

*Making Everything Easier!*<sup>™</sup>

Apigee Special Edition

# APIs FOR DUMMIES<sup>®</sup>

A Wiley Brand

## **Learn to:**

- Use APIs as the foundation for your digital business platform
- Meet rising customer expectations across multiple channels
- Spur innovation, both internally and externally

Brought to you by

**apigee**

**Sharif Nijim**  
**Brian Pagano**



## About Apigee

Apigee is a leading platform for digital acceleration. Apigee empowers enterprises to gain the speed, scale, insight, and agility required to become a digital business. Through Apigee Edge API platform and Apigee Insights predictive big data analytics, Apigee helps businesses move at the new pace and scale of digital, while predicting and continuously adapting to change. Used together, APIs and predictive analytics create a powerful adaptive cycle of continuous improvement — and the faster an enterprise goes through this cycle, the faster it accelerates to become a digital business.

Many of the world's leading businesses, including 20 percent of the Fortune 100, use Apigee for digital acceleration. Apigee customers include global enterprises such as Walgreens, eBay, Shell, Live Nation, Kaiser Permanente, and Sears.

For more information, visit [apigee.com](http://apigee.com).

# **APIs**

FOR

# **DUMMIES®**

A Wiley Brand

*Apigee Special Edition*

**by Sharif Nijim and Brian Pagano**

FOR

# **DUMMIES®**

A Wiley Brand

## APIs For Dummies® Apigee Special Edition

Published by

**John Wiley & Sons, Inc.**

111 River St.

Hoboken, NJ 07030-5774

[www.wiley.com](http://www.wiley.com)

Copyright © 2014 by John Wiley & Sons, Inc.

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as permitted under Sections 107 or 108 of the 1976 United States Copyright Act, without the prior written permission of the Publisher. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, (201) 748-6011, fax (201) 748-6008, or online at <http://www.wiley.com/go/permissions>.

**Trademarks:** Wiley, the Wiley logo, For Dummies, the Dummies Man logo, A Reference for the Rest of Us!, The Dummies Way, Dummies.com, Making Everything Easier, and related trade dress are trademarks or registered trademarks of John Wiley & Sons, Inc. and/or its affiliates in the United States and other countries, and may not be used without written permission. Apigee is a registered trademark of Apigee Corp. All other trademarks are the property of their respective owners. John Wiley & Sons, Inc., is not associated with any product or vendor mentioned in this book.

**LIMIT OF LIABILITY/DISCLAIMER OF WARRANTY: THE PUBLISHER AND THE AUTHOR MAKE NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THE ACCURACY OR COMPLETENESS OF THE CONTENTS OF THIS WORK AND SPECIFICALLY DISCLAIM ALL WARRANTIES, INCLUDING WITHOUT LIMITATION WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE. NO WARRANTY MAY BE CREATED OR EXTENDED BY SALES OR PROMOTIONAL MATERIALS. THE ADVICE AND STRATEGIES CONTAINED HEREIN MAY NOT BE SUITABLE FOR EVERY SITUATION. THIS WORK IS SOLD WITH THE UNDERSTANDING THAT THE PUBLISHER AND AUTHOR ARE NOT ENGAGED IN RENDERING LEGAL, ACCOUNTING, OR OTHER PROFESSIONAL SERVICES. IF PROFESSIONAL ASSISTANCE IS REQUIRED, THE SERVICES OF A COMPETENT PROFESSIONAL PERSON SHOULD BE SOUGHT. NEITHER THE PUBLISHER NOR THE AUTHOR SHALL BE LIABLE FOR DAMAGES ARISING HEREFROM. THE FACT THAT AN ORGANIZATION OR WEBSITE IS REFERRED TO IN THIS WORK AS A CITATION AND/OR A POTENTIAL SOURCE OF FURTHER INFORMATION DOES NOT MEAN THAT THE AUTHOR OR THE PUBLISHER ENDORSES THE INFORMATION THE ORGANIZATION OR WEBSITE MAY PROVIDE OR RECOMMENDATIONS IT MAY MAKE. FURTHER, READERS SHOULD BE AWARE THAT INTERNET WEBSITES LISTED IN THIS WORK MAY HAVE CHANGED OR DISAPPEARED BETWEEN WHEN THIS WORK WAS WRITTEN AND WHEN IT IS READ.**

For general information on our other products and services, or how to create a custom *For Dummies* book for your business or organization, please contact our Business Development Department in the U.S. at 877-409-4177, contact [info@dummies.biz](mailto:info@dummies.biz), or visit [www.wiley.com/go/custompub](http://www.wiley.com/go/custompub). For information about licensing the *For Dummies* brand for products or services, contact [BrandedRights&Licenses@Wiley.com](mailto:BrandedRights&Licenses@Wiley.com).

ISBN 978-1-118-93530-9 (pbk); ISBN 978-1-118-93722-8 (ebk)

Manufactured in the United States of America

10 9 8 7 6 5 4 3 2 1

---

## Publisher's Acknowledgments

Some of the people who helped bring this book to market include the following:

**Development Editor:** Mike Chapple

**Senior Project Editor:** Zoë Wykes

**Acquisitions Editor:** Steve Hayes

**Editorial Manager:** Rev Mengle

**Business Development Representative:**

Karen Hattan

**Custom Publishing Project Specialist:**

Michael Sullivan

**Project Coordinator:** Melissa Cossell

**Content contributor from Apigee:**

Helen Whelan

# Table of Contents

---

|  |           |
|--|-----------|
| <b>Introduction .....</b>  | <b>1</b>  |
| About This Book .....  | 1         |
| Icons Used in This Book.....                                     | 1         |
| Beyond the Book.....   | 2         |
| Where to Go from Here .....                                      | 2         |
| <b>Chapter 1: Introducing APIs.....</b>                          | <b>3</b>  |
| An API: What It Is .....   | 3         |
| Why APIs Are Both Useful and Necessary.....                      | 5         |
| Exploring the Digital Economy.....                               | 6         |
| Exploring drivers .....  | 6         |
| Exploring effects .....  | 6         |
| Exploring opportunities.....                                     | 7         |
| Engaging Across Channels.....                                    | 7         |
| Web.....   | 7         |
| Mobile.....  | 7         |
| Wearables and beyond .....                                       | 8         |
| <b>Chapter 2: Building Your Digitally Enabled Business .....</b> | <b>9</b>  |
| Navigating the Digital Future.....                               | 9         |
| Rising expectations .....  | 10        |
| Recognizing opportunities .....                                  | 10        |
| Building a foundation for the digital value chain .....          | 11        |
| Exploring Opportunities for Internal                             |           |
| Efficiency and Agility .....                                     | 12        |
| Improving internal processes .....                               | 13        |
| Gaining operational efficiencies.....                            | 13        |
| Exploring Opportunities for Cross-Channel and Partner            |           |
| Connectivity.....  | 14        |
| Realizing omnichannel integration and symbiosis....              | 14        |
| Increasing customer engagement.....                              | 15        |
| Strengthening brands.....  | 15        |
| <b>Chapter 3: Transforming Your Customer Experiences .....</b>   | <b>17</b> |
| Transforming Brand Intelligence .....                            | 17        |
| Increasing brand loyalty .....                                   | 18        |
| Capitalizing on device proliferation .....                       | 18        |
| Focusing the analytical lens .....                               | 19        |

|  |           |
|--|-----------|
| Recognizing All Your Customers .....                           | 20        |
| Stretching the business model.....                             | 20        |
| Embracing consumers .....                                      | 21        |
| Enabling partners .....  | 22        |
| Empowering teammates .....                                     | 23        |
| <b>Chapter 4: Spurring Innovation . . . . .</b>                | <b>25</b> |
| Magnifying Your Vision.....                                    | 25        |
| Innovating with Data.....                                      | 26        |
| Harnessing External Creativity.....                            | 27        |
| Transforming Partners into Evangelists .....                   | 28        |
| Creating a thrill .....  | 28        |
| Creating history .....   | 29        |
| Building the community.....                                    | 29        |
| Unleashing evangelism.....                                     | 30        |
| <b>Chapter 5: Leveling Up Your Business . . . . .</b>          | <b>31</b> |
| Revving Up the Business.....                                   | 31        |
| Transcending personalization .....                             | 31        |
| Creating new products.....                                     | 33        |
| Moving from analog to digital .....                            | 33        |
| Turbocharging IT .....   | 34        |
| Strengthening internal partners .....                          | 34        |
| Extending your core investments.....                           | 35        |
| <b>Chapter 6: Transforming Your Business Agility . . . . .</b> | <b>37</b> |
| Riding the Waves .....   | 37        |
| Shrinking the World.....                                       | 39        |
| Increasing Revenue Insights .....                              | 39        |
| Anticipating Surges in Demand .....                            | 40        |
| Managing Partnerships .....                                    | 41        |
| Shortening Time to Market.....                                 | 41        |
| <b>Chapter 7: Five API Campfire Stories. . . . .</b>           | <b>43</b> |
| Transforming Memories at Walgreens .....                       | 43        |
| Transforming the Business Model at Nike.....                   | 43        |
| Transforming the Core at Digital River .....                   | 44        |
| Transforming Shopping at Whole Foods .....                     | 44        |
| Transforming Lighting at Philips .....                         | 44        |

# Introduction

---

**A**pplication Programming Interfaces (APIs) are the foundation on which the digital economy is built. APIs are wonderfully versatile things, enabling a business to expose content or services to internal or external audiences. Businesses can use APIs to accelerate multichannel strategies, improve internal processes, thrill customers, and even develop entirely new business models. This book demystifies APIs, going beyond the acronym to help you understand their strategic significance, as well as providing insight into how they can help your business.

