A Playbook for Managers

# CODE HALOS

## How the Digital Lives of People, Things, and Organizations are Changing the Rules of Business

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**Monday 8th**
Today's Schedule:

| 06:00 | Gym |
| 07:00 | |
| 08:00 | Project Bank Side meeting |
| 09:00 | |
| 10:00 | Board prep session |
| 11:00 | |
| 12:00 | Lunch with TGS |
| 13:00 | Leave for airport |

Reading List

**Malcolm Frank | Paul Roehrig | Ben Pring**

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# Code Halos

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Malcolm Frank
Paul Roehrig
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WILEY

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# Acknowledgments

to this book. This book is also extensively informed by the many Cognizant associates who are on the front lines of helping hundreds of companies around the world on a daily basis.

Finally, we would like to thank our families for their love, support, and patience during the process of writing this book. Our "day jobs" of consulting to, and working with, some of the world's most important companies come with their own significant demands of time and travel. With the incremental demands of writing a book, the three of us feel remarkably fortunate for the inspiration and encouragement our families provided. We will always feel both thankful and blessed.

Malcolm Frank, Paul Roehrig, Ben Pring
*New York, Washington DC, Boston*
*April 2014*

# Introduction
# The Value of the Virtual

You probably have a few questions as you check out the title and dive into this book: *What is it really about? Is it any good? Is it relevant to me? Will it help me succeed? Who else is reading it? Who are these three authors, and why should I take them seriously?*

In the past, you would have had to do some due diligence in order to answer those questions: read some reviews, leaf through the book, and also talk to your friends and colleagues to discover their views: *What did you think of the book? Has it helped you? Do you think I should invest my time in reading it?*

*Traditionally*, that's what you would have had to do. But what if you could answer those questions in less than a minute? Better yet, what if you could get the answers *before you even asked?*

You could, if you harnessed the power of the fields of information that we call **Code Halos**. They surround you, this book, your friends and colleagues, the publisher, and other books in the genre. The book is a physical object of paper and ink and glue (or contained within a physical product such as a tablet or e-reader) that has a Code Halo of virtual information surrounding it: reviews, sales information, the number of your peers who are reading it, LinkedIn profiles of the authors, and more. Similarly, you—the reader—have your own rich and unique digital fingerprint made up of your personal likes and dislikes, your tastes in literature and other forms of entertainment, your current job responsibilities, your network of friends and work colleagues, and your personal preferences for

consuming business ideas. If you could connect the information about yourself and this book, you would know —before you even started reading—whether you'd enjoy it and if the content has meaning to you.

The "halo" in the term Code Halo refers to the data that accumulates around people, devices, and organizations— data that's robust, powerful, and continually growing in richness and complexity. The halos contain the *code* that companies, brands, employers, and partners can use to enhance their understanding of people or objects more deeply. Decoding the information within that invisible field, teasing out the insights, and creating new commercial models does not happen automatically or easily. But every employee, product, building, and organization should have a Code Halo, and this book is going to explain how and why.

> *The halos contain the code that companies, brands, employers, and partners can use to enhance their understanding of people or objects.*

While technology makes Code Halos possible, they transcend constructs like IT or Big Data or analytics. Code Halos make meaningful connections between people, organizations, and devices in a business context. Extracting meaning from Code Halos—and applying that understanding to business strategies and practices—is a new and essential yet not clearly or widely understood management skill. This book's purpose is to provide a fact-based understanding of the Code Halo phenomenon and outline a practical approach to improving performance by harnessing their power.

## The Emerging Code Halo Economy

We find ourselves in a unique period in the history of commerce, more significant than any we have experienced in our careers. Traditional methods of production have stagnated, while virtual means are growing exponentially. We have already seen Code Halo ideas operating at the heart of the rapid rise of eBusiness superstars such as Google, Amazon, Facebook, and Twitter.

