes, we've included the following three examples that span different levels of complexity in mapping audience journeys. While these examples aren't API-consumer-specific, they still can be used as both an inspiration of what your API product team can create and a justification "Mapping the API consumer journey, both in current and future/desired state, provides product owners with a holistic understanding of their target user-base, developer relations, collaborative interactions, marketing strategies, and on-boarding approaches that your enterprise will create and support."

for why your consumer journey map needs to be specific to your industry and context. For example, your authentication and provisioning policies and processes are specific to your enterprise, while your personas' goals and emotional states will be specific to your industry, etc. mission-critical processes that span over longer periods and involve many actors. Each of these formats is appropriate to help a product team identify what areas of the journey are ripe for improvement or redesign. These maps are the context that allows your API initiative team to articulate, design, and



Figure 9: API consumer journey phases

JOURNEY MAPPING IN PRACTICE

Each of the following examples has different strengths and can be used for various purposes. The most simple formats (figures 10 and 11) are appropriate for low to medium complexity processes and don't require interaction by more than a few actors. These formats are an intentionally simplified form of a journey map, sometimes referred to as an Experience Map (a higher level artifact than a typical journey map). The complex format (figure 12) is more appropriate for execute a series of efforts that will ultimately culminate in a customer-facing experience that meets the goals of your enterprise and the API consuming developers.

Whatever format your team picks, your goal is for your API team to have an "as-is" and a "to-be" map that articulates how the journey of your API consumers will play out, along with the sense of how the other actors in the ecosystem support that journey. This deliberate approach, detailed with the discrete steps and interactions along the path, is the key to allowing your API product owners to create an experience rich in moments of delight as API consumers engage with your platform. A key factor to pay attention to within these journey map artifacts is how they make it clear that multidisciplinary collaboration will be inextricably tied to development and operation of the detailed systems to deliver market-leading experiences that leverage API products.

Figure 10: Simple journey map template, courtesy of the Nielsen Norman Group



01 A persona ("who") **02** The scenario to be examined ("what") **03** Chunkable phases of the journey **04** Actions **05** Thoughts **06** Emotional experience of the user has throughout the journey can be supplemented with quotes or videos from research **07** Opportunities to focus on going forward **08** Internal ownership

Figure 11: Experience map for billing management, courtesy of Harmonic Design



Figure 12: Complex journey map for POS on-boarding, courtesy of Harmonic Design



26

 \bigotimes

Key takeaways Understanding API users

- While it's clear that API products are sold and consumed in complex technical environments, they may still be subject to many of the same principles of physical goods and services.
 - Bringing traditional business and product disciplines into
 your design and development efforts is critical to success
 because the consuming developer of your digital product
 is actually a physical customer who is judging not only your
 product but also all of the touchpoints along the way to
 successful production use of that product.

03

02

While your technical developers may be supremely skilled at creating functioning software, that skill set doesn't necessarily translate to creating end-to-end experiences that evoke joy and delight from the confluence of actors who collaborate to make your product successful in a customer context.



Understanding digital business through value dynamics

This chapter introduces a new field of analysis: value dynamics. Value dynamics provides a way of graphing the relationships between stakeholders in a business ecosystem, making it easier to vet business models, evaluate innovation opportunities, and mitigate against disruptive threats. For APIs, the study of value dynamics helps identify the most strategic API product opportunities and determine which capabilities should be delivered through internal or third-party APIs. "The aggregator and creator of business value is no longer a company's supply chain or value chain but rather a network's ecosystem."

- ALEX MOAZED, AUTHOR OF "MODERN MONOPOLIES: WHAT IT TAKES TO DOMINATE THE 21ST CENTURY ECONOMY" Facebook generated over 70 billion dollars of revenue in 2019, but there was a time when it was not clear whether the social network would ever become profitable. Between 2007 and 2008, Facebook grew its user base from 20 to 100 million but lost \$150 million. <u>Articles</u> at that time claimed Mark Zuckerberg had "no idea how to make money off it."

This analysis looks ludicrous in retrospect but made sense when social networks like Friendster and MySpace had grown quickly and then failed. People were skeptical about whether or not a sustainable business model existed for social networks. Time has proven them wrong.

In hindsight, could we have foreseen Facebook's success? The financial focus typical of business analysis missed key indicators of Facebook's momentum. Although Facebook wasn't profitable, its revenue was growing. More importantly, they were not just throwing away money. Instead, they invested in the infrastructure required to support their explosive user base and talent to build software that would eventually monetize the user data. In the digital economy, business value is represented in more forms than money. Companies can trade products, services, reach, time, risk, and especially data to establish their fundamental value proposition within a digital business ecosystem. Examining these discrete transactions of value gives us a way of understanding the business models of participating ecosystem players and a game board to evaluate business strategies.

Value dynamics

We call this study of business value-based interactions between digital ecosystem players "value dynamics." Like thermodynamics and fluid dynamics study systematic relationships in physics, value dynamics analyzes behaviors and patterns of company interrelationships in a particular business ecosystem. There are three levels within value dynamics to examine. At the highest level, we must consider the scope of the business ecosystem to be studied. We call this the "value network." In the middle level, we can understand the business models of companies within the value network by examining the various "value exchanges" between companies. At the lowest level, we can look inside each company and study how their business capabilities participate in "value creation." Value dynamics gives us a way of understanding a specific business landscape and a methodology for managing it.

Business ecosystems and value networks

As long as business has existed, there have been vital relationships between entities beyond consumer and producer. The industrial revolution started with innovation in manufacturing technologies, but its impact was augmented tremendously by concurrent "We call this study of business value-based interactions between digital ecosystem players 'value dynamics.' Like thermodynamics and fluid dynamics study systematic relationships in physics, value dynamics analyzes behaviors and patterns of company interrelationships in a particular business ecosystem."

developments in transportation. Many industries feature symbiotic relationships between different company types: retailers and wholesalers, merchants and banks, medical providers and insurers, even social networks and telecommunications providers. Organizations that depend on each other in this way to deliver products and services to end customers are said to be part of the same business ecosystem.

.

Technology dramatically simplifies connecting businesses in the digital age, leading to more complex ecosystems with increasingly specialized participants. By removing logistical barriers through instant communication and enabling focused processing through data precision, entire companies can devote themselves to hyper-specialized functions in either the distribution or supply sides of the ecosystem. Fiserv, the global financial services conglomerate, is an excellent example of a digital ecosystem player. They are not a bank themselves but offer product and channel services like check imaging and online bill payments that earned them \$10 billion in 2019. Today, you can't fully understand your business without understanding the ecosystem within which it lives.