## About This Book

*APIs For Dummies*, Apigee Special Edition, gives you a crash course in what an API is and, more importantly, how you can use it as the engine to power your digital business platform. This book highlights where APIs fit in the digital value chain, without getting overly technical. Spread throughout are real-world examples of business-to-business, business-to-employee, and business-to-consumer approaches used by traditional companies to get in shape for the digital now.

## Icons Used in This Book

As you go through this book, keep a lookout for the following icons in the margins. They denote tasty tidbits to help keep you from daydreaming.



This icon denotes useful bits of information to squirrel away in the back of your mind. You'll also find a few factoids sprinkled in that you can use to wow your friends.



This identifies a taste of the technical. Not learn-how-to-code technical, just enough detail to help you ask the right questions.



This icon points out things to consider as you plan your digital business strategy.



This icon highlights pitfalls to watch out for — history is filled with lessons you don't want to relearn.

## *Beyond the Book*

Apigee has a powerful set of products that can help jumpstart your digital business platform. Check out [www.apigee.com/about/products/apis](http://www.apigee.com/about/products/apis) for additional details and specifics on how products map to solutions.

## *Where to Go from Here*

If you've never heard of an API and the opportunities presented by the digital economy, you'd be best to start with Chapter 1. Otherwise, feel free to skim the book and dive into whatever chapter interests you most. Beyond that, buckle up, sit back, relax, and enjoy the read.

# **Chapter 1**

---

# **Introducing APIs**

---

## ***In This Chapter***

- ▶ Finding out what an API is
  - ▶ Understanding why APIs are strategically necessary and useful
  - ▶ Exploring APIs in the context of the digital economy
  - ▶ Using APIs to connect across partners and platforms
- 

**B**usiness executives are under increasing pressure to improve efficiency, increase profitability, and transform their value proposition in order to thrive in today's hyperconnected world. Having a viable digital strategy can make the difference between transforming your business and watching your competition capitalize on previously inconceivable opportunities. Application Programming Interfaces (APIs) play a foundational role in realizing that strategy.

In this chapter, we describe what an API is and how it can benefit your business.

## ***An API: What It Is***

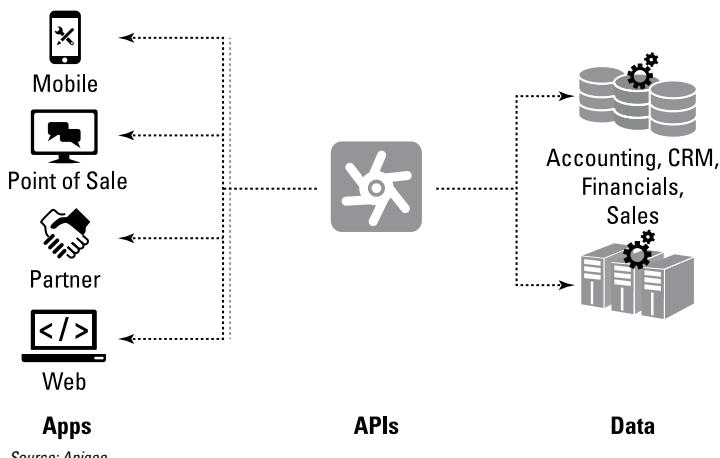
Do you wear a Fitbit or Nike FuelBand? Have you ever used a Twitter or Facebook app or bought anything online? Do you use Google Analytics? If you answered “yes” to any of these, you’re already benefiting from APIs!

An API is an Application Programming Interface, which sounds pretty geeky, doesn’t it? No worries, just think of APIs as shipping containers transporting content between ports of call. An API can represent Accelerated Product Innovation as well — okay, we made that up, but it’s not so geeky and it is one of the benefits that APIs represent for your business.

Today, every business is a digital business. Companies that successfully navigate this digital world will make both a technology and a mindset shift. The technology is less important than understanding that APIs are the fuel powering the apps and processes that represent digital business platforms. The mindset change leads to wins in today's digital world, rewarding those who make it with accelerated time to market, improved agility, and the ability to leverage new channels and extend their brand as never before.

An API connects your business processes, services, content, and data to channel partners, internal teams, and independent developers in an easy and secure way. APIs are quickly becoming the de facto standard by which companies exchange data and build consistent cross-channel customer experiences.

Figure 1-1 illustrates the role that APIs play, making it possible to easily connect differing sources of data and enable the digital value chain.



**Figure 1-1: APIs as digital glue.**

---

For example, Best Buy makes a Deal of the Day pricing special available through its website. This same data is in its mobile application (app). The app doesn't need to worry about internal pricing systems — it can simply call the Deal of the Day API and ask "What's today's pricing special?" The Best Buy API responds with the requested information in a standard format that the app displays to the end-user.



Think of an API as digital glue in the digital value chain, powering mobile and web apps, connecting disparate systems, and enabling innovation.

## *Why APIs Are Both Useful and Necessary*

Businesses are organized into units and departments. These entities often have different leadership and budgets, so it's easy to see how a brand can become fractured. This fracturing leads to inconsistent employee, partner, and customer experiences.

Do your employees have different login credentials for your HR, payroll, and CRM systems? Is every partner onboarding a brand new project? Is the time between ideation and getting an idea to market unacceptable?

Do your customers and partners have different experiences across your digital and physical properties? When a customer walks into your store, do you know what items she has in her digital shopping cart?

If any of these scenarios resonate with you, you're projecting a fractured brand and reducing employee productivity. You're also missing the opportunity to provide a personalized customer experience across channels. And, you're missing out on cross-sell and upsell opportunities.

APIs can help address these issues and are foundational for:

- ✓ Integrating content from partners to create cross-sell and upsell opportunities
- ✓ Creating new lines of business and extending product offerings by leveraging corporate data in new ways
- ✓ Strengthening the brand by providing a consistent, familiar, personalized experience across devices
- ✓ Enabling reusability, resulting in the completion of new partner integrations in days, not weeks



The important thing to understand about APIs is that they help you leapfrog your competition, accelerating and competing in the digital economy even if you aren't a digital native.

## *Exploring the Digital Economy*

As the world transitions from analog to digital, the ability to react quickly to strategy pivots and market forces is crucial. Delivering on the promise of write once, reuse many times, APIs serve as the catalyst for this agility. Companies that understand this are already driving the digital economy.

## *Exploring drivers*

When was the last time you saw a teenager watching TV without texting her friends or surfing Facebook? How often do you see restaurant guests sharing an experience on a mobile device? People expect to fulfill their most spontaneous desires with a few finger taps, which changes their expectations.

Smartphones and tablets have altered employee expectations. Gone are the days of waiting for an IT guy to set up a desktop or laptop. Now, employees expect to instantly configure their iPhones to access corporate resources on their first day at work.

Software is creeping into corporate IT from the consumer world. If employees feel productive with a given piece of software at home, they don't want to encounter barriers to using that software at work.

This consumerization of IT resources is known as Bring Your Own Device (BYOD) and Bring Your Own Software (BYOS). It is a phenomenon that all companies are grappling with.

## *Exploring effects*

Consumers have thrown down the gauntlet of expectation. What is a traditional business to do when presented with this onslaught of demand and opportunity? Cower in fear? Not on your watch! Creating a digital platform is a great place to start.

By expanding perspective, businesses can execute a complete digital transformation, using APIs to power websites, mobile apps, enable partner integrations, create seamless omnichannel experiences, and boost employee productivity. We dive deeper into these details in the chapters to come.

## *Exploring opportunities*

The value of the digital opportunity is massive. Researchers at Gigaom estimate that mobile apps will account for more than \$230 billion in economic activity by 2017, fueled through the use of APIs. Apps use APIs in various ways, including ads, content delivery, in-app purchases, and geospatial awareness.

APIs also represent product opportunities. In 2011, 90 percent of Expedia's \$2 billion in revenue came through APIs. The time of APIs as a billion-dollar business has arrived!

Look around! See how mobile apps bind web and in-store consumer experience and behavior. See how retailers are capitalizing on mobile apps as new channels while adding value to brick-and-mortar and web experiences. Without APIs, app users wouldn't be able to change seat assignments, purchase tickets, or order the product that caught their eye.