Today's Code Halo leaders go far beyond transactional relationships; they forge deep human connections and even create moments of magic. It can occasionally feel as if these companies are reading your mind as they anticipate needs and fulfill desires you may not have even recognized yourself. *That was my favorite song in college! I've never heard of this author, but she sounds fantastic!*

Nowadays, a growing number of more traditional companies are joining Silicon Valley eBusiness leaders in harnessing the power of Code Halos. General Electric is creating tremendous economic value and richer customer connections by harnessing Code Halos to build what it calls Brilliant Machines. Nike is embracing Code Halos through its Nike+ FuelBand initiative. Disney has introduced the MagicBand to transform the amusement park experience. Allstate is remaking auto insurance with its Drivewise initiative.

You can join the competition or, like another group of companies in industries that have already been disrupted—including Borders, Blockbuster, and Kodak—you can take the risk of suffering what we call an Extinction Event—where a company goes out of business altogether—by ignoring the significance of this transition.

## The Crossroads Model of Competition

To compete in this new world, it is necessary for managers to understand how the Code Halo economy works. To that end, we at Cognizant's Center for the Future of Work have researched and consulted to hundreds of the 2,000 largest global companies across dozens of industries, probing their leaders' views. Our findings are fascinating: once Code Halos mature, they impact industry structures in a consistent and violent pattern that we call the **Crossroads Model**. There are four phases of the model, and what companies do—or do not do—with Code Halos in each phase determines their fortunes when they inevitably reach a crossroads. While one route can lead to new levels of market prosperity, the other can take them down a path toward extinction.

Once you recognize the pattern, you see clearly that Amazon eliminating Borders was not a "book thing," nor was Apple outrunning Nokia and BlackBerry a "mobile phone thing," nor was Netflix knocking off Blockbuster a "movie rental thing." Rather, every one of these industries' disruptions was a "Code Halo thing."

## Know the Rules

In Part I of this book (Chapters 1 through 7), we'll provide detail on what Code Halos are, the anatomy of an optimal solution, the business models they follow, and the real-world economics of information.

Defining the Crossroads Model is vital to recognizing what's going on within your company and industry. But it's even more important to gain an understanding of the management skills required to master the model. To that end, Part II (Chapters 8 through 11) offers a set of four principles that lie at the heart of success. We'll explain each principle and provide tactical, action-oriented

guidance on how your organization can embrace Code Halos.

In Part III (Chapters 12 through 14), we'll provide specific recommendations on how your organization can successfully navigate the Crossroads Model.

## Why We Wrote *Code Halos*

We didn't initially set out to write a book on Code Halos. In our roles running Cognizant's Center for the Future of Work, we have the privilege of helping hundreds of clients create business advantage with the new technologies available. While doing this work, we saw a pattern emerge. The more we looked at it, the more obvious it became that it was simply too significant to ignore. So we committed to the nontrivial process of writing this book to share our data and conclusions.

Over the past five years, we've been helping clients manage two sea changes in parallel:

- First, in a post-credit crisis, fully globalized world, it became clear our clients were facing **significant secular business shifts in their industries**. Whether in banking, manufacturing, retail, media, insurance, healthcare, or government, they've recognized quite clearly—albeit with some resulting confusion—that the old rules of business no longer apply.

- Second, as if that wasn't difficult enough, there was a **similar secular shift in technology** under way, as well. The consumer technology experience—of mobility and social computing—has entered the corporation at a rapid rate, fundamentally changing customers' and employees' technology expectations—and the role of the IT organization itself.

These dual secular shifts created a lot of confusion and noise in the market from around 2008 until now. While many organizations were attempting to harness the power of new consumer technologies like social, mobile, and cloud-enabled solutions in a business setting, only a few were truly succeeding. When we took a closer look at the ones that *were* succeeding, we noticed how they leveraged these new technology capabilities to power through the new business challenges. It was as if the constraints of a tough economy didn't apply to them.

As we investigated this further, two patterns started to emerge.

- First, we saw that the Code Halo acted as the atomic building block for the successful commercialization of consumer technologies.
- Second, companies that implemented Code Halos at scale were driving outsized performance in a very consistent manner, regardless of industry.

