THE STATE OF THE DIGITAL WORLD: The Future is Already Here

Executive Summary

It is a strange and wonderful phenomenon: You’re sitting at home, or perhaps at work, and you turn to your dazzling personal computing device. Within seconds, you’re transported to both a virtual and incredibly real online world, one that’s global yet intimate. Although the device is driven by silicon and fiber, the experience feels remarkably human. Here you find friends, share ideas, conduct commerce, and delight in moments of genuine engagement.

The more time and emotion we spend on our devices, the more we blur the line between online and offline and enhancing the experience of both. This isn’t an accident. We’re connected because we can be. At any given moment, most people have access to fast, always-on Internet, through a growing number of mobile devices, where through social media we are at the center of our own digital universe. With each moment, the coalescence between the virtual and real worlds starts to transform everything. It alters and enhances how we connect with friends, discover and buy goods and services, ask for directions, collaborate with colleagues, consume media, and even exercise.

Let us say that again: Technology has changed everything about how people communicate, connect, and decide.

This means that a chasm already exists between how we work and how we need to work.
Being online has never been more experiential, with technology impacting our every analog decision. Technology advancements, combined with the evolution in our behavior, is also affecting businesses, governments, education, and, well, just about everything. The world as we knew it and the world that we need to get to know are getting farther and farther apart.

All of this talk about the future and how one day technology is going to disrupt everything around us is more than just talk. The future is already here. And for some, disruption has followed closely behind. What lies ahead is both a challenge and an opportunity. While customer behavior is changing, causing tremendous shifts in our markets, we can benefit from understanding not only what’s happening but also why. When we understand these things, we’ll shift from reacting to trends to leading them.

But we have to start with accepting that the way we approach markets was only good enough for yesterday. Tomorrow will require a new perspective and a new approach because the future is here, now.

Already many seemingly invincible US brands have failed to adapt, including Circuit City, Borders Group, Wherehouse, Tower Records, Pontiac, Saturn, and Palm, among others. Grim predictions show that the pattern has no end in sight.

Sometimes, the natural order of things proves too powerful to overcome.
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In 2011, Marc Andreessen famously said, “Software is eating the world.” It is as poignant now as it was then. His point is that technology is changing how business is done; once-prized goods and services are becoming either commodities or simply outmoded because of the acceleration and proliferation of software.

But it is more than just software. Yes, it is what runs business, fuels our entertainment, and keeps governments in power. Software — in fact all of technology — is becoming more and more approachable by anyone with an idea to do something different or better. Innovation, or the likelihood of it, is now a constant. Expect disruption.

Products are disrupted. Leadership and management systems are disrupted. Business models are disrupted. Everything can change and everything is changing.

And believe it or not, this is a good thing.

With the pervasiveness of innovation, companies are now standing at a crossroads. Adapt to this connected environment and join the evolved, digital ecosystem or become extinct.

**Disrupt or Die!**

This is a dire phenomenon known as Digital Darwinism, when technology and society evolve faster than the ability to adapt or lead. It is a form of natural selection in which organizations must either possess or invest in specific traits to adapt to environmental pressures or die out. Digital Darwinism favors those companies that at least try to evolve to compete.
The point of natural selection is that only some businesses will survive. But unlike animal species, which were unaware and unable to influence the evolution around them, we have a choice in the matter.

In their book, Built to Change, authors Edward Lawler and Christopher Worley observed that going back to as early as the 1970s, businesses were struggling to compete in or adapt to their environments. In an analysis of Fortune 1000 corporations, they discovered that between 1973 and 1983, 35% of companies in the top 20 were new.²

Their work shows that the number of new leading companies rose to 45% between 1983 and 1993. That number increased to 60% between 1993 and 2003, causing them to ask, “Any bets as to where it will be between 2003 and 2013?”³

Before you place your bet, think about this: a recent advertisement produced by Babson College noted that over 40% of the companies that were at the top of the Fortune 500 in 2000 were no longer there in 2010.⁴