## *Engaging Across Channels*

As the number of connected devices grows, people expect access to the data that APIs provide. Shoes are connected via the fitness bracelets on our wrists to the iPhones in our pockets. APIs make fitness data available to web apps on our iPads. Refrigerators are connected to shopping list apps. Thermostats are connected to iPhones. Our quantified selves want information anywhere, anytime, on any device.

### *Web*

Your website provides customers with a single avenue into many facets of your company. Customers learn about your products and services, place orders, and get support all in one place.

### *Mobile*

People expect to use their mobile devices to access information and consume content. The quantity and quality of apps available for consumers is growing. People expect the same experience when they go to work, seamlessly interweaving their personal and professional lives.

## Connecting the smart home

You can turn your home into a smart home today. For example, Nest provides smart thermostats that detect your household's temperature habits and adjust automatically. These thermostats allow you to adjust the temperature from your computer, smartphone, or tablet. And yes, you guessed it; APIs are what power this connectivity.

Interested in controlling illumination from your phone? Forgot to

leave a light on when on vacation? No problem, companies like Philips and Belkin make connected light bulbs.

Ever head out on a road trip and have that nagging uncertainty about whether you closed the garage door? Pull out your smartphone, verify, and take action.

## *Wearables and beyond*

Wearables represent an exciting new opportunity for engagement. Fitness trackers collect data sent via API to mobile devices. Smart watches use APIs to display notifications, stock market and sports updates, and navigation directions. The same APIs that power your apps and website can power wearables as well, enabling a seamless customer experience across channels.

The Internet of Everything (IoE) refers to ordinary objects reimagined as programmable, Internet-connected devices. The IoE ranges from thermostats to parking meters. Gartner, Inc., forecasts that by 2020, more than 26 billion things will be connected to the Internet, representing an incremental revenue opportunity in excess of \$300 billion — fueled by APIs.

All the devices that make up the IoE need to transmit data to servers on the Internet. Like E.T., they need the ability to “phone home.” APIs harness this connectivity.

Companies that succeed in making the customer experience consistent and frictionless across devices enjoy greater customer engagement. Having a foundational API core future-proofs your business as new channels present themselves.



## Chapter 2

# Building Your Digitally Enabled Business

### *In This Chapter*

- ▶ Preparing for the digital future
- ▶ Understanding the inner potential of APIs
- ▶ Understanding the outward-facing impact of APIs

**A**pplication Programming Interfaces (APIs) are central to preparing your business to surf the digital tidal wave. Having a robust digital business platform built on a solid API infrastructure will allow you to react quickly as the world continues to evolve. The digital future is now, get ready for it!

In this chapter, we explore how leading companies are building a digital dimension to their business using APIs as the foundation to transform organizations internally and externally, realizing the digital value chain.

## *Navigating the Digital Future*

More people and devices are connecting to the Internet every day. As mobile devices outnumber the Earth's population and the percentage of humans with Internet access continues to climb, prepared businesses can capitalize on the digital equivalent of the California Gold Rush.

Device diversity is multiplying at a fantastic pace. Manufacturers are constantly releasing new smartphones and tablets with varying screen sizes. The wearables market gives us smart watches, glasses, shoes, and more.

## *Rising expectations*

People are living their lives in an increasingly social and digitally connected manner. They expect products, services, and information to be available in a digital self-service way and in near real time.

Customers want to watch something from their Netflix queues anytime, anywhere, on any device. They expect to use their tablets to impulsively purchase the handbag they just saw on television, while ordering a late-night pizza delivery from their smartphones. Customers increasingly want to act on their hearts' desires instantly, on any device they happen to be using at the time.

Employees bring personally owned devices to work every day and expect to use them to access corporate data. They expect to configure their email without having to contact, much less wait for, someone from the corporate IT department. Sales representatives expect to access their Customer Relationship Management (CRM) system from their corporate laptops, personal smartphones, or the computer in the hotel business lounge. Employees expect to have at their fingertips the information they need to do their jobs.

## *Recognizing opportunities*

The expectation for ubiquitous connectedness generates a tremendous amount of digital exhaust. The volume of data is increasing, and the shape of data is changing, as every digital transaction and many digital interactions are logged. Companies are rushing to capture, analyze, and derive value from this data.

Consider how increased precision and predictive analytics can affect your advertising strategy. With traditional terrestrial outlets, impression measurement is calculated against an estimated audience. Using digital channels, it is possible to get much more granular impression information thanks to the handshake that occurs when a device connects. This gives you the opportunity to implement a real-time and micro-geographic segmentation approach, leading to more highly personalized advertisements.

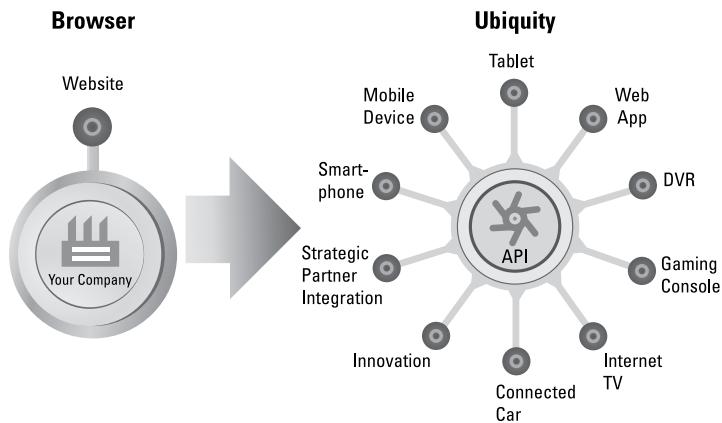
Not only is the volume of data increasing, but so is its diversity. Insurance companies take digital photographs so that assessors can estimate damage in real time. Consumers take pictures on their smartphones and share them through API-powered apps. Companies that specialize in the storage of these photographs encourage users to identify all the people in the picture. Using this data allows your company to better understand how people are connected, which creates marketing and advertising opportunities.



Capitalizing on today's data explosion leads to insights and customer service opportunities that simply are not possible without access to, aggregation, and analysis of this information.

## *Building a foundation for the digital value chain*

APIs are the key to realizing today's opportunities while insulating your company from the swirling technical turmoil. Wonderfully approachable and flexible conduits for providing consistent, rich information, APIs are the cornerstone that powers the apps and digital platforms on which companies rely. This advantage can be pressed as customer expectations for time to market continue to plummet. Figure 2-1 illustrates the opportunities represented by the transition from a simple web presence into a pervasive, connected corporate hub.



Source: Apigee

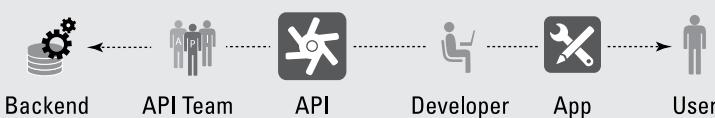
**Figure 2-1:** Illustrating the transition to ubiquitous brand presence.

## Assembling the A-Team

To meet the boundless digital demand and capitalize on the digital value chain, you need APIs to connect customer- or employee-facing apps with your enterprise data. The following figure illustrates how APIs span the digital value chain. The needs of each group must be

satisfied; otherwise, your API program will fail to thrive.

As you prepare and accelerate your digital strategy, understand where and how APIs fit and ensure you have the right team in place to help you get there.



## *Exploring Opportunities for Internal Efficiency and Agility*

The biggest secret in the world of APIs is that companies are successfully accelerating their digital businesses internally through private API programs. Recently, Evans Data performed a study of 18.2 million developers worldwide. According to this study, 49 percent of these developers publish APIs for internal use only.

Consider the effort involved in implementing and integrating accounting, financial, inventory, production, shipping, and HR systems. These represent massive investments in money and manpower. Now think about trying to get consistent analytics across these systems (or even across sales divisions). Be warned: This task is not for the faint of heart!

Ask the IT professionals in your company, and you will hear that creating these analytics boils down to mapping and redefining data, unwinding proprietary formats and protocols,

and navigating the “accidental architecture” that results from stitching together legacy systems through time.



External APIs improve your connectivity to the world, while internal APIs enable your company to operate more efficiently. For example, in 2002, Jeff Bezos issued a directive that all teams within Amazon use APIs to expose internal business processes. That mandate provided the framework that Amazon leveraged to transform itself from bookseller to the cloud computing giant that it is today.

## ***Improving internal processes***

Successful companies are building digital business platforms atop solid API infrastructure to transform their internal operations. Since APIs are designed to be easy for developers to use and to deliver standardized answers, they facilitate the ease with which consistent information can be shared. If your accounting and payroll systems can simply call a Commission API to calculate commissions instead of having that business logic replicated in each system, month’s end and quarterly reporting will be much less stressful. In this example, the Calculate Commission API also streamlines maintenance when the commission structure needs updating, because changing an API’s response affects every system consuming its data the same way.



Not having an internal API approach is like a racing team ignoring a poorly performing, misfiring engine while optimizing suspension setup and tire choice — the best handling in the world is meaningless without the power to make use of it.