Accepting that you need to understand the ecosystem is a first step, but – given the limitless interconnectivity of digital businesses - you then need to determine what subsection of the ecosystem to study. How should that scope be determined? Clayton Christensen's 1997 book The Innovator's **Dilemma** sought to explain the phenomenon of incumbent enterprises being overtaken by smaller innovators and what established companies could do to protect against this trend. One of the book's central concepts is the notion of "value networks." Christensen defines value networks as "The collection of upstream suppliers, downstream channels to market, and ancillary providers that support a common business model within an industry." By this definition, value networks (like figure 13) are synonymous with business ecosystems, but Christensen takes it a step further and centers the value network around the needs of a particular customer segment with a consistent set of wants, needs, or jobs-tobe-done.

A customer-centered value network gives a useful context for analyzing a company's business model and its opportunities for innovation. Before diving into the relationship between innovations and their effect on value networks, let us first look at how to articulate an enterprise's business model by using the various relationships between actors.

Business models and value exchange

The digital economy is the ultimate risk/ reward proposition for established companies and organizations. The growth opportunities are matched only by the potential ways of being disrupted. In order to navigate these choppy waters, it is vital to have a north star to aid in decision making when there is uncertainty on the horizon. A target business model can be this north star, demonstrating how digital touchpoints, automation, and data can augment your business. Given the digital economy's volatility, it can be challenging to determine what business models can be sustainable long term and how to ramp up to that model in the short term. To overcome these difficulties, let's further our understanding of business models.

In the simplest definition, a business model is a way a company makes money. When surveying the types of business models, you are likely to come across labels like aggregator, freemium, or multi-level marketing. Using these templates to classify business models is problematic since they often focus on different things – "aggregator" is about the relationship between customers and service providers, "freemium" about pricing,



Figure 13: An eCommerce value network

By removing logistical barriers through instant communication and enabling focused processing through data precision, entire companies can devote themselves to hyper-specialized functions in either the distribution or supply sides of the ecosystem.

and "multi-level marketing" about a go-tomarket approach. Instead, we can use value networks to frame business models. For example, if you consider the value network for eCommerce shoppers, you can see several complementary business models in play – retailers selling goods to shoppers, wholesalers supplying products, logistics providers handling warehousing and distribution, advertisers promoting on web properties, and even the underlying telecom providers supporting communication.

To better understand these roles, we can examine the connections between the various stakeholders in the value network – the way they exchange value with each other. Alex Osterwalder, creator of the Business Model Canvas, defines a business model as "The rationale of how an organization creates, delivers, and captures value." From the value network perspective, value creation happens within the nodes – something we'll examine in the next section – but value is delivered and captured simultaneously between stakeholders in a transaction known as a value exchange. Exchanged value can be tangible, such as money or goods, or intangible, such as customer reach or time savings (see figure 14). Depicting an organization's set of value exchanges within a value network turns out to be a useful way to illustrate its business model. We can use this approach to define business model patterns and archetypes that





© 2021 MULESOFT - MULESOFT.COM

Ø

The role of trust

Is trust a form of currency? Is trust a prerequisite of value exchange? Maybe it's both, or perhaps it's all dependent upon context. As you survey the different business models and exchanges of value, take a moment and reflect on how trust is involved, exchanged, or proxied in exchanges.

Who is trusting who in the exchange? Is one party lending its credibility to the other, which can then be capitalized on for other customer interactions?

Take the Facebook Portal device as an example. Although Portal is widely hailed as the easiest to use consumer video conferencing device, Facebook's entry into the consumer electronics market has struggled to crack even two percent of the smart speaker market. Comparatively, Amazon has an estimated 45% of the smart speaker market, followed by Google at just under 30%.

One might expect Facebook to be a strong rival to its web competitors for this new product category. So what is the reason for the struggle? One of the main concerns consumers have about smart speakers is fear of surveillance, whether warranted or not. With Facebook in the news for the **Cambridge Analytica data breach** around the same time as the Facebook Portal product launch, it stands to reason that consumer trust is one of Facebook's biggest obstacles.

Still, trust is not the only factor in establishing a viable business model. Companies like Monsanto and Volkswagen have maintained exceptional industry performance despite public backlash. However, in the digital world, where data – especially personally identifiable data – is such a lucrative currency, consumer awareness and government regulation trend toward protecting information. It follows that companies who can balance their fluidity in exchanging and processing data will be the winners. If customers don't perceive you as trustworthy, you may be able to win business through unique and compelling product differentiators, but that doesn't mean that you will earn customer loyalty.

can be applied to new company and industry contexts.

Value exchange-defined business models

.

For example, take a business model that was successful for decades but is now under threat: print media. We could draw out the value exchanges in a 20th-century newspaper's business model like the one illustrated in figure 15.

The newspaper delivers value to customers in the form of content and captures money in return. On the other side, the newspaper provides value to advertisers in the form of exposure to its readers and captures even more money. The final value exchange is between the newspaper and freelance journalists it might hire, giving them money and exposure in return for exclusive content. This business model was useful in the pre-digital age when access to content was more scarce.

In this century, this business model has been disrupted by the ubiquitous connectivity of the World Wide Web along with web-enabled listing aggregators like eBay, match. com, and Autotrader, as well as social media. Revisiting the story of Facebook, we can look at its business model as a mutation of the print media business model when mapped through its value exchanges (see figure 16).

Figure 15: A newspaper business model depicted through value exchange



3

Interestingly, the business model structures are similar (isomorphic in mathematical terms). What differentiates them from each other are the details of the value being exchanged. Facebook might capture money from its users in return for third-party apps or games, but the most significant value it gets from its users comes from data and relationships that form a detailed personal profile. This profile information is used in targeted advertising, which delivers considerably more value to advertisers than the anonymous advertising of the print media industry. Lastly, Facebook is even able to have its users – the content consumers – be sources of content themselves, leading to more time spent on the platform and more opportunity to

present targeted ads. Clearly, the business model can be analyzed and measured by focusing on the value exchanges within the value network.

Digital value exchange through APIs

In the digital economy, APIs are conduits for value exchange. In the Facebook example previously mentioned, Facebook's APIs would be used by the app developers at the top and possibly by advertisers on the right. Value exchange mapping is a great way to vet API product ideas by putting them in the context of an organization's business model. To illustrate this, let's look at two well-known API products.




First, the Google Maps API is one of the biggest success stories of the API economy. Companies like Uber, Lyft, and Airbnb would not have been able to launch without it.

The business model is quite simple. Google Maps API consumers exchange money for unique geolocations services (see figure 17). Those consumers use the value they capture from the API to provide location-enabled services, including geo-targeted advertisements, to their customers, who may exchange any form of value in return. The Google Maps API business model follows the "API supplier" pattern since it mimics how a supplier might function in the manufacturing economy, like a high-end stereo manufactur-

VALUE ENGINEERING

This value exchange-based approach to business modeling has been in use by Jaap Gordijn and Roel Wieringa since the early 2000s. Their <u>e3value</u> <u>methodology</u> provides a modeling language to visualize and study business models, and their company, <u>The Value Engineers</u>, helps organizations apply this approach. They have recently published business model analyses for <u>Netflix</u>, <u>Facebook</u>, and <u>Apple Pay</u>.