In fact, six digital-born companies — Amazon, Apple, Facebook, Google, Netflix, and Pandora — have created $1 trillion in market value, according to Code Halos: How the Digital Lives of People, Things, and Organizations Are Changing the Rules of Business, by Cognizant Center for the Future of Work thought leaders Malcolm Frank, Paul Roehrig, and Ben Pring. The authors point out that when these six companies used consumer technologies in new ways, they “transformed customer expectations, established new operating models, and violently upended roughly a dozen mature industries.”⁵ In those mature industries, the likes of Nokia, Borders, and AOL “lost more than 90% of their 2003 enterprise values.”⁶

The story of Digital Darwinism is as vast as it is humbling. There are almost too many examples to explore:

- **Mobile devices**: Between 2004 and 2012, the market capitalization for Nokia and Motorola shrank by over 90%, or a combined $84 billion loss, while Apple and Samsung gained more than $600 billion in value. (Apple’s market cap is clearly based on more than mobile phones, but mobility is a cornerstone of its DNA.)⁷

- **Book retail**: Between 2000 and 2012, Barnes & Noble lost about half its market value, while Borders’ value collapsed to zero. Meanwhile, Amazon’s market cap grew more than 20 times.⁸

- **Movie rentals**: Between 2006 and 2012, Blockbuster’s value dropped from about $5.5 billion to near zero, while Netflix grew more than 360% during the same timeframe.⁹

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**Figure 1**

Digital Darwinism*  
is Affecting Businesses and it’s Only Accelerating

*DIGITAL DARWINISM = WHEN TECHNOLOGY & SOCIETY Evolve Faster Than Your Ability To Adapt

Only 71 companies remain today from the original 1955 Fortune 500 list

Source: Altimeter Group 2014
TECHNOLOGY IS PART OF THE PROBLEM AND PART OF THE SOLUTION

You need perspective, empathy, and the courage to push forward when everyone around you is seemingly pushing back to survive Digital Darwinism and excel in digital transformation. What separates brands that fall to digital evolution from those that excel is the ability to recognize the need for change and the vision to blaze a path toward renewed relevance among a new generation of consumers.

Still, there’s a general lack of urgency and understanding preventing acceptance that Digital Darwinism is real. Changes in customer behavior and expectations don’t affect businesses until they do. Instead of leading change, however, businesses are at risk of forever reacting to market changes until they can no longer do so.

This leads to inevitable extinction. But it doesn’t have to, so what’s the problem?

Many CEOs believe that technology is the most important external factor shaping their organizations, more so than market factors and macroeconomic concerns, which are very dynamic in their own regard.

Yet knowing this, executives still can’t do anything about it within a reasonable amount of time and effort. In a recent executive survey conducted by IBM, research found that 63% of executives believe the pace of technology change in organizations is too slow. Others complain that no one in the organization is creating or illustrating the need to change in order to rally people and create a sense of overwhelming need to do something about it.

Another problem is how companies see the role of technology within the organization. Historically, businesses have used technology to improve efficiencies, optimize scale, and increase margins wherever possible. At the same time, technology investments have unintentionally created distance between businesses and the people they’re meant to serve.

For instance, when we think about customer relationship management today, we could argue that most organizations put their effort in quantifiable results like sales and marketing, not into the relationship itself. When technology is about scale, automation, and in some cases forcing customers into non-human channels to minimize “costly” engagement, the ability to become customer-centric is impossible at best.

Technology isn’t just for automation and operationalization, though. It is the very key to scale personalization and engagement. After all, the technology we use as consumers offers distinct clues into who we are, what we value (or don’t), who we connect with, what we shop for and buy, and how we use things.

Businesses, though, still see customers as strangers, if they see them at all.
As customers, we’ve come to expect certain details and decisions already laid out for us. But there are plenty of obvious cases, even in advanced businesses that don’t consistently meet this call. For instance, why doesn’t your ATM know what language you speak? It only knows what’s in its system rather than all of those critical bits of digital encoding that make you a unique customer. The transactional data exists but only in isolation to itself, not the world of data swimming around you, the customer.

It is almost as if businesses don’t know us at all. What happened to that pleasing online world you were visiting just a few minutes ago?

We can do better. We have to do better. We just need a new point of view.

**BUT WE REALLY AREN’T CUSTOMER-CENTRIC!**

We really aren’t as customer-centric as we believe. The problem is that we still see these digital customers through our analog standpoint. We make strategic investments based on analog-first experience, gut instinct, and business goals without appreciating the differences between analog and digital ways of thinking.