## ***Gaining operational efficiencies***

In addition to process improvements, operational efficiencies can be realized by implementing an API-driven strategy. For example, Morrisons, a supermarket chain based in the UK, was accustomed to managing its inventory with stacks of paper and boxes of pens. As part of a comprehensive strategy to modernize its business, Morrisons was able to digitize inventory management and shrink fulfillment times.

## How an airline boosted customer satisfaction through internal APIs

A major airline was facing a problem — its customers were frustrated. They were confused about why their loyalty program statements were going to an old address after they changed the home address in their online profile. They were frustrated that gate agents did not know that they preferred aisle seats when they had specified that online. Most critically, the airline itself had great difficulty in making amends when customers experienced a service issue, such as a lost bag or delayed flight.

The fundamental reason for this customer frustration and the airline's inability to assuage it was that

different bits of customer information were splattered across disparate, poorly integrated systems. By investing in an internal API strategy, suddenly the airline's phone agents, gate agents, airport kiosks, website, mobile app, and loyalty program all had real-time, consistent access to customer information. This access enabled the airline to transform the customer experience, regardless of how the customer interacted with the airline next.

Now, when a service opportunity presents itself, the airline can preempt customer wrath with corrective action — before the customer has the chance to complain.

## *Exploring Opportunities for Cross-Channel and Partner Connectivity*

APIs have gained tremendous popularity because of the low barrier to entry in using them. Ease of use facilitates adoption and cycle time, shrinking the time required to integrate across channels.

## *Realizing omnichannel integration and symbiosis*

As powerful as APIs are for driving internal improvements to your business, their value multiplies when used to integrate across channels and partners.

For example, Walgreens has more than 8,000 stores across the United States. Understanding the potential upside of omnichannel customer engagement, the company took action and created two targeted APIs: QuickPrints and Pharmacy Prescription. The first API enables partners to print photographs, while the other allows the filling of prescriptions.

Since launching the QuickPrints API in 2012, Walgreens has enjoyed a double-digit growth in partner integrations, driving online transactions and enticing people into its stores. This level of integration, exposure, and traffic simply would not be possible without publicly available APIs — and this rapid integration and onboarding of partners would not be possible without approachable, reusable APIs.

## *Increasing customer engagement*

The amount of time people spend online is now greater than the time spent watching TV. As this trend continues, customers expect increasing levels of personalization, and your company will find it increasingly crucial to engage people digitally.

Morrisons, the United Kingdom supermarket chain mentioned earlier, got a wakeup call when its competitors were first to market with online ordering and delivery. This competitive disadvantage was worth £500 million, as the company realized that was the amount its customers were spending in their competition's establishments. To capitalize on this opportunity, Morrisons recognize that it needed to enable online ordering, provide for home delivery, and extend the brand into convenience stores that operate beyond the hours of traditional supermarkets. By creating an API-based strategy to actualize these initiatives, Morrisons has positioned itself to engage its customers better than ever before.



Right now, your competition is meeting its customers where they are — on countless mobile devices, on social networks, in the palms of their hands. Are you comfortable with your current customer engagement strategy? Where is your business on its digital journey?

## *Strengthening brands*

Lifestyle companies are using API-powered digital business platforms to help fortify their brands, transitioning beyond the traditional retail experience and engaging customers

when, where, and how they use their products. But the sale of equipment and accessories isn't enough; keeping your brand front and center in your customers' minds is key to success in today's world of the connected customer.

While serving as the Chief Executive Officer (CEO) of Burberry, Angela Ahrendts made the statement that "You have to be totally connected with everyone who touches your brand." The resulting story of Burberry's Social Enterprise strategy and its profound effect on the brand's value is well documented. The consistency of what is displayed on its mobile and web properties, the creation of a powerful social affinity base, and its comprehensive customer relationship management tools serve in concert to draw customers in and immerse them in the brand. None of this would be possible without a digital business platform powered by APIs.



APIs are incredibly versatile components, which are usable both inside and outside your company. Using them to digitize your business will lead to internal efficiency, corporate agility, improved customer experience, and greater brand loyalty.

## **Chapter 3**

---

# **Transforming Your Customer Experiences**

---

### ***In This Chapter***

- ▶ Cultivating opportunities for increasing brand intelligence
  - ▶ Satisfying your many types of customers
- 

**D**epth of customer knowledge is fundamental to a healthy business strategy. This is especially true as customers expect higher levels of service and personalization at the store or on the device they happen to be carrying. As you form your digital strategy, your company has the opportunity to gain a depth of understanding previously unimaginable. Application Programming Interfaces (APIs) give you the ability to heighten brand awareness, increase intelligence about your customers, and improve customer service and customer engagement.

In this chapter, you explore ways in which APIs help meet rising expectations and increase insights about your customers' behaviors and expectations and the accompanying opportunities that presents.

## ***Transforming Brand Intelligence***

APIs help you gather the data you need to ensure that you're making decisions with more information than ever before — and help you increase the intelligence you have about your brand. Smart businesses use APIs to increase brand loyalty, capitalize on the proliferation of apps and mobile devices, and improve their analytic capabilities.

## *Increasing brand loyalty*

APIs can help cement your brand in the minds of customers by giving you the capability to meet them where they are. As explored in Chapter 2, people are increasingly online and expect a seamless experience.

With the growing number of channel interactions, APIs are key to ensuring that you project a consistent image and expectation, regardless of where customers encounter your brand. Burberry does an excellent job, presenting a consistent image across marketing channels and benefiting from the resultant fan-like loyalty.

Burberry also does a magnificent job of integrating with its customers' digital lives via its Art of Trench website. This website is a digital property containing a curated montage of casual customer snapshots, interspersed with professional photographs. The website capitalizes on the spontaneous picture-taking ability that customers have because of the devices they carry. Exemplifying how the customer is drawn into a continuous interaction cycle, the Art of Trench further connects the people and the brand.

## *Capitalizing on device proliferation*

The number and types of Internet-capable devices are multiplying every day. As new and updated wearables, smartphones, and tablets are made available, consumers have more options than ever before in terms of how they consume. APIs can help insulate you from these changes while simultaneously giving your brand heightened exposure. In addition to this layer of insulation, APIs shorten the time it takes to bring a single idea to life simultaneously and consistently across devices.

Walgreens realizes the power of device proliferation in the context of constant opportunities for customer engagement. By creating an API-fueled mobile app, Walgreens uses geolocation to allow customers to configure their preferred store. With a relentless focus on improving customer engagement and the in-store experience, the mobile app is loaded with location-relevant content designed to draw the customer in. This includes the ability to

- ✓ Clip and save coupons
- ✓ Create shopping lists
- ✓ Purchase products with in-store delivery
- ✓ Print photographs
- ✓ Manage prescription reminders and refills
- ✓ Manage loyal account information
- ✓ Engage in real-time chat about pharmacy needs

Taking advantage of device geolocation fortifies brand loyalty by enabling customers to quickly and easily find a store when on the road. Bridging the physical and digital lives of customers means that preferences, pharmacy details, and shopping lists are as consistently portable as the device in the customers' pockets.

The ability to print photographs capitalizes on the ubiquitous smartphone presence and customer spontaneity, with APIs enabling customers to print directly from Instagram, Facebook, or the photos physically on their smartphones. This is one of the many ways in which the mobile app's features pave the way for customers to enter a physical store with greater frequency, driving up the average in-store spend.

## *Focusing the analytical lens*

Due to frictionless access and the ease with which data from disparate sources can be integrated, APIs can bring ideas to light in new, informative, and sometimes counterintuitive ways.

In the spirit of providing an excellent customer experience, a retailer made significant investments in optimizing the visual flow of its website and mobile app. The retailer worked hard to ensure that a customer could get what he was looking for and then check out as quickly as possible.

Upon analyzing the data from its API layer, the retailer understood that in their quest for a speedy checkout experience, customers were rushing out the door with only the item they were looking for. Theorizing that some profit was being left on the table, the retailer came up with the idea of adding a step to the checkout process to show complementary products.

## Maps, localization, and advertising

Maps are powerful visual tools that people increasingly rely on, in the form of GPS systems. The need to ask directions has gone by the wayside as millions of people carry smartphones with built-in GPS technology.

Companies can leverage knowledge about a person's location to unlock some incredible marketing opportunities. For example, proximity-based, API-powered apps enable new capabilities, including

- ✓ Restaurants broadcasting price specials near meal times
- ✓ Retailers informing customers of sales, segmented by customer value or loyalty score

Acting on geospatial awareness can help drive foot traffic to stores and gives you the possibility of micro-segmenting metro areas by targeting offers on a neighborhood-by-neighborhood basis.

Implementing this idea took very little time, due to the flexibility and reusability of its API layer, and the retailer was thrilled to see its idea in action. Mobile and web sales went up, correlating directly to the altered checkout experience. Instead of being inundated with complaints, the retailer enjoyed higher sales across multiple channels.

## *Recognizing All Your Customers*

The most successful companies delight their customers. When endeavoring to do so, including customers beyond the ones buying your products or consuming your services is important. Including your own company, its partners, and those people likely to become customers in the future can lead to transformational ideas.