Figure 17: "API supplier" business model for the Google Maps API



0

er for automobiles. There is one interesting detail in this business model that is specific to the digital economy. Google is getting more than just money from its API consumers. Every API interaction provides data that Google can contextualize and correlate with other data. This data can be used to create additional value for exchange in other areas of Google's vast value network.

.

A more complex API business model example is Twilio. Like Google Maps, Twilio's APIs grew substantially in support of the mobile application explosion that followed the launch of Apple's app store in 2008. Recognizing that mobile app developers would need global access to phone- and network-based communications services, Twilio (see figure 18) delivers time-to-market value to its API consumers by providing globally accessible telco services and a superb developer experience. Its consumers have been happy to pay for this, especially early on in the app economy gold rush when time was money. On the other side of the value network, Twilio has a vast network of telco suppliers to whom it pays money in exchange for the services it aggregates. Twilio's business model follows the "API retailer" pattern since they provide similar value to their consumers that a retail store might by targeting a specific group of customers and stocking their inventory from an array of wholesalers. Although they may not collect and synthesize data the way Google does, Twilio's unique digital value comes from understanding how to appeal to software developers as direct customers.

This Twilio example starts to show the power and potential of the value network approach. Note how the telco carriers play the role of "API wholesaler" in Twilio's digital supply chain. The mutually beneficial relationship and interdependence between Twilio and the telcos are a great illustration of value dynamics. Companies like Plaid and Nylas have replicated this API retailer business model pattern in banking and corporate communications respectively.

Once you have mapped out the value exchanges in the value network, you can then introspect the flow of value within a particular company or organization. Doing this will help you find the sources of value that will be delivered and the use of captured value. Most importantly, this approach will help you identify the core business capabilities you need to create differentiating value within the value network.

Business capabilities and value creation

The Coca-Cola formula. Heinz's ketchup recipe. McDonald's special sauce. These food and beverage giants have spent years protecting their secrecy, knowing how intertwined their brands are with these key elements. In business vernacular, the term "special sauce" is even used commonly to identify a company's fundamental value proposition – the aspect of its business that sets it apart. The irony is that each of these companies has differentiating capabilities beyond the mythical recipes of their flagship products. Coca-Cola has supremely flexible distribution, Heinz's unique manufacturing capability, and

M

McDonald's supply chain excellence, to name just a few examples. Successful enterprises need to build up numerous sources of value creation. This is especially true in the digital economy. Because the digital landscape offers so many opportunities for interconnecting and delegating, it also lays bare the value propositions of its players. If your company doesn't have differentiating capabilities, it won't last long.

Going back to Alex Osterwalder's definition of business models cited previously, you can think of business capabilities as where your organization creates value. The data analytics capabilities an insurance company uses in its actuarial modeling allow it to create value

Figure 18: Twilio's "API retailer" business model

for its customers and shareholders. The data distribution capabilities a government uses to provide tax transparency create a different type of value for its citizens and local businesses. In a strictly digital example, a social network's user graph data creates value that is monetized through advertising. All of these illustrate how core capabilities are central to successful business models.

These examples are all fundamental to their respective companies' value propositions. What about a capability like job applicant screening? This would likely have a small contribution to an insurance company's business but be a core capability in a human capital management SaaS provider. Enterprises of a



Context in value exchanges

Did you ever hear the story of the man who was able to trade a paper clip for a house? Kyle MacDonald told the story in a <u>TED talk</u> of how he was able to make a series of trades that turned <u>one red paper clip</u> into a pen, then a doorknob, then a camp stove, and ultimately obtained the title to a home in Kipling, Saskatchewan, Canada – a town that now features <u>a statue</u> commemorating the experience.

Kyle did it by always trading for an item that held little value for the current owner but would be seen as valuable by other prospective traders. In one notable example, he traded a snow globe featuring the band Kiss for a part in a movie. His trading partner was actor and diehard Kiss fan Corbin Bernsen, someone who uniquely over-valued the snow globe and undervalued the film part. The lesson here is that when it comes to value exchanges, context matters.

To give a digital example of this, consider Google Maps. Its value proposition is clear: an unmatched geolocation data set with enhanced information around businesses, traffic, and more. Google Maps is delivering value through its data. But what about the other direction? What value is Google capturing in return? Because of the clear value provided by the mapping data, Google can charge its Maps consumers a premium. However, keep in mind that Google is also capturing more data as each new user interacts with their Google Maps API. This interaction data can be used to identify trends, inform their business customers, etc. On top of that, in the likely event that they can correlate those interactions with a known user, they can feed it into their advertising engine's personalization capabilities. In this way, Google is getting paid double – with money and with data – for its mapping services.

When designing value exchanges, consider the context of your trading partners. Are you giving them value for free in the way you interact? Is there data they covet that you are giving away? And what do they have that may be more valuable to you than it is to them? These questions may make value exchanges appear adversarial, but they don't need to be. As we will discuss later, having partners who can create value where others can't benefits the whole ecosystem. The key is to ensure you consider the context of every piece of value being exchanged. significant size will have multiple layers of capabilities spanning many business domains. As important as business capabilities are to devising a corporate strategy, it can be easy to descend into the bottomless pit of capability modeling and industry taxonomies. There is a better way.

To identify an organization's most critical capabilities, you can measure its role in enabling the value exchanges that define its business model. For each value exchange, what capabilities are involved in delivering value? What capabilities are involved in capturing value? What capabilities create or source the delivered value, and what capabilities augment or synthesize captured value? Do any of these capabilities act as bottlenecks within the process of creating, packaging, or delivering value? This process can highlight surprising capabilities that are distant from customer interactions but still core to the organization's value proposition. Consider a retail chain that delivers value by getting products ordered online in customers' hands as quickly as possible (see figure 19). Capabilities such as predictive analytics used for inventory forecasting, warehouse dispatching to retrieve products, and algorithmic selection of logistics providers would all contribute to the creation and delivery of this value to customers. Identifying the most valuable capabilities can help companies prioritize their work.





"The data analytics capabilities an insurance company uses in its actuarial modeling allow it to create value for its customers and shareholders. The data distribution capabilities a government uses to provide tax transparency create a different type of value for its citizens and local businesses."