We may think we know that things are changing; we may even use many of the technologies that are disrupting behavior. But we’d argue that how digital customers use technology is often questioned or perhaps mocked simply because of the increasing gap between analog-first incumbents and digital natives. Many decision makers are out of touch with what makes digital customers so different in terms of what they value and expect. That mindset has to evolve, says Ted Shelton, Vice President, Customer Experience Practice, Cognizant. “Arriving at this new state will require enormous changes in individual attitudes, business processes, organizational structures, and the technical infrastructure to support all of these changes,” writes Shelton in *Business Models for the Social Media Cloud.*

This growing chasm between assumptions and reality means that a sense of urgency is already percolating.

Times are different now. And we’re just getting started, because what’s new and different is rapidly becoming the new normal. In fact, according to SiriusDecisions, “67% of the buyer’s journey is already done digitally.”

That means where you’re investing in customer experience and where customers are making decisions and informing others of their decisions are starting to fracture, if they haven’t already done so.

We can only benefit by getting answers or insights we might not have had otherwise. Moving forward, we need to answer a few critical questions:

- Do we know the differences between traditional and digital customers?
- Do we understand their paths to purchase, influence, and barriers to decision making?
- Do we know what, in each moment of truth, our digital customers will do?
- Do we really know our customers at all?

We’re often challenged by executives who don’t feel a sense of urgency to invest time and resources in studying digital customers.

Yet we’ve heard time and time again that it is this lack of urgency that prevents not only change but discussions about change to gain traction.

“We’re profitable today,” executives will say.

Others will ask, “We already know our customers, so why do we need to look at digital customers any differently?”

What most executives are missing is that the digital world offers a better chance than ever to reach...
customers. We have more data than ever to impact customer choices, and customers have more data on the businesses and brands trying to connect with them. This is a real, current dystopia for businesses that don’t invest, not some far-off, esoteric future for doing business.

Perhaps most daunting of all is the complete lack of any panacea for connecting with digital customers. Connecting requires a complete transformation in thinking, understanding, and, ultimately, the actions we take for survival and success.

Another common problem we see in organizations is the inability to accept or acknowledge perspectives that look at the state of the business from the outside. Outsider perspective often offers just that: perspective.

Honestly, we’ve never met an executive who believes that customers aren’t important. But the term customer-centric is so much a part of the business vernacular that it has lost its meaning and significance. There’s a difference between saying you’re customer-centric and actually investing in customer-centricity in the form of purpose, people, processes, and technology.

Unfortunately, the Tempkin Group, an organization focused on developing customer experience (CX) strategies, found that only 7% of companies it studied were actually customer-centric. This small group didn’t just say they were customer-centric; they talked to customers, recognized challenges and opportunities, and invested in systems and processes that brought them closer to customers.

Becoming customer-centric is key to not just success but survival. It is the only way to understand the needs and differences of digital and traditional customers. It is what you do with these insights that sets you up for immediate and long-term success. The process of learning from changes in customer behavior and the role digital plays in both affecting change and enabling changes in business is often referred to as digital transformation.

THE WHEEL OF DISRUPTION KEEPS SPINNING FASTER

With each new innovation that hits the market, businesses either react to it or don’t. In most cases, their reasons why aren’t clearly defined.

It is as though they’re seeing new technology through a dusty lens.

Some businesses clearly see technology trends as the springboards to customer relevance, but they jump from trend to trend without understanding why. They come down with Shiny Object Syndrome. After all, if customers use new devices, apps, and networks, then businesses must do so as well, right? As a result, they develop misguided strategies and programs around these new tools and services.

If we don’t see technology clearly or we succumb to Shiny Object Syndrome, we miss how and why markets adopt, evolve, and use new technology.

The truth is that technology changes aren’t slowing down; they’re only accelerating. Until we see and appreciate technology and its effect on our markets and our business, we are unknowingly marching toward Digital Darwinism and, inevitably, irrelevance.

Sometimes the truth hurts. But it is still the truth.

Technology is relentless in its iteration and innovation and disruption is inevitable.

We can’t be ostriches, ignoring what’s taking place. Nor can we jump headfirst into every new trend as a matter of survival.

Instead, we must study, analyze, and plan accordingly. These are times when key roles inside the organization, leaders of disparate fronts, need to unite to learn, assess, and take informed steps toward relevance.