## *Stretching the business model*

APIs represent a fundamentally new and exciting capability to thrill consumers, facilitate partnerships, and empower employees. That said, pausing to consider the business model itself is worthwhile. The creation and subsequent use of APIs can completely pivot the business model for a company.

Your own company is one of your most important customers. As your leadership team reflects on its corporate direction, consider the role APIs play in identifying avenues of opportunity that aren't immediately visible. APIs give you the opportunity to reimagine your business intelligence and analytical capabilities by taking data you already have and integrating it with disparate sources, giving you entirely new perspectives into your customers' opinions, desires, and social structures.

Founded in 1964 and incorporated as Nike, Inc., in 1971, Nike established itself as a major provider of athletic shoes and sports apparel. Creating a digital business strategy has allowed Nike to transcend apparel and enter into the technology, data, and services markets. The FuelBand and the APIs that power it are central to this strategy. Together, they collect exercise metrics and store them for review, analysis, and sharing. Athletes now have access to data, which used to be hard to get, simply by strapping on a FuelBand and pairing it with their iPhone. This capability lets Nike move from shoe seller to data facilitator, including forming partnerships with technology companies.

## *Embracing consumers*

APIs give you the ability to make your customers feel special in inspired new ways. Marketers understand that customers want to feel known, welcomed, appreciated, thanked, understood, and above all, unique. Being human, customers are incredibly social, quickly relaying customer service experiences — the good and the bad — to thousands of people in their social networks.

Part of the beauty of APIs is that they give you access to data you don't own, which doesn't live in your systems of record. You can leverage this data to improve your relationship with your customers. You can get direct insight into personal preferences and interests and recent and frequent behaviors and patterns from the best possible source — the actual customer.

With that knowledge, you have the freedom to engage customers in remarkably insightful, personal ways. As a retailer, imagine the potential of knowing what handbag your customer's spouse most desires, along with the spouse's birthdate. Now imagine that the source of said data is the gold standard, the customer himself!

## An API-driven upsell

Imagine a customer shopping for a coat online, researching a product while on her laptop. Her research may include reading community forums, fashion articles, and branded product literature. When she finds a coat that she likes, she might add it to her online shopping cart to review it later and then head to the department store with her smartphone in hand.

The customer is now eager to get to the store to try on the coat and see how it feels. From the back of a cab, she's delighted to see on her

mobile device that her shopping cart includes the coat she added on her laptop. Upon arriving at the store, she gets a notification on her mobile device about where the coat is located, as well as a bundled offer on accessories that round out her selection.

When she goes to check out, the cashier compliments her on her coat, matching handbag, scarf, and gloves. The customer walks out happy, and the retailer is thrilled with the result.



Today's digital business platforms, powered by adaptive apps and APIs, catalyze your opportunity to understand your customers in ways you never thought possible, target them in remarkably personal ways, and engage them in every aspect of their digital lives.

## *Enabling partners*

To grow your business, expand your channels, and increase innovation, you need a frictionless way to enable existing and onboard new partners. You may want some business functions to be broadly available, while limiting others to differentiate your more strategic partners. Keep this notion in mind as you evolve your API strategy. It isn't an all-or-nothing proposition when you start using APIs.

AT&T takes an open approach, exposing much of its massive infrastructure to partners via APIs. All of its APIs are free to try, encouraging experimentation with speech, messaging, monetization, and information capabilities.

With AT&T's popular Payment API, partners kick-start revenue streams with in-app purchases without dealing with all the laws regulating payment processing. Partners' development time falls from months to weeks, AT&T's customers get an improved app experience, and AT&T gets revenue uplift. Everyone wins with APIs!



When developing your API strategy, be sure to carefully consider what you expose through your APIs. Work with your IT group to leverage the security management capabilities of your digital platform, ensuring that partners get appropriate access to the services they need.

## *Empowering teammates*

Leaders know that one way to nurture employee loyalty and productivity is to improve happiness. You can implement many approaches, including a focus on employee empowerment and a reduction in wasted time. Employees increasingly expect the same app-style ease and accessibility at work as they experience in their personal lives, and APIs help you give it to them.

Nothing says empowerment like access to information — and access on the personal devices and across the personal software employees are increasingly bringing with them to the office. If getting data is manual, laborious, or inhibited by organizational silos and old-style IT processes, reflect on how you can use APIs as a lever to boost productivity. With access to the information they need, your employees can transcend business unit divisions and operate at the brand level.

In the same way that you can make data or services available to your partners, the availability of internal APIs can facilitate internal information exchange. This exchange can empower your line managers and directors with the capability to gather data from internally disparate sources. Because APIs give consistent answers, having unfettered internal access can reduce the time required to produce the key performance metrics on which you rely.



As Dr. Seuss said, "The Waiting Place" is a most useless place. APIs can help minimize the amount of time your employees spend waiting by giving them the information they need, when and where they need it.

Freedom is flexibility, and flexibility makes employees happy. You can enable both freedom and flexibility with an API-fueled app strategy that gives employees access to corporate data on the personal devices they bring to work every day. As a leader, ask your employees to identify the most crucial pieces of information they need to perform their jobs. Ensure that apps get built to get that data literally into the palms of their hands. You never can tell when inspiration is going to strike, but you can facilitate it by making it accessible via the devices your employees use every day.

Much has been written about continuous process improvement, reducing waste, and increasing efficiency. Few things are more inefficient than paper-based processes. By investing in an API strategy to redesign business processes, you can replace remaining paper-centric functions with digitally based workflows. This leads to better decision making and fast access to information, and is greener for your company to boot!



The approachability of APIs, coupled with a thoughtful approach to their use, gives you the ability to delight your customers and keep them coming back for more.

## Chapter 4

# Spurring Innovation

### *In This Chapter*

- ▶ Leaping from vision to action
- ▶ Unlocking innovation with data
- ▶ Channeling the creative floodgates
- ▶ Actualizing partner evangelists

**B**usiness leaders must look for and cultivate innovation regardless of its source. Creativity can strike anyone, at any place and at any time. The best ideas don't necessarily occur during business hours. Your challenge is to harness that innovation and channel it into benefits for your company, its partners, and its customers.

In this chapter, we explore how Application Programming Interfaces (APIs) can help augment your vision and capitalize on the innovation that surrounds you.

## *Magnifying Your Vision*

Every company has a vision. As the pace of the world quickens, the modern leader must survey the shifting landscape and identify ways to make that vision real. Constantly challenging what you know, identifying who your customers are or can be, and realizing partnerships where none currently exist are part of taking your company to bold and exciting new places.

Powerful visions transcend what is possible, challenge commonly held notions, and encourage people to dream. A modern digital business platform rooted in APIs allows people to make previously impossible aspirations come true. APIs can spark creativity, igniting the flame of innovation across your organization and beyond.

Since APIs provide access to content and services in an approachable, frictionless manner, they encourage people to experiment with them. As the number of individuals with access to your APIs increases, you can tap in to new sources of creativity and ingenuity.

## *Innovating with Data*

As an executive, you understand the power that data has to help inform decisions, guide investments, and advance strategies. You look at metrics such as customer acquisitions and their cost, marketing-originated customer percentages, website visits, and the sales funnel on a daily basis. Central to each one of these metrics is the customer. Additional insight into behavior and preferences is massively helpful in planning your corporate strategy. Remember that APIs are simply the veins through which data flows — data is the lifeblood that connects your consumers and back-end systems in the digital value chain.

APIs can help you innovate with data in a number of ways. You can use external APIs to source customer data from partners and social networks. This access can give you the increased customer behavioral intelligence you crave. Alternatively, providing selective access to a large internal data set can drive exploratory business intelligence activities and lead to additional partner integrations. Incorporating APIs and their data channels with your current analytical capabilities can prove to be the crucial edge that leads to a new or improved product, service, or marketing opportunity.

One healthcare provider stores billions of medical data artifacts. The company decided to expose anonymized statistics from this massive set of data using a robust, secure API platform. As a result, the company attracted new health and fitness partners, improving its corporate image in addition to the bottom line.



Launch your analytics team to new heights by enabling them to integrate internal and external data. Challenge your team to deliver the 360-degree customer view you crave, giving you insights to improve products and services.

## *Harnessing External Creativity*

Your organization is loaded with talent, and you have the utmost confidence in both yourself and your team. However, because the world has so many creative and talented people, no single organization has a monopoly on genius. Having an open API strategy that encourages external development can expose your company in ways you wouldn't have conceived of on your own. Pearson, the largest education company in the world, has liberated its content through an open API approach branded as Plug and Play. Pearson makes a broad range of content available, including dictionaries, images, classic literature, travel information, and recipes.