We eventually concluded—based on years of experience and a mountain of data—that something immense is happening. Companies that had been successful in the past were either adapting quickly or getting into real trouble.

The three of us have decades of combined experience helping some of the world's leading consulting, advisory, and technology product companies generate business value from technology. We've witnessed from the trenches and high command some of the major shifts in corporate technology: the advent of PCs, enterprise applications, Client/Server architectures, the Internet, and global IT delivery. We have practical experience recognizing business and technology trends, and then helping clients innovate and succeed regardless of their maturity and market position. Yet it became clear to us that the Code Halo

movement was something much larger than anything we'd seen before.

The more we tested our ideas, the more excited we became that we were building a language to describe a dynamic that many people are feeling. We deduced a pattern of how this shift takes place that has already played out in many industry sectors. Once we had the right lens—the idea of Code Halos and the Crossroads Model—many elements of ongoing business-technology transformation started making much more sense. We wanted to share our findings and ideas with enterprise executives, leaders in mid-sized companies, investors seeking to fund the next big thing, entrepreneurs trying to create the next big thing, and students building skills to compete in a global economy. We hoped to contribute to better business and stronger economies. The result of that exploration is the book you now have.

> *Whether you're a product manager, head of a marketing department, running a small business, head of information technology, leading a government agency, or directing your company's strategy, it's essential to understand how much this massive shift pertains to you.*

Before we plunge in, a word of caution: some decision-makers view Code Halos as "a CIO issue." Others focus so intensely on the demands of hitting sales targets that they are unable to look ahead and see the Crossroads moment that is surely coming. Either perspective will make you miss an incredible opportunity.

Code Halos are *everybody's* issue. Whether you're a product manager, head of a marketing department, running a small business, head of information technology, leading a government agency, or directing your company's strategy,

it's essential to understand how much this massive shift pertains to you. The fundamental basis for value creation is changing right this moment. People—both inside and outside your organization's boundaries—want to engage with you in ways that are dramatically different than ever before. Their expectations for interacting, transacting, communicating, and collaborating with you are shifting rapidly.

The skills for building and managing Code Halos are not taught in any curriculum we know of, and they are not yet practiced with any consistency across companies worldwide. But this shift is the central challenge and opportunity for the next generation of business leaders. In the same manner that a senior executive must understand finance, sales, marketing, product development, operations, and strategy formulation, it is our view that generating value from the virtual, through Code Halos, should now be part of the managerial core curriculum. As our research highlights, it is the lever available to managers that currently generates—or destroys—more value than any other available.

The Code Halo opportunity is vast, and the downside for missing this trend will be harsh and swift. How you manage these dynamics during the next few years could define the arc of your career. Think ahead a decade, when people are sure to ask two questions: *Did you see this technology-based sea change coming? Were you able to capture the commercial opportunity?*

This book is intended to help you answer those questions: *Yes* and *yes*.

# PART I
# DIGITS OVER WIDGETS: THE NEXT AGE OF BUSINESS AND TECHNOLOGY

# Chapter One
# "Will It Happen to Us?" A Trillion-Dollar Opportunity or an Extinction Event

"Software is eating the world."

—Marc Andreessen[1]

Over the past decade, six technology-led companies have collectively generated more than $1 trillion of market value. Amazon, Apple, Facebook, Google, Netflix, and Pandora have leveraged consumer technologies in new ways—and in the process, have transformed customer expectations, established new operating models, and violently upended roughly a dozen mature industries. In the process, prior industry leaders—such as Nokia, Motorola, Borders, Barnes & Noble, AOL, Blockbuster, Tower Records, and HMV—lost, on average, more than 90% of their 2003 enterprise values. This value migration from one set of companies to another could not have been more forceful or final.

Most people have heard that part of the story. What they don't fully appreciate is the common denominator that sits at the heart of the business models of the Trillion-Dollar Club: the creation and management of Code Halos.