One way to track these steps and appreciate their grandiosity is the Wheel of Disruption.
This tool organizes disruptive technologies so you can assess the relationship between each, as well as the relationship between cause and effect in customer behavior. Keep in mind, though: technology isn’t a one-time affair; it is constant. This iteration was developed recently and will soon be in need of updating.

In the center of this model is the Golden Triangle: social, mobile, and real time. These three elements represent the core of today’s disruptive technologies, with each surrounded and supported by the cloud. For businesses to thrive, developing customer-centric social, mobile, and real-time strategies in isolation isn’t enough.

Encircling the Golden Triangle are emergent technologies and trends built upon or resulting from mobile, social, and real-time platforms, such as big data, geolocation, and more.

These disruptive technologies are just the beginning of a still-shaping era of connected consumerism. Each is significant in affecting how business is done.

But customer behavior and expectations — and those of employees for that matter — continue to evolve. And the list of disruptive technologies that is pushing business leaders and processes out of their respective comfort zones is far more exhaustive and constant. The outer-most circle contains some of the most disruptive:

- Wearables
- Maker movement
- Beacons
- Geolocation
- Internet of Things
- Sharing economy
- Gamification
- Big data
- Second screen
- Augmented reality and artificial intelligence
- Payments

Within the Wheel of Disruption, the “Golden Triangle” is encircled by other emergent technologies and sectors affected by mobile, social, and real-time, such as big data, geo-location, cloud and more.

Source: Altimeter Group 2014
If we were to add to the list of disruptive technologies today, we would include:

- Platforms and ecosystems
- Alternative currencies
- Mass personalization
- Crowd funding/lending
- Anonymous web
- Private web
- Instant gratification services

We wonder what does tomorrow bring?

And that’s the point. Technology is always changing, and we need mechanisms to track everything systematically.

It can be challenging to imagine how some of these tools impact your customers or business today, but this really isn’t anything new. We’ve always been reluctant to appreciate the impact of new technology in our work. If we’d had this conversation in the early ‘90s, we would have been discussing whether our employees should have a desktop PC or access to email. In the later ‘90s, the conversation would have focused on whether we should have a website and, if so, what kind. Just a few years later, we’d have been questioning employees having access to cell phones and debating the role and corresponding investment in ecommerce.

Now, we’re discussing the need to support the mobile web, mobile commerce, and omnichannel.

The Wheel of Disruption keeps on accelerating, so we can’t afford to lose time debating processes at the risk of missing significant opportunities. We just need to get better at recognizing opportunities and weighing abilities to pursue them.

The above list represents the next set of tools businesses need to embrace or not. The time between these phases of evolution is compressing, and businesses must adequately invest in the ability to change now.

From the CEO to the CIO, the CMO, and any other CXOs responsible for employee and customer engagement, technology affects every aspect of business.

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DIGITAL TRANSFORMATION IS THE KEY TO SURVIVING DIGITAL DARWINISM

The real threat — and opportunity — in technology’s disruption lies in the evolution of customer and employee behavior, values, and expectations. Companies are faced with a choice between investing resources and budgets in current technology and business strategies (business as usual) or in new technologies, aligning them with market and behavior shifts.

We need an infrastructure that understands this, tracks trends in technology and behavior, and makes decisions to efficiently test, learn, and adapt.

Indeed, Digital Darwinism brings an end to business as usual. It sets the stage for a new era of leadership, charging behind a mantra of “Adapt or die!”

To determine a technology’s relevance takes understanding. Understanding takes research. Research insights reveal the path forward toward digital transformation.

What is digital transformation?

It is the changes associated with businesses applying digital technology, along with modernizing the company vision, organizing the way it works, and aligning investments in technology, process, and people to compete in a digital economy. It is the very thing that will help businesses become not only customer-centric but also resilient to disruption and change.

Digital transformation is real, and it is already gaining momentum among business leaders today.

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Only 1 out of 3 companies globally have an effective digital transformation program in place.

- MIT Center for Digital Business and CapGemini Consulting
In November 2012, the MIT Center for Digital Business and CapGemini Consulting published a three-year study that more than made the case for digital transformation. The report found that even though digital transformation improves business, increases efficiencies, and boosts profitability, only one-third of companies globally have an effective digital transformation program in place.\(^{14}\)

One-third.