Using this content, people who are not employed by Pearson can create a dizzying array of websites and mobile apps, including

- ✓ A website that allows people to take virtual tours of places around the world, overlaying the visual imagery with relevant historical text coming from a Pearson API.
- ✓ A smartphone app designed to assist disaster relief volunteers with information gathering, containing a CPR how-to guide sourced from Pearson content.
- ✓ A website that encourages the exploration of classic literature. Upon encountering an unrecognized word, the reader can highlight it and easily retrieve its definition and pronunciation guide, all within the context of the book. Both the literature and the dictionary content come from a Pearson API.

A pair of high school students created the last example in the preceding list, proving that you can find innovation in the most unexpected places. These examples are just a few of the many good things that can happen once creative individuals get a chance to experiment with your APIs.

Pearson has a freemium model for Plug and Play, in which all APIs are free to access for development and testing purposes. As transaction rates against the API go up, developers have to buy into a paid, tiered usage plan. This way, Pearson gains broad exposure and fosters a culture of experimentation with an augmented revenue stream on the horizon for

popular externally developed apps. The Plug and Play platform stretches Pearson's business model, transforming from a content to platform provider while enabling a thriving ecosystem with new apps and services provided by partners and third-party developers.

## *Transforming Partners into Evangelists*

Word-of-mouth marketing is a powerful force. The question is: How do you transform individuals or partners into evangelists for your brand? Simply having APIs isn't enough. In order to create your evangelists, you need to think through and provide a structured ecosystem.

### *Creating a thrill*

You want your partners and teammates to feel capable and powerful when they access your APIs for the first time. If your APIs are difficult to get to or slow to respond, the only teams that will use them are the ones that have to. Individual app creators will shy away from your API if it takes a long time to become productive. Here are some fundamental principles to help guide you:

- ✓ Eliminate roadblocks to admission. If it takes longer than a few minutes to obtain secure access to your APIs, you need to reevaluate your onboarding process.
- ✓ Set a maximum expected time for partners to become productive with your API and experience that aha moment.
- ✓ Get a control group of partners to integrate with your APIs and see how they feel — if they're excited, then you're on the right track.



You need to ensure that accessing your data and services is a frictionless experience. The partners using your APIs should feel powerful and derive a sense of accomplishment as they become productive in a short period of time.

## *Creating history*

History is created by those who write about it. Having wonderfully accessible APIs is a great place to start, and it is only the first step on your way to having a vibrant community and creating partner evangelists. You need to empower partners with the ability to gain a deep appreciation and understanding of what your APIs can do and how they function. APIs need to be intuitive and easy to explore and test but access to self-service documentation is also critical.



Creating APIs and providing a smooth on-ramp to using them isn't enough. You need to make sure that your interactive portal encourages experimentation. Having a robust, expansive set of APIs means little if people can't figure out how to use them.

## *Building the community*

One way to cultivate enthusiasm is to give your partners a place to share their success stories with each other. People want to self-organize around common interests, including everything from books to bicycling and gardening to sports teams.

Interest groups can be self-formed, and in the case of your APIs, your company can facilitate the creation and nurturing of its API-centric partner community. From an external perspective, facilitating a discussion forum allows you to recognize innovative developers, identify potential evangelists, and market developer-centric events. It also helps you understand the tenor of the conversation, feel the pulse of the community, and provide a communications channel for new and exciting features. Understanding who is using your APIs to produce interesting and profitable apps and websites will guide the curation of your APIs over time.

Internally, having a forum focused on your APIs will build a collaborative corporate culture. Additionally, the forum can be used as a tool for spotting rising talent and helping with employee retention and morale.

Don't forget to build a place to show off the best of what people create with your APIs. Seeing their creation in the limelight provides a thrill, and nothing motivates like success! Trumpeting success recognizes standout partners, which is an addictive occurrence sure to entice continued exploration and creation.



Humans have an intrinsic need to be social. Give people the venue they innately desire to talk about your APIs and showcase their creations. Doing so opens the door for you to spot and encourage future evangelists.

## *Unleashing evangelism*

Once the community around your APIs is flourishing, the evangelists will be easy to spot. You'll find the evangelists creating the most popular apps, enjoying the greatest social-media following, and becoming generally admired throughout the community you helped to create. With an open strategy, alpha developers can emerge and create tools that attract even more people to your platform.

You can propel these evangelists, and your brand, to new heights by keeping your content fresh and your features relevant. Add fuel to the fire by hosting events where your APIs are the guest of honor. AT&T does this quite well by hosting focused creative events, called *hackathons*, at various locations around the nation. Staffed in partnership with local advocates and free to attend, hackathons give AT&T tremendous exposure while getting up close and personal with its evangelists.

Using the APIs made available by AT&T, one developer created a necklace that works as a beacon for tracking children, complete with smartphone notifications if the child ventures outside the perimeter set by the parent. This type of app resonates in our increasingly security-conscious world and is a wonderful showcase of the media attention that can be attained by both the partner evangelist and the company itself.



API evangelism isn't limited to your partners. You want your own employees to feel the same sense of thrill and accomplishment that your partners do. Creating a vibrant internal community is a boon to your corporate culture and is every bit as important as a thriving partner network.

## Chapter 5

# Leveling Up Your Business



### *In This Chapter*

- ▶ Challenging the chief digital officer
  - ▶ Leveraging the chief information officer
- 

**B**usinesses face many opportunities and challenges today. By projecting past investments into the digital future, businesses position themselves to pivot at a moment's notice. In this chapter, we dive deeper into the concepts explored in the previous chapters and combine them with real-world examples.

## *Revving Up the Business*

A sure sign that companies acknowledge the need to focus on building a digital strategy is the advent of the chief digital officer (CDO) position. This trend is growing, with Gartner, Inc., predicting that 25 percent of businesses will have a CDO by 2015. Most frequently, a CDO is tasked with taking an established, traditional company and ensuring a successful transformation into the digital era. The CDO, whether or not that's a formal title, is the leader who understands the change in mindset required for business success in the digital world.

## *Transcending personalization*

Your CDO understands intimately the increase in customer expectation for relevant real-time information and personalization. They understand how putting the customer at the absolute center of your brand sharpens your company's focus. Building the digital platform to enable a seamless

cross-channel experience and to enable customer-facing employees to concentrate a greater percentage of their time on the customer creates a hyper-personalized experience that deepens the relationship and keeps customers coming back for more. The benefits of personalization are well documented across a variety of verticals, including travel and transportation, retail, and service-based segments.

In a traditional retail scenario, no customers have a consistent experience as they make their way through the store, encountering different sales associates as they go from one department to the next. After checking out, they leave the store with no real feeling of connection. Consider the paradigm shift when the associates are equipped with a tablet and apps backed by APIs. Instantly, the value proposition of having an associate on the floor increases. Instead of a limited perspective, the associate is capable of holistically satisfying customer needs, armed with

- ✓ Customer Relationship Management (CRM) access, including purchase history and preferences
- ✓ Real-time access to global inventory
- ✓ Real-time changing room availability
- ✓ Ability to process payments

Instead of having limited knowledge about a specific department, encyclopedic knowledge is but a few taps away. Instead of shunting customers off to a line with a disconnected cashier, the associate has the opportunity to deepen the relationship with customers while processing the payment.

In this scenario, customers are asked their names upon first contact with an associate. From that moment on, every interaction, inquiry, and purchase can be recorded in your enterprise CRM and is immediately available to the rest of your channels. The next time these customers interact with your brand, be they at their laptops or on mobile devices, you have the opportunity to welcome them with a thank you for their latest purchases. In the event of a service issue, a manager has real-time access to a customer's interaction history. This insight creates the opportunity to solve the problem preemptively, mitigating the possibility of the issue continuing to escalate.

## *Creating new products*

A second challenge that a CDO may face is getting into the business of APIs, either as a product or figuring out an indirect return on investment. Any company that is a service or content provider has the potential to monetize by augmenting its existing business models with APIs. Monetizing APIs takes many approaches, broadly broken out as follows:

- ✓ **Free to use:** Think driving traffic/market share/adoption.
- ✓ **You pay the partner/developer:** Think revenue sharing.
- ✓ **Partner/developer pays you:** Think segmented tiers, pay-for-use, transaction fees. Include a free tier to drive experimentation and innovation.
- ✓ **Indirect:** Think internal improvements, content acquisition/syndication.

As you reflect on how to augment your core business via APIs, find comfort in the fact that the same strategies used in your core business still apply.



If you have services or content and you aren't monetizing it directly or indirectly via APIs, start now or miss a huge and growing opportunity.

## *Moving from analog to digital*

A third challenge that a new CDO may be presented with is moving a paper-centric company into the digital era. Bechtel, a world leader in construction, rose to the challenge by boldly reimagining their business in the context of an API-powered, iPad-delivered digital ecosystem.

Large construction projects require an enormous amount of time, resources, and planning. For large public works initiatives, the number of documents required can be in excess of 250,000. Making those documents physically accessible by the engineers on a job site is simply not practical. In digital form, all those documents become accessible from an iPad, shortening the feedback loop between on- and off-site engineers.