# What Is a Code Halo?

A Code Halo is the field of digital information that surrounds any noun—any person, place, or thing. More often than not, that virtual self can provide more insight into—and thus generate more value from—the physical entity alone.

Take a simple but important example. There are tens of millions of people in the United States alone with some form of chronic respiratory condition who need to use inhalers every day. Mobile health platform Propeller Health has created a sensor that fits on these inhalers.[2] The system links to users' mobile devices to help track and manage their use of medication, and to send data to healthcare providers. The raw materials for each unit probably cost

only a few dollars, but the value to users (and healthcare providers)—based on the data and information provided—could be literally priceless.

The members of the Trillion-Dollar Club have mastered the ability to create and manage the Code Halos surrounding their customers, products, services, and entire organizations to establish new thresholds of performance. In wrapping those widgets with digits, they have created highly personalized customer experiences, products, and services that deliver not just utility but also insight and meaning at unassailable levels of efficiency. It's how Pandora, without ever having met you, can play hours of your favorite music and how Netflix can recommend just the right film for your Sunday evening.

## The First Trillion Is Always the Hardest

The first trillion dollars of market value these six companies have generated with this approach certainly won't be the last. Competing on the code that surrounds all products and people will continue to drive significant opportunity. W. Brian Arthur of the Santa Fe Institute and the Palo Alto Research Center (PARC) suggests that a vast, unseen digital economy is quickly emerging. This Second Economy—launched in 1995 with the commercialization of the Internet—will surpass the world's first (or industrial) economy in scale and scope by 2025.[3] That is, a virtual, digital economy will exceed the industrial economy—the cumulative output of mankind's development over several millennia—in terms of transactions, revenues, and value creation, in a mere *30 years*. It's clear that the Trillion-Dollar Club's accomplishments—over a relatively short space of time—are simply the beginning of this economic journey.

## How Significant Was the Impact of the First Trillion Club?

The answer? *Very*. Consider the results of Apple, Amazon, Google, Facebook, Netflix, and Pandora, which in 2003 had a combined market capitalization of $34.3 billion. By 2013, this figure had exceeded $1.2 trillion. Apple's 2003 stock traded at $10 per share.

By 2013, it was at least 40 times higher. Amazon went from $22 per share to $350. Netflix had just gone public with a sub-billion-dollar valuation in 2003; Google and Pandora were still venture-backed start-ups; and Facebook didn't even yet exist.

Ten years later, there had been a massive migration in value from one group of six companies to another (see Figure 1.1). And, of course, this simple analysis doesn't include other widget-based market leaders—such as Barnes & Noble, Motorola, Ericsson, Dell, and HMV—that suffered terribly in the face of Code Halo competitors.

Figure 1.1 The Trillion-Dollar Club

| Code Halo Company | 2003 Value (in Billions)[4] | 2013 Value (in Billions) | Industrial Model Competitor | 2003 Value (in Billions) | 2013 Value (in Billions) |
|---|---|---|---|---|---|
| **Amazon** | $23.90 | $180.20 | **Borders** | $1.78 | Bankrupt |
| **Apple** | $8.90 | $515.40 | **Nokia** | $87.50 | $30.30 |
| **Facebook** | Not yet founded | $132.00 | MySpace[5] | $0.58 | $0.04 |
| **Google** | Private, four years old | $355.20 | **Yahoo!** | $29.60 | $37.50 |
| **Pandora** | Private, three years old | $6.00 | **HMV**[6] | $1.25 | Bankrupt |
| **Netflix** | $1.5 | $21.70 | **Blockbuster** | $4.00 | Bankrupt |
| **Total** | **$34.30** | **$1,210.50** | Total | **$124.71** | **$67.84** |

# Historical Sources of Competitive Advantage Don't Hold Up Well Against Code Halos

What is particularly noteworthy about this migration of value is that the Code Halo upstarts were competing against established leaders in their industries. We call these companies Widget

Winners because their business models were based on traditional industrial approaches to making, distributing, selling, and managing physical goods and services. Once Code Halos took hold in their markets, a profound and unstoppable shift from widget-based business models to the digit-based Code Halo models took place.