Identifying needed capabilities is only part of the story. The effectiveness of a capability comes not just from how well it performs its function but also from how easily it can be connected and composed. You could create the world's most sophisticated machine learning-trained model, but without an accessible interface, it would be as impactful as the proverbial tree falling in the forest when no one is around to hear. In the digital economy, the most effective business capabilities are useable by multiple value exchanges, including unanticipated exchanges. In a complex enterprise, capabilities may be layered as dependent chains on top of one another and coordinated across many lines of business. Software-enabled capabilities thrive in such an environment, especially when they are made pluggable through APIs. Core capabilities exposed through APIs can easily be woven into new digital channels and user experiences, creating a gateway for value exchange. Organizations can also consume API-enabled capabilities from third parties to create value exchanges with suppliers and service providers. This is how organizations shift from opaque, high cost-to-serve operations to highly automated, self-serve platform offerings.

Decomposing an organization into API-enabled business capabilities is a proven path in the digital economy. By building its core capabilities behind APIs, Amazon was able to turn its infrastructure provisioning capabilities into what is now its most profitable business unit, AWS. Companies like Lyft and Uber have disrupted the transportation industry by building web-native services on top of third-party APIs from AWS, as well as Twilio, Stripe, and Google Maps.

McDonald's moved to an API-led approach in overhauling their software landscape, allowing them to open up digital kiosks in-store and offer delivery services through partners including UberEats. By combining a deep understanding of your company's value network with API-enabled capabilities that support it, you will be able to unlock your company's digital potential and amplify its impact through the network effects of your digital ecosystem.

Value tracing

As we've shown, mapping out a value network through value exchanges and value-creating business capabilities is useful at the macro level. To gain even more insight into the structure of a value network, we can examine the relationships between the types of value being exchanged – a technique we will call "value tracing." In value tracing, you can walk through each value exchange and determine its dependencies on other value exchanges and business capabilities. Understanding the complete flow of value in this way helps determine the best approach to scaling up the business model.

Here is an example of value tracing. Consider the value network of Airbnb, an online marketplace for rental accommodations. As is typical for a marketplace provider, Airbnb acts as a matchmaker between property renters and property owners. At a basic level, Airbnb captures value from owners in the form of properties to rent, which it brokers into value delivered to renters. Renters then book and pay for their preferred property, leading to monetary value captured by Airbnb and a percentage of that value then delivered to the owners. See what the value exchanges look like at this level in figure 20.

This is a minimum view of the value network, but not a viable one. To make this business model function, Airbnb needs to offer value above and beyond what a renter could obtain if they were to go directly to a property owner. To attract renters, Airbnb must provide selection and searchability, both of which manifest themselves as time savings – and possibly cost savings – value to the renter (see figure 21). Therefore, an Airbnb business capability to provide customizable

Figure 20: Airbnb basic value exchange of rentals for money



44PP

The effectiveness of a capability comes not just from how well it performs its function but also from how easily it can be connected and composed.

5

searching and filtering on their property listings would create value. They also need a critical mass of attractive property inventory to draw audiences looking to rent. To get that, they need to attract owners. And to attract owners, they need to have a captive audience of customers. This leads to a bit of a catch-22. A way around this would be to partner with bulk rental providers to fill the inventory and to invest in marketing for customer acquisi-

tion. So, partner onboarding and marketing functions, such as SEO and targeted offers, could be vital value creators in order to build marketplace momentum.

So far, we have used value tracing to show that, to make money from renters, Airbnb needs to offer them convenience in finding and renting the properties they want. This

Figure 21: Virtuous circle of "reach" value, cycling between property inventory and renters



9

convenience requires scaling up both their inventory of property listings and their addressable market in the form of potential renters. A critical element of Airbnb's business model is being a trusted marketplace (see figure 22). Earning the trust of

renters and owners helps to maintain and grow the scale of the marketplace. This trust enables Airbnb to offer other sources of value, such as mediating payments between parties. This payments service delivers value to both renters and owners and gives Airbnb visibility and control over the financial flow in their value network.

The last step we'll examine in this value tracing example is to think through how Airbnb earned this trust. Undoubtedly, brand marketing efforts play a significant role in

Figure 22: Internal business capabilities driving "reduced-risk" value, amplifying "reach"



building trust, but many business capabilities can also play a role. Providing a positive customer experience with the platform builds trust. Demonstrating security in that experience is also a trust builder. Another big builder of trust is customer-generated data. In the case of Airbnb, this takes the form of property reviews from previous renters. Therefore, consumer-oriented interfaces, robust access control, and a customer review service are all business capabilities that create value for Airbnb. Using value tracing to analyze Airbnb's business model, we have uncovered high-value business capabilities and interdependence of the elements in their value proposition.

.

Mapping out an API ecosystem using value dynamics clarifies the structure and relationship of business models within that ecosystem. Once you decompose an ecosystem in this way, you can use it as a game board to analyze the current state of value networks and strategize future moves.

Let's now examine the many opportunities to apply value dynamics in the context of APIs.

Value dynamics provides a context to better understand an organization's business model within a business ecosystem and the role-specific business capabilities play in enabling that business model. In doing this, value dynamics creates a game board for business strategy, opening up new possibilities ranging from minor maintenance of existing business models to disruptive innovation. Let's explore these methods in more detail.

IN THE INTEREST OF TIME

Value dynamics is useful in many aspects of digital business strategy, but it does not help with all strategic areas of an organization. Notably, value dynamics does not reflect the time or effort it would take to implement value-creating business capabilities or other work needed to effectively cultivate a sustainable ecosystem. Adaptability and agility are hallmarks of successful digital organizations. Implementing an accessible, composable set of business capabilities helps your organization be more responsive to market demands. But, so does adopting effective delivery methodologies, establishing appropriate principles, and building a winning culture. Fine tuning the organization to focus on time-to-value is a separate and complementary area to value dynamics.

Applying value dynamics



Analyzing existing business models

The most straightforward application of value dynamics is using it to assess existing business models. An organization can think through its current customer segments and product offerings to determine the value networks in which they operate. From there, they can map out the various actors and value exchanges and trace the flow of value to surface their core business capabilities. Once mapped, it becomes easier to answer critical strategic questions.

- → Do we have the right differentiating capabilities to thrive in this ecosystem?
- → Are there any value exchanges where we are imbalanced?

- → Are we maximizing value capture in our exchanges?
- → Are there any "invasive species" in the network that could extract too much value and kill the ecosystem in the long term?

Continually updating and tracking the value network will help keep your strategy on track.

Defining new business models

The process to define and assess new business models is similar to mapping an existing business model. You can start with a blank canvas approach, thinking of what value your organization could offer a particular customer segment in the context of a specific need, and then mapping out the potential value exchanges and actors in the value network. Another approach is

to map your competitors' business models, seeing whether you can adapt them to your organization. A third approach, and quite a powerful one, is to map out business models of digital innovators in industries outside of your own. In doing this, value dynamics helps to identify business model patterns that are industry agnostic. How can an online retailer's business model be applied in financial services? Can a cybersecurity provider's business model be employed in the home insurance industry? This could have been one method used by the founder of Stripe to pivot from being an account aggregation app to adapting the Twilio telco model to financial services, becoming an API broker for banking information. It is often this third approach that can identify groundbreaking digital opportunities.