In embracing the Internet of Everything (IoE), Bechtel embeds sensors in the formwork when pouring concrete. This allows

engineers to monitor microclimatic effects in real time as the concrete cures, improving quality and reducing rework. Bechtel also uses augmented reality to allow engineers to overlay structural designs on the job site. This couples onsite problem solving with the ability to reach into back-office talent as appropriate. Fully embracing an API-driven digital platform allows Bechtel to bring innovation into the hands of the engineers, improve internal operations, and position the company for even greater success in the digital future.

## *Turbocharging IT*

Corporate Information Technology (IT) departments have been tasked for years to build, acquire, operate, and maintain solid, stable systems on which a company's various lines of business depend. With a focus on availability as opposed to agility, the disruption posed by the digital economy can tax even the most nimble corporate IT organization.

## *Strengthening internal partners*

Corporate IT departments are straining to cope with the torrent of demand associated with the digital economy. With modern Internet-native companies rolling out new features on a daily basis, employees expect internal systems to work as well as the apps used in their personal lives. An internal unit simply cannot keep pace with that rate of innovation and change.

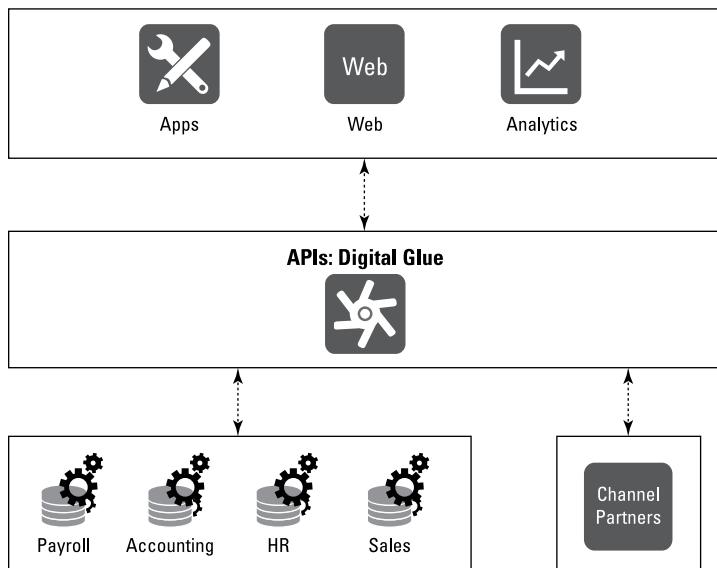
The burden of keeping corporate systems humming on a daily basis leaves little room for creating a robust, API-centric digital business platform. That said, creating the API layer is not possible without the cooperation and assistance from your internal IT organization. Gaining the agility and speed to deal with today's new business challenges, while maintaining security for your company's and your customers' data, requires a new IT toolset. Engaging with your IT department and having an appropriately fluid organizational structure underpins the success of your digital strategy.



Don't forget your internal IT leadership in creating your digital strategy. Challenge your Chief Information Officer (CIO) to work with you to get into fighting shape, for the future is today.

## *Extending your core investments*

Your company has spent years investing in the systems that are the lifeblood of your business. The technology used by Internet-native companies wasn't invented when the systems that traditional businesses rely on were built. Scrapping these systems and starting from scratch isn't a viable option — the disruption and expense are overwhelming. Instead of pitching your core systems, building APIs as a façade to mask the complexity gives you the ability to leverage existing investments in new channels as you catapult your business into the digital age. Figure 5-1 illustrates how enterprise data gets exposed to the customer through APIs.



**Figure 5-1:** How enterprise data meets the consumer.

Whole Foods Market, a supermarket chain focused on providing organic and natural groceries, understands the need to integrate into the digital life of its customers. Whole Foods rolled out an app to bring value and convenience to its customers, incorporating shopping lists, meal planning, sales information, and local store events. In using APIs as a façade for its inventory and pricing system, Whole Foods is able to extend sales information beyond flyers and in-store whiteboards to the smartphones in its customers' pockets.

## The smarter car

Automobiles are poised to become an integral accessory in our digital lives. General Motors has gained years of experience with the connected car by running its OnStar service. OnStar gives GM the ability to assist in a disaster, unlock your car, and perform some remote diagnostics. Even better, GM has a robust set of APIs open to the world, encouraging and extending partner opportunities. Technology companies are actively working to bring their operating systems into the vehicle. Manufacturers have built cars that can parallel park themselves, with fully automated vehicles already a technical possibility. While the road to autonomous vehicles is certainly innovative, what is truly exciting about near-term in-vehicle technology is that cars are quickly becoming API-enabled. Vehicle sensor information is available for consumption by apps, while in-vehicle apps bring in data from the world around us. Imagine the API-fueled possibilities, including

- ✓ Disrupting conventional and satellite radio as the ability to stream content into the car becomes reality
- ✓ Integrating with home automation to lock your house and shut your garage door as your car pulls out of the neighborhood
- ✓ Bringing your driver preferences (seat position, music, favorite routes) from car to car, negating

the need to reconfigure these settings after bringing your car in for service

- ✓ Automatically sending mileage information into your tax software with accompanying time and location notes to make tax season easier
- ✓ Optimizing the route and delivery times of logistics companies through the use of APIs that relay construction, traffic, and weather in real time
- ✓ Leveraging in-dash cameras that perform facial recognition on the driver and alert based on inattentiveness, falling asleep, or medical emergency

Cars have been equipped with GPS systems and the ability to calculate the distance to empty for some time. What gets really exciting is when onboard data, including routed navigation and fuel state, gets integrated with gas-pricing information available via API. In this case, your car can tell you not only that it needs gas, but also when and where to stop in order to optimize refueling cost. When driving in remote areas, the car will be able to alert you that you really ought to take advantage of that “last chance gas” sign or that you can wait until the next one.

Against the backdrop of APIs, the possibilities of the connected car are limited only by human imagination.

# **Chapter 6**

---

# **Transforming Your Business Agility**

---

## ***In This Chapter***

- ▶ Surfing technology trends
  - ▶ Analyzing channel strength
  - ▶ Linking revenue with strategy
  - ▶ Preparing for demand swings
  - ▶ Identifying strong partnerships
  - ▶ Compressing cycle time
- 

**B**uilding the organizational structure, product, and marketing strategies to maximize the value of your digital business platform requires the investment of time and money. Understanding the value that this platform brings to your business is crucial.

In this chapter, we delve into the digital Key Performance Indicators (KPIs) that augment your existing corporate KPIs. Analytics based on your digital KPIs will help you derive maximum profitability from your digital business platform. Your company will become more agile, able to quickly adjust its digital strategy as the need or opportunity arises.

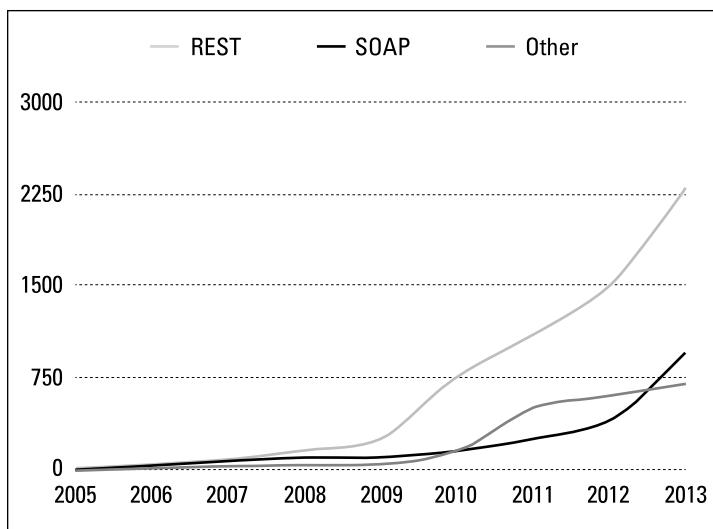
## ***Riding the Waves***

Technology companies are driving forward the pace of innovation at an incredible rate. Apple unleashed the iPhone on the world in mid-2007, and the resulting impact on consumer adoption and heightened expectations is well documented. In a few short years, mobile capability went from innovative to expected.

Keeping pace with the churning technical standards isn't practical for your company to do. You need to remain focused on your core business. What is important is an awareness of industry trends so that your digital investment is as technically mainstream as possible. Technology will change, and you want your platform to continue to provide value as changes occur.



APIs are written using two major technical protocols: the Representational State Transfer (REST) protocol and the Simple Object Access Protocol (SOAP). As shown in Figure 6-1, REST is by far the most popular standard for APIs today.



**Figure 6-1:** REST is the dominant API protocol according to data from [ProgrammableWeb](#).

---

Don't worry, you won't be quizzed on the technical alphabet soup, but understanding general trends in technology in order to maintain a centrist approach is important. REST is the most broadly adopted standard for communicating with APIs today, due primarily to its ease of use when compared with SOAP. Choosing REST will minimize the potential for your platform to be rooted in dead-end or dying technology.



SOAP isn't what you use after getting up from a REST. If your API leaders stare blankly when you ask whether their approach to building your platform is based on REST, your internal warning buzzer should go off.