In every case, the Widget Winners initially looked like they should have clobbered the digit-focused newcomers. The incumbents had all the advantages: brand awareness, established customer relationships, extensive distribution channels, research and development capabilities, management experience, employee depth, balance sheets, and market valuation.

In addition, what the Widget Winners and the new disrupters were selling was the same product in most cases. After all, Netflix and Blockbuster rented the same films; Amazon and Borders sold the same books; and the iPod and Microsoft's Zune were comparable machines. The Widget Winners held all the advantages, except the key one: they neglected to wrap their widgets with digits, to build digital business ecosystems, and to learn how to compete with Code Halos. As a result, the Widget Winners were vanquished by 2013—either bankrupt or mere shadows of their former selves. Blockbuster founder David Cook articulated this collapse well, lamenting that "It didn't have to be this way. They [Blockbuster] let technology eat them up."[7]

In hindsight, it wasn't even a fair fight. It was slaughter.

# More Industries Heading to the Crossroads

All of these Widget Winner incumbents believed that their strategic and tactical positions meant that they were immune to the changes they could see happening all around them in the marketplace. They assumed the disruption others were suffering in the face of digitization wouldn't affect them. We often hear;

> "It won't happen to us. Our industry is different."

> No, it's not.

This value migration will not be contained to a handful of Silicon Valley *wunderkinds.* Although Code Halos first took hold in these highly technology-aware companies, they're becoming a universal platform for competition across most *all industries.*

For example: What provides you with more insight when choosing the right hospital for a particular surgery? Do you focus on the building's physical façade, its lobby, its marketing brochure, and what friends or family have told you about it? Or would you prefer to examine the rich halo of information—found on myriad online sources—providing objective and detailed views on its strongest practices, success rates on particular surgeries and physician quality? If you had a life-threatening condition, wouldn't you also want access to all of this information?

## Code Halos Go Mainstream

The good news—for shareholders and employees—is that many traditional winners are already focusing on Code Halos. This is not because they are losing ground, but because they see this transition already happening and the scale of the opportunity ahead, as the Second Economy grows (see Figure 1.2). GE is not seriously threatened by an upstart builder of jet engines or power turbines, nor is Disney too worried about a venture-backed amusement park being built in Orlando. However, these firms recognize the power of Code Halos and the opportunity to insert these new capabilities into their existing business models to extend their market leadership.

Code Halo Innovation in Established Leaders

| Company | Industry and Initiative |
|---------|-------------------------|
| GE | **Industrial goods**<br>Through its "Industrial Internet" and "Brilliant Machines" initiatives, GE is creating Code Halos around industrial machines such as jet engines, locomotives, and power turbines. |
| Disney | **Hospitality**<br>With its "MagicBands," Disney is creating a wearable wristband to generate Code Halos around its park guests, creating unique tailored experiences for these customers. |
| Allstate | **Insurance**<br>Through its "Drivewise" in-car mobile telematics device, Allstate is building Code Halos around drivers and their cars, thus providing personalized auto insurance and rates. |
| Nike | **Fitness**<br>With the Nike+ FuelBand—a wearable activity monitor—Nike is putting Code Halos around its customers, helping to analyze and improve their levels of personal fitness. |

Companies like these recognize that the Code Halo has become the key structural element of today's business models. It's what leads executives like GE CEO Jeff Immelt to comment, "Industrial companies, not just GE, but all industrial companies, are no longer just about the big iron. . . . All of us are going to seek to interface with the analytics, the data, [and] the software that surround our products."[8] And Mark Parker, the CEO of Nike, states, "The digital and physical worlds are starting to come together more seamlessly —it's only the tip of the iceberg in terms of what's coming."[9]

# Code Halos: The Building Blocks of the Second Economy

Code Halos are becoming the key building blocks of the Second Economy. The industrial economy—from Watt's steam engine of