Finding new value channels

Looking at a value network provides an intuitive way of identifying missing links in the ecosystem. This is especially true when those gaps are between your organization and the end customer. The most successful digital companies have all recognized the importance of direct customer engagement. If your organization has no digital channel established for value exchange with the ultimate beneficiary of your products and services, it will likely become an issue. Other gaps could exist too, often caused by technical obstacles and filled by potentially unnecessary intermediaries. Once gaps have been identified, it is a natural next step to see what new value exchanges can be opened up and what APIs will be needed to enable the exchanges.

Augmenting current value exchanges

The balance of each value exchange in a business ecosystem is determined by what is being exchanged and the difference in perceived value by the exchanging actors. Using value dynamics, you can zoom in on each of the value exchanges your organization is engaged in and assess whether the balance is appropriate. This allows you to address situations where you are giving away too much value for too little in return. Even more promisingly, this also allows you to see if there is anything your exchange partner could "throw into the deal" that is of little value to them but could be made valuable by you. Data is of particular interest here. Is there data that could be included in the exchange that you could use to create value in another context, possibly to another partner? Is there data you are already receiving that is not being captured and used to your advantage? Keep in mind that the aim of augmenting value exchanges is not to sink your partner but rather to create more value from the exchange.

Optimizing supply-side exchanges

Many exchanges in a value network exist as enabling pieces of a broader solution to meet the end customer's needs. Whether these are supplier relationships "behind" your organization in the value network or service relationships "beside" your organization, it is crucial to think about the optimal function placement that fits your fundamental value proposition and your intended business model. For an online "The non-rivalrous nature of data makes it an ideal currency to consider for exchange between value networks. In fact, if we deconstruct the Facebook business model discussed above, we can view it as the intersection of two value networks connected by data — the value network for providing sticky content to social network users and the value network for providing advertising targets to product companies."

.

.

retailer whose customers value delivery time above other factors, is it appropriate to have product delivery sole-sourced to a single provider? Should there be a mix? Should it be insourced? In the other direction, there may be high cost, commoditized functions (often referred to as "undifferentiated heavy lifting") being performed inside your company that could be moved to third-party providers. Deciding whether to insource or outsource functions has long been a topic for strategic consideration, but value dynamics gives clarity and context.

Crossing value networks

The last application of value dynamics may be the trickiest but also has the highest potential for impact. For an organization operating in multiple value networks, it is worth assessing how those networks can be interconnected. What value can be captured from one and delivered to another? The non-rivalrous nature of data makes it an ideal currency to consider for exchange between value networks. In fact, if we deconstruct the Facebook business model discussed above, we can view it as the intersection of two value networks connected by data – the value network for providing sticky content to social network users and the value network for providing advertising targets to product companies. It is the personal data captured in the former that creates the profit machine in the latter. Google's overall business model adds several dimensions to this, with value networks for web searchers, location seekers, phone users, emailers, homeowners, and many others all feeding the advertising network. Established companies with different business units and distinct customer segments likely have untapped opportunities to create these data wormholes to connect their disparate business models. Value dynamics provides a means to that end.

Key takeaways Understanding digital business through value dynamics

- Value dynamics is an impactful way of visually mapping out business ecosystems, articulating business models through the set of value exchanges in a value network, and putting an organization's business capabilities in context based on the value they create.
 - **In a digital ecosystem, APIs play a vital role as conduits** for value exchange and the channel by which created value is distributed.

02

There are many ways you can apply value dynamics to benefit your business, from assessing the current state to finding opportunities for innovation.

In the next chapter, we will explore the related concepts of bundling and unbundling and see how these techniques complement the value dynamics approach.



Bundling and unbundling

This chapter explores the dichotomous product strategy practices of unbundling and bundling. You will learn how these practices have been applied in the digital economy and about how unbundling, in particular, is a useful tactic for API-enabled products. We will also explore the pros and cons of both practices.

"There's only two ways I know of to make money: bundling and unbundling."

- JIM BARKSDALE, PRESIDENT AND CEO, NETSCAPE

In the early days of the internet Jim Barksdale, President and CEO of Netscape, was asked about his concern regarding whether Microsoft would bundle a browser in their Windows OS product. In response, Barksdale famously quipped, "There's only two ways I know of to make money: bundling and unbundling." This pithy aphorism was true then and remains true today.

In past decades people have spoken about Oracle unbundling IBM or Google unbundling the internet service provider (ISP) industry. In today's world of ever crumbling barriers to entry, we are all witness to the disruptive, algorithmic unbundling of global ecosystems like music (via Napster, Apple, and streaming services), transportation (via Tesla, ride-sharing, scooters, etc.), money (via blockchain-enabled digital currencies), and space (via SpaceX, Blue Origin, etc.).

.

Addition and subtraction

Unbundling is the act of breaking up packages previously only offered as a whole and then providing particular packaged parts at a scale and cost unmatchable by the old order that had an established stream of value. For example, streaming services like Spotify and Pandora unbundled the traditional music industry by removing the need to "own music." After several years of volatility, the music industry has completed a fundamental shift in financial and operating models to re-establish a steady stream of predictable revenue revolving around streaming rights, merchandise, and a greater focus on live events.

The disruptive power of unbundling is so intense that it often drives a bias towards

defensive acquisitions to prevent the introduction of unpredictable volatility for established brands and enterprises. Soon after the successful launch of Dollar Shave Club, Unilever acquired the new brand to prevent further erosion in market share through waning consumer loyalty combined with a convenient purchase/subscription model on top of a "good enough" product. After Facebook unbundled Google's stranglehold

"Unbundling is the act of breaking up packages previously only offered as a whole and then providing particular packaged parts at a scale and cost unmatchable by the old order that had an established stream of value."

on internet advertising (by replacing free text search with socially relevant content), Facebook then purchased both Instagram and WhatsApp, as they saw these upstarts unbundling them.

The core insight to be gained here is – if an enterprise is not already figuring out how to unbundle itself to drive dynamism into its financial and operating models, someone

M

else is. Lest any doubt remains, look back at the current shifts in the ecosystems that many considered to be the most stable:

- → Currency Centralized currencies are now forced to compete with decentralized, blockchain-enabled coin offerings that have unbundled the concept of trust that makes state-backed currencies valuable. Christine Lagarde, Managing Director of the International Monetary Fund (IMF), has advocated the need for digital currencies to allow banks to remain competitive and relevant as consumers seek ways to achieve quicker and cheaper settlement capabilities in financial transactions.
- → Space Like currency, space has long been the sole domain of wealthy nation states given the sheer cost of infrastructure and capital necessary to create and sustain the capability of space flight. In recent years, internet titans like Elon Musk and Jeff Bezos, along with business magnate, Richard Branson, have all entered the space race and proved that private industry could not only compete in the space industry, they could provide a cost and performance advantage compared to nation-backed space agencies that aren't so adept at introducing innovative technologies like reusable rocketry.