## *Shrinking the World*

Your digital platform extends global reach further than ever before. Physical limitations lose their importance as digital channels offer direct engagement wherever an Internet connection exists. In order for you to enhance cross-channel strategy and adapt to channel-specific usage patterns, you need to be able to track metrics, which will give you insight into:

- ✓ **Traffic by channel:** Identify and understand transaction volumes and usage characteristics for each channel.
- ✓ **Revenue by channel:** Understand which channels ring the cash register.
- ✓ **Multi-channel use:** Identify users who use multiple channels to initiate and complete transactions.



Protect your assets with security layers built into your digital platform. Having accessible channels is wonderful, but you don't want your financial systems to accidentally become visible through your open digital platform.

## *Increasing Revenue Insights*

Although having a digital platform is a good start, understanding the value it provides is even more critical to ensuring that you get the most from your investment. As you selectively bring services and content through apps and APIs to market as products, you need to have visibility into which ones are meeting their fiscal performance targets. User-perceived performance needs to be understood as well, because you don't want customers defecting midstream due to slow response time.

As Figure 6-2 illustrates, a dashboard-style perspective on revenue segmented by apps and APIs gives you real-time visibility into how your platform is performing.

| Revenue                         |                              |                                  |
|---------------------------------|------------------------------|----------------------------------|
| Avg. Revenue by APIs<br>\$2,000 | Min. Revenue by APIs<br>\$10 | Max. Revenue by APIs<br>\$10,000 |
| Avg. Revenue by Apps<br>\$234   | Min. Revenue by Apps<br>\$11 | Max. Revenue by Apps<br>\$1,111  |

*Source: Apigee*

**Figure 6-2:** Sample API revenue dashboard.

In addition to financial metrics, it is critical to understand Quality of Service (QoS) information on performance from the user perspective. QoS data is crucial to analyze over time with financial performance to ensure the continued health of your investment. You'd want to know whether your biggest revenue-generating API is also your slowest performing. Armed with this information, you can make critical and timely decisions regarding segmentation and investment opportunities.



Apps and APIs aren't really different from your other products in that the old maxim still applies: If you can't measure it, you can't manage it.

## *Anticipating Surges in Demand*

As your digital platform shrinks the globe, you need to have complete confidence in your technology's ability to scale. Your company cannot tolerate infrastructure that impedes the success of its core business. The concept of scale needs to be a foundational premise under which your API team designs your platform. When a particular API gets popular, you should expect it to scale seamlessly to meet the increased demand.



When Kate Middleton first wore a Burberry trench coat as princess-to-be, it sold out worldwide in 24 hours. Make sure the infrastructure for your digital platform is equipped to handle spikes in demand. Your technology cannot afford to be the bottleneck. Scalability is not enough — you need to be able to transcend enterprise scaling limits and achieve Internet scale and web-scale-ability!

## Managing Partnerships

Understanding partner engagement with your digital platform is a leading success indicator of this growth channel for your enterprise. As you develop strategies to minimize partner acquisition costs and ensure that the partner community is flourishing, you'll need a firm handle on KPIs to guide your strategy.

The following list is a great place to start:

- ✓ **Revenue by developer/partner:** Track minimum, maximum, and average revenue to identify the partners that give you the greatest dollar uplift.
- ✓ **Traffic by developer/partner:** Track minimum, maximum, and average traffic to identify the partners that generate the greatest exposure.
- ✓ **Unique users by developer/partner:** Track minimum, maximum, and average unique users to identify behavior patterns and repeat customers.

Having this information at your fingertips will help you advance your partner relationship strategy and monitor how well your platform is being adopted.

## Shortening Time to Market

As the world shrinks and time compresses, the pressure is on to drive down time to market across the enterprise. To prepare your company for the challenge, you need to have a pulse on:

- ✓ **Innovation:** How quickly you can bring products and services to market.
- ✓ **Agility:** How quickly your platform can respond to market changes and improve.
- ✓ **Time to maturity:** How long it takes platform components to go from concept to revenue.

Figure 6-3 illustrates the types of KPIs you should look for to help you understand how vibrant your digital ecosystem is.

| Innovation  |  |   |
|---|--|---|
| Innovation<br>23/Month                                    | Innovation - APIs<br>12/Month                              | Innovation - Apps<br>9/Month                              |
| Agility   |  |   |
| Agility<br>68 Revisions/Month                             | Agility - APIs<br>45 Revisions/Month                       | Agility - Apps<br>23 Revisions/Month                      |
| Time to Maturity  |  |   |
| Avg. Time to Maturity<br>(APIs)<br>45 days                | Max. Time to Maturity<br>(APIs)<br>90 days                 | Min. Time to Maturity<br>(APIs)<br>23 days                |
| Avg. Time to Maturity<br>(Apps)<br>67 days                | Max. Time to Maturity<br>(Apps)<br>110 days                | Min. Time to Maturity<br>(Apps)<br>33 days                |
| Avg. Time to Maturity<br>(Developers/Partners)<br>97 days | Max. Time to Maturity<br>(Developers/Partners)<br>245 days | Min. Time to Maturity<br>(Developers/Partners)<br>66 days |

*Source: Apigee*

**Figure 6-3: Sample digital platform health KPI dashboard.**



The considerations and metrics discussed in this chapter need to be the responsibility of someone in your organization, regardless of whether your organization formally has a chief digital officer. Add a discussion and assignment of these responsibilities to the agenda for your next leadership meeting!

## Chapter 7

# Five API Campfire Stories

### *In This Chapter*

- ▶ Exploring corporate transformations

**A**pplication Programming Interfaces (APIs) are the foundation on which today's corporate digital platforms are being built. In this chapter, we outline strategies used by several different companies to transform the way they do business.

## *Transforming Memories at Walgreens*

The people born today are digital natives. A vast majority of their lives are documented online. With printing in decline, Walgreens (a more than century-old company) developed the QuickPrints API (see Chapter 2). This API paved the way for Inspire Me, which is an integration with Facebook that creates printing suggestions for customers, based on pictures and their associated comments.

## *Transforming the Business Model at Nike*

With Nike+, an API-powered digital platform, APIs changed Nike's business model. Powering fitness trackers, corporate apps, and partner integrations, Nike+ also resulted in a native presence on Apple's iPhones and iPods. Nike+ moves the company beyond the locker room and onto the wrists, into the pockets, and inside the myriad of customer devices, firmly entrenching the brand where the customers live.

## *Transforming the Core at Digital River*

Digital River provides e-commerce solutions to the tune of \$10 billion in annual sales. Realizing that its 10-year-old API platform needed sprucing up, Digital River is pursuing a three-pronged modernization approach to enable partners to integrate more easily, create structure for internal developers, and allow partners with e-commerce features to extend into its global commerce system. Digital River uses APIs as a force multiplier, leveraging its investment in and extending the value of its core payment processing system.

## *Transforming Shopping at Whole Foods*

Thirty years after its founding, Whole Foods transcended geography and entered its customers' pockets in the form of an API-powered mobile app and website. With the multichannel ability to convert recipes into shopping lists, provide local store sales and event information, and create menus from ingredients in its customers' pantries, Whole Foods is engaging its customers in a more direct, personal way.

## *Transforming Lighting at Philips*

Philips was a first mover in 1891, meeting the demand for light bulbs as electricity became commercialized. In late 2012, Philips moved again, releasing an energy-efficient, variable color, networked, app-driven LED lighting system called Hue. Hue allows customers to personalize lighting based on lifestyle. Philips created an open API to grow its partner network and gain exposure to the global talent pool. Unleashing this creativity resulted in an app that makes Hue lights change in concert with music. This app is among the many innovative integrations Philips benefits from with its open API platform.

# APIs are the foundation and accelerator of your digital business platform!

The pressure is on to meet increasing customer expectations, improve internal efficiencies, and ensure a thriving partner network. This book explores how APIs lay the foundation for businesses to rise to those expectations, improve corporate agility, and liberate data from legacy systems creating a digital, adaptive, data-driven business platform.

- **Meet customers where they are** — understand how APIs are the foundational component to engage customers anywhere, any time, on any device
- **Accelerate corporate agility** — APIs combine transactionality and analytics to drive better business decisions and uncover opportunities for new business models
- **Build a flourishing community** — rally partners and developers with easy access to your data and services
- **Optimize internal effectiveness** — drive consistency in data while nimbly gluing disparate systems and abstracting complex systems behind a simple facade

**Sharif Nijim** is an IT Architect and Concurrent Instructor of Management at the University of Notre Dame. He tweets as @snijim.

**Brian Pagano** is lead evangelist for digital success at Apigee and strategizes API programs with customers every day.



Open the book and find:

- Real-world examples of how traditional companies use APIs to increase their digital fitness
- How APIs allow you to create a hyperpersonalized customer experience
- How API-powered apps can be a real game-changer for employee productivity and partner engagement
- Ways that APIs can help integrate your brand into the digital lives of your customers

Go to **Dummies.com**  
for videos, step-by-step examples,  
how-to articles, or to shop!