On the other hand, bundling is the act of combining offerings into "packaged bundles" that represent the products offered by an enterprise. Bundling is quite common in the media and telecommunications industries, where phone and cable operators sell "packaged sets" of value targeted to maximize the basket size consumers transactions. In many of these contexts, the customer doesn't have the option of removing "unwanted features" within the bundle, and as a result, not all consumers respond well to this practice. When bundling offerings for consumers, enterprises must attempt to balance and manage customers' concerns who may resent being "forced to pay for features they don't use."

Progressive bundling

Even when organizations use bundling to explicitly lock in consumers and capture more revenue from its customers, bundling isn't always received poorly. Amazon's Prime offering is amongst the most loved offerings of the retail behemoth, while the price of the bundle itself only represents an "access fee" to other offerings of value (e.g., free shipping on other purchases, free streaming on a curated set of media in Amazon's video service, etc.) Automotive "trims" and technology packages are another example of successful progressive bundling where consumers respond positively with their wallets. Research has shown that bundles work best when the consumer has the choice between purchasing the bundled offering or the unbundled components. It seems that the presence of the unbundled option provides the consumer with the confidence that the bundle isn't a gimmick being forced onto them and is more aligned with a "volume discount," where they're getting more value for their dollar.

4477

The disruptive power of unbundling is so intense that it often drives a bias towards defensive acquisitions to prevent the introduction of unpredictable volatility for established brands and enterprises.

The role of API products in the context of unbundling

.

As illustrated in many of the previous examples, API products in the context of bundling and unbundling represent both the tool for disruptors and the shield for established enterprises. The prime reason for this dynamic is how pivotal a role APIs play in crumbling barriers to entry into industries long since considered unassailable. APIs are the standardized interface to data, capabilities, and infrastructure that no longer needs to be built from scratch over decades. APIs have, to a large degree, leveled the playing field between enterprises and entrepreneurs and invited hordes of Davids to compete with newly vulnerable Goliaths.

Looking back to the first chapter, remember the key insights that Jeff Bezos and Amazon leveraged to create the unprecedented AWS offering:

- → At its core, a product is a unit or vehicle of value delivery from a producer to a consumer.
- → APIs can be enablers of products, components of products, and products themselves, even if an external customer never sees them.
- → APIs have high ROI potential in any enterprise context because they can allow for unbundling and bundling of value.

"APIs are the standardized interface to data, capabilities, and infrastructure that no longer needs to be built from scratch over decades. APIs have, to a large degree, leveled the playing field between enterprises and entrepreneurs and invited hordes of Davids to compete with newly vulnerable Goliaths."

Across industries, the forces unleashed from a 24/7 system of near-instant communications, diminished consumer loyalty, decentralized systems of trust, and eroded barriers to entry – redefining what's required to be competitive with prospects and customers.

When these newly vibrant forces combined with a contextual shift in the ease of introducing successful competitive disruption, enterprises worldwide adapted and responded. These adaptations have, more often than not, taken the form of investing in and formalizing API programs to protect and enhance existing value streams and lean further in to create brand new value streams from assets and capabilities previously hard to monetize.

57

Look before you leap

With the high profile nature of the API successes of Amazon with AWS, Facebook with embeddable widgets, and Twilio with advanced telephony APIs, an observer might ask, "Why haven't more enterprises jumped in with both feet and developed API-enabled business models?" The answer – success isn't guaranteed.

.

One has only to look at the lackluster attempts of ESPN and Edmunds open API programs to get the sense that there's more to the API business model than opening a storefront and selling your unbundled assets to eager customers. The essence of these celebrated public API openings followed by quick retreats is "unmitigated cannibalization."

Cannibalization is a dynamic where enterprises gain revenue through a channel at the cost of losing revenue through another. Sometimes cannibalization is desired. In scenarios where the new channel outperforms the previous one (e.g., in revenue, margin, operating cost, etc.), cannibalization doesn't represent a problem for an enterprise. The problem, however, is that predicting the results ahead of time is not so simple. Often, like in the following ESPN and Edmunds examples, the new source of revenue merely lowers the total revenue received by the enterprise because the new offering wasn't surrounded by sufficient controls and mitigation strategies to protect or enhance the existing lines of business.

"Cannibalization is a dynamic where enterprises gain revenue through a channel at the cost of losing revenue through another. Sometimes cannibalization is desired."

ESPN and Edmunds learn a hard lesson

After a highly publicized two-year effort to stand up a monetized channel of revenue for its sports data, ESPN shut down its developer ecosystem with an announcement on its website:

Dear ESPN API Developers,

Since the launch of the ESPN Developer Center in March 2012 the capabilities and direction of our API program have continued to evolve in order to serve sports fans in the best way possible.

As part of that evolution, we have made the difficult decision to discontinue our public APIs, which will enable us to better align engineering resources with the growing demand to develop core ESPN products on our API platform.

Effective today, we will no longer be issuing public API keys. Developers utilizing the ESPN API with a public API key may continue to do so until Monday, December 8, 2014, at which point the keys will no longer be active. We want to thank all of you for supporting the ESPN API, and we hope you found value interacting with the service over the past two years.

The ESPN API Team

How is it that a premium brand like ESPN couldn't make a set of profitable API products? While the ESPN team hasn't released any other information in the years since the shutdown, there are a small set of likely culprits that we can ascribe the quick demise to. → Insufficient control of the data/content in question. Real-time sports scores aren't exactly the rarest of commodities on the internet. Quite the opposite actually. What the ESPN team may not have considered was how they would make their API worthy of a paid subscription when customers perceive the data as freely available across the internet. A fundamental precept of content/data marketing via an API is that in order to support paid access, you must have non-commoditized data/content to offer in the first place.

→ The inability to control audience and revenue cannibalization. If your enterprise derives revenue and profits from audience consumption of content (i.e., advertising), giving/selling that content to others is always a risky play because you allow other parties to compete with you for the same audience you are targeting.

Edmunds had the same problem as ESPN because automotive listings data is not a highly controlled ecosystem (i.e., the automotive dealers specifically want their listings to be available on as many platforms as possible), and their prime source of revenue comes from paid advertising. While both ESPN and Edmunds might have had paying customers for their API offerings, the revenue generated through this new channel cannibalized the revenue of their flagship advertising offerings. At the same time, this lowered the barrier to entry for new competitors who were targeting the same audiences.

The lesson to be learned from these forays into data/content monetization is not "don't offer a monetized API for data/content." Instead, the lesson is, "do your homework!" Take the time to understand the value offerings of your enterprise and evaluate the opportunities for monetization by using value dynamics and ecosystem lens. Other organizations like Google, Twitter, and Facebook have all sustained content-driven API products that work within their ecosystems. Running a successful data/content business requires a deliberate approach to governing access to your content in a way that balances access/syndication with channel/ revenue protection.

Key takeaways Bundling & unbundling

01

When developing a business model that leverages an API channel of revenue, it is critical to understand the underlying business context and value dynamics at play.

With a firm understanding of the playing field, you can make a holistic API product strategy that allows you to create an offering that is valuable to potential customers and doesn't represent a net-negative to enterprise financial performance.

Developing and executing an API go-to-market strategy

9

This chapter explores the chickenegg problems of bringing digital products to market without having a built-in audience anxiously waiting for your next release. We examine the use of "freemium" products and tiered offerings to bootstrap audience engagement and present them in a structure to frame a go-to-market strategy grounded in audience building.

"It takes 20 years to build a reputation and five minutes to ruin it. If you think about that, you'll do things differently."

- WARREN BUFFETT

M

With the core concepts and business model opportunities of API products in hand, you have the ingredients needed to create and execute an enterprise-level **API product strategy**. In this chapter, we will discuss how the principles we have discussed can ground your go-to-market strategy and focus on:

- → The underlying business context that frames where and how value can be exchanged across organizational boundaries.
- → The nature of bundled product offerings and how this simple business concept has powered API-enabled business models have enterprises around the world scrambling to fend off disruptors with no legacy or baggage to weigh them down.
- → The tools and artifacts necessary to understand and plan for the complex interactions to recruit and onboard new users and partners to an API platform.
- → The appropriate mindset to apply when using terms like "API as a product" and "developer as a customer."

Understanding brand elasticity in an API context

A central aspect to any API product strategy is a clear understanding of the audiences you will be attempting to inspire to partner with your enterprise and how likely they are to:

- → Devote technology resources to make use of your API offerings.
- → Commit capital resources to pay for your product.
- → Couple their operations and product offerings to your platform.

These commitments and interdependencies are typically not made on impulse and may have extended evaluation periods requiring data gathering, analysis, and corporate budgeting cycles. The complexity of the commitment process within your target consuming organizations should not deter you from moving forward. Instead, it should focus your attention on the first critical ingredient in your API product strategy – audience and customer acquisition.

4477

If your enterprise goal is to launch and eventually monetize a public API product set, the three-step path to that destination is: build the channel, fill the channel, scale the channel.

The developer community you imagine doesn't exist... yet

When enterprise leaders hear about API monetization and the revenue potential within their systems, they all too often start pushing teams to launch products to market. These leaders are missing the steps in between launching products and generating revenue from them. If digital products and transactions are already part of your offerings, then you might be in the clear. However, if your enterprise doesn't have an active API-driven revenue channel, that's another story. There are some major enterprise with a set of developers on the bench waiting for unplanned project work to come around doesn't exist. Development capacity in any company with an annual budget process is amongst the most scarce commodities in the corporate world. Projects and budgets are set months – if not years – in advance. Getting access to your target customer's developer capacity for something new requires not only a compelling offering but also a sense of trust and confidence that your enterprise is capable of delivering a reliable and robust product service. If your enterprise isn't already in the business of delivering APIs or publically available digital

"Every global enterprise lives in a world of scarcity. Scarcity not only applies to natural resources, but it also applies to labor — in this case, 'developer capacity.' Despite the amazing product you intend to deliver, an enterprise with a set of developers on the bench waiting for unplanned project work to come around doesn't exist."

obstacles to API adoption and revenue generation that have nothing to do with the lack of a product in the marketplace – the lack of a thriving developer community, or a customer base with a "reason to believe". Without an established and trusted digital product, rapidly growing either of these from scratch is very difficult.

Every global enterprise lives in a world of scarcity. Scarcity not only applies to natural resources, but it also applies to labor – in this case, "developer capacity." Despite the amazing product you intend to deliver, an products, your brand is likely not elastic enough to support the significant change in your target customer's technology spend.

Let's say one of your partners/vendors came to you and your leadership with a proposal to divert your existing ROI-justified project plans in favor of leveraging their APIs within your business-critical value streams. If this partner had no existing track record of digital products and services – no APIs with existing customers, no vibrant development community touting them, and no history of performance or reliability stats – how would this proposal sit with you and your leadership? This seems like a large leap of faith for anyone to consider. And on top of the risk and change they ask you to take on, they want you to pay to use their APIs! How likely is it that your enterprise would take such a proposal seriously?

.

The "freemium to premium" channel strategy

So, what is the solution to this chicken-egg problem? Rather than seeking to create paying customers, enterprises should instead be seeking to develop "qualified prospects" with a "reason to believe." To borrow a phrase from the film Moneyball, teams shouldn't be interested in buying players, they should be interested in buying wins. To get wins, they need to get runs; and to get runs, they need to get players on base.

This same idea can be applied to enterprises seeking to open up a new channel of revenue. Companies seeking to earn revenue from a new API channel should not create new products – they should be interested in creating new users and deepening relationships with existing users. To create new users, they need a new channel of developer engagement, and to do that, they need to make something easy to engage with. The simplest path to developer engagement starts with a free product.

While this shouldn't come as a surprise – it does to many enterprises. Much of the World Wide Web operates on the back of products that started, and many times continued, as free offerings (e.g., browsers, webmail, social networking, maps/navigation, games/ apps that are free to download, etc.). Despite the long list of success stories where online offerings have a "free/freemium" tier as a mechanism to cultivate an audience, many leaders and participants in API monetization programs struggle with the business justification to take the first step. However, these same leaders and participants do not struggle with generating the appetite to take the second step – developing and launching a monetizable product for an audience that doesn't yet exist.

"To borrow a phrase from the film Moneyball, teams shouldn't be interested in buying players, they should be interested in buying wins. To get wins, they need to get runs; and to get runs, they need to get players on base. "

When your enterprise doesn't have an established track record and customer base for digital products and services, you will need a rational and deliberate strategy for market development. If your enterprise goal is to launch and eventually monetize a public API product set, the three-step path to that destination is: build the channel, fill the channel, scale the channel.



Figure 23: Channel building & scaling strategy

Phase 01 Build the channel

In this phase, your enterprise will take the foundational steps to establish a new system of engagement and connect with the people and organizations that shape and mature your product set and business architecture.

- → Research and define customer segments that align with your business strategy.
- → Develop your brand, business, and operational architectures for serving highpriority customer audience segments.
- → Instantiate initial identity, authentication, and credentialing postures for the first round of potential customers and partners.

- → Establish a connection with the first set of potential partners through the new channel of engagement and gather feedback to plan, refine, and improve the customer experience.
- → Launch an initial product set with low/no barrier to entry to targeted partners.

Phase 02 Fill the channel

In this phase, your enterprise will flesh out your offering set and bring in a wider range of customers while hardening your channel capabilities and operational processes.

→ Begin broader customer outreach and gather feedback to ensure your offering and strategy resonate with your target audiences. → Refine brand, business, operational architectures – specifically in the area of onboarding complex use cases.

.

→ Launch a richer product set that extends the value being delivered into more complex offerings that begin to round out your platform and larger value proposition.

Operationalize your ordering and authentication models and integrate your touchpoints with an enterprise lead-to-cash value chain; formalize your organizational designs to reliably support your new service offerings.

Phase 03 Scale the channel

In this phase, your new channel teams will dig in and exploit the leverage you've built.

- → Expand your efforts in customer outreach while making any needed refinements to your onboarding processes.
- → Launch "gap-filling" products that cement your platform strategy with a "jobs-to-bedone" mindset.
- → Formalize a merchandising approach to your engagement portal with bundles, packages, and add-ons designed to maximize customer "basket size" and minimize "cart abandonment."
- → Optimize the customer consumption journey with a relentless approach to reducing friction in both the "ordering"

and "consumption" phases while simultaneously making potential and actual value transparent to your prospects and customers.

"Easy as 1-2-3" only works when you start with 1

API monetization failures have one critical gap in common – not building a business-context sensitive audience strategy before developing a product strategy. In layman's terms, a product without a channel is neither scalable nor defensible. To be successful in digital product delivery, enterprises must first adopt the digital marketing practices that made modern enterprise software shops successful. Free or nominal charges for services that create an appetite for more services (i.e., "freemium") is the first step on the path to getting the audience to desire the services that can be delivered with more substantial charges attached to them (i.e., "premium"). Once your low-barrier-to-entry services have the attention of your target audiences (i.e., you've built a viable channel), you can start to surface the advanced high-value offerings (i.e., fill the channel) and then address and serve larger markets (i.e., scale the channel). In short, you can't score a significant amount of runs without first getting on base.

Key takeaways Developing an executing an API go-to-market strategy

03

- Bringing digital products to market in advance of having customers or a channel for business engagement is a high-risk endeavor (especially if your enterprise doesn't already have a successful digital product offering).
- Solving the chicken-egg problems (e.g., brand elasticity, audience development, etc.) of digital product marketing are not very complicated. Still, many enterprises attempt to skip this step without understanding the risks (e.g., revenue cannibalization, products with no audiences, insufficient market understanding, pricing strategies with no grounding data on value, etc.).
 - Being deliberate on your go-to-market strategy won't necessarily impede or slow your path to a successful product launch. When done well, it allows you to optimize your product launch for customer satisfaction and willing adoption.

Conclusion: The journeys on the path to profit

So far, we have shared examples, insights, and techniques to help get you started on developing an API product strategy. This final chapter is not so much a conclusion to the previous chapters as it is an entryway into the journeys an enterprise must make to successfully design, launch, operate, and scale an API product portfolio. The purpose of this book was to give you the right conceptual foundation - the right mental model to define and execute an API product strategy. In a follow-up publication, we will dive much deeper into the topic of execution, with practitioner level details on executing the journey your enterprise must make to navigate from "API-curious" to "concrete profit."

"Business is not just doing deals; business is having great products, doing great engineering, and providing tremendous service to customers. Finally, business is a cobweb of human relationships."

— ROSS PEROT, AMERICAN BUSINESS PERSON AND PHILANTHROPIST Just like your consumers must make a journey to successfully consume and integrate your API products into their value streams, your enterprise must also complete a set of journeys to successfully and sustainably produce a suite of API products.

The success of these journeys isn't only a function of the relevance in the market or the adoption by your target customers, but also in your ability to operate the product set, collect and recognize revenue, service your customers to build loyalty, and project into the future both the evolution of your product strategy and the revenue it generates.

.

The above factors point to a shared vulnerability that occurs in many organizations – a lack of balance between "envisioning your brand and offerings outside-in" and "building your offerings inside out."

In our work helping organizations around the world systematically unbundling themselves in targeted ways, we've broken down the efforts involved in scaled API product monetization into three journeys:

- The journey from "API-curious" to "product in market."
- The journey from "product in market" to to "API consumption."
- The journey from "API consumption" to "concrete profit."

Separating the journeys in this way allows you to maintain the right execution focus at the right time for your API products. A large organization may have multiple API products at varying levels of maturity, so an enterprise API program needs to be adept at recognizing which journey they're on for each API product and the activities they need to execute given that context.

The purpose of this book was to give you the right conceptual foundation – the right mental model – to define and execute an <u>API product strategy</u>. We also shared examples, insights, and techniques to help get you started on executing that strategy. In a follow-up publication, we will dive much deeper into the topic of execution, with these three API product journeys as the framework.

The business world is changing. The companies that thrive in the digital economy will be the ones that adapt most effectively to the new conditions digital business presents. APIs are more than just a technical tool for connecting software components. When used effectively, they can be a method for digitally unbundling a company's business capabilities, a channel for reaching customers at any digital touchpoint, and even revenue-generating digital products themselves. By applying the lessons in this book, you can use APIs to get your organization on the path from program to product to profit. If your organization is considering an API product strategy, launching an enterprise API program, or looking to nurture your API ecosystem, MuleSoft is uniquely positioned to help you on your way.



<u>API program workshops</u> – Explore facets of your API product strategy, such as ecosystem mapping, business model definition, and pricing strategy with day-long, in-depth workshops.



API strategy hub – Check out self-paced learning resources on developing an API strategy.



API Community Manager Demo – Learn how to create and nurture a community of developers and partners to foster adoption of API products.

MuleSoft

MULESOFT, A SALESFORCE COMPANY

MuleSoft, the world's #1 integration and API platform, makes it easy to connect data from any system — no matter where it resides — to create connected experiences, faster. Thousands of organizations across industries rely on MuleSoft to realize speed, agility and innovation at scale. By integrating systems and unifying data with reusable APIs, businesses can easily compose connected experiences while maintaining security and control. Through API-led connectivity, customers unlock business capabilities to build application networks that deliver exponentially increasing value. MuleSoft is the only unified platform for enterprise iPaaS and full lifecycle API management, and can be deployed to any cloud or on-premises with a single runtime.

MULESOFT IS A TRADEMARK OF MULESOFT, LLC., A SALESFORCE COMPANY.