If digital transformation represents the future of business and yields competitive market advantages, why isn’t every business enlisting in digital transformation?

It comes down to change. Change is not only hard, it can be dispiriting and unnerving. But businesses have to start somewhere.

**THE CASE FOR DIGITAL TRANSFORMATION**

The question of why businesses should transform digitally led us to study companies that are embracing digital transformation and those that aren’t. Why are some companies studying the evolution of customer behavior and changing accordingly while others missed the proliferation of digital customers yet still pursued change nonetheless?

It took over a year of research and two reports to start to answer that question.

We started by studying the most progressive businesses out there, such as Starbucks, LEGO, Sephora, and Intuit, and published the results in Digital Transformation: Why and How Companies Are Investing in New Business Models to Lead Digital Customer Experiences.

From the outset, these companies were different. It turns out that the most advanced companies pursuing digital transformation set out to change based on what they learned from exploring the customer journey. Driven by a key differentiating question, “What would my digital customer do?” strategists made informed decisions about where to invest in technology, people, and processes to effectively navigate the digital customer experience (DCX).

We then surveyed a broader set of executives and digital strategists to understand the state of digital transformation. We did so to understand how everyday businesses compared to those who were well ahead of digital transformation.

The results were staggering.

**ORGANIZATIONS UNDERGOING DIGITAL TRANSFORMATION EFFORTS**

Is your organization undergoing a formal digital transformation effort in 2014? Altimeter defines digital transformation as: the re-alignment of, or new investment in, technology and business models to more effectively engage digital consumers at every touchpoint in the customer experience lifecycle.

Source: Altimeter Group, 2014
As you can see in the graphic, 88% of executives and digital strategists stated that their company is undergoing a formal digital transformation effort in 2014. Yet through deeper analysis of our extensive interviews and survey data, we found that some executives confuse technology enabler investments and customer-centric technology investments. There’s a key difference between investing in technology just be digital (e.g., social, mobile, cloud, big data) and investing in technology to think digital or customer first.

While the word digital is part of digital transformation, the essence of digital transformation comes down to people and how their digital behaviors differ from those of traditional customers. The transformation must be informed by understanding and empathy. To get this right requires research and study.

We found that even though most respondents said they were in the throes of digital transformation, only 25% had actually mapped out the digital customer journey. It is unfortunate that so much time and resources are going toward programs that may or may not hit the mark. We also learned that 42% haven’t studied the digital customer journey and another 12% had talked about the need to do so, but no one had taken the lead yet.

We can do better.

**COMPANIES MUST FOCUS ON JOURNEY MAPPING TO IMPROVE CUSTOMER EXPERIENCE**

Which of the below best describes your company’s efforts around the customer journey/experience?

- **25%** We have completely mapped out the customer journey within the last year and have a clear understanding of new digital touch-points.
- **12%** We’ve talked about the need to do so but no one has taken the lead yet.
- **12%** We are researching customer behavior now and waiting for results to inform our digital transformation strategy.
- **3%** The need to do so hasn’t come up or been made a priority.
- **42%** We have not officially researched the digital customer journey but we have updated digital touch points with new social and mobile technologies and investments.

Source: Altimeter Group, 2014
UNDERSTANDING THE DYNAMIC CUSTOMER JOURNEY

Those companies that were excelling in digital transformation shared more than the question “what would my digital customer do?” They set out to follow their customers’ footsteps and every aspect of engagement, goal, technology, and emotion that surrounded that journey, creating what some call a customer journey map.

In this case, customer journey mapping shows that consumer habits and expectations are outpacing current organizational fractures. As a result, companies need to ask the following questions:

- What uniquely defines the persona of our digital customers?
- What is different about their customer journey?
- What are the touch points they frequent, how do they use them, and with what devices?
- What are their expectations, what do they value, and how do they define success?
- How are they influenced, and by whom? How and to whom do they in turn influence?

For example, Intuit studies the relationship between customer technology usage and path to purchase. The Intuit team starts with a simple but integral question: Based on technology adoption, what is our customer’s path to purchase? To be successful, the team looks beyond demographics and invests in psychographics (e.g., shared behaviors and interests) to create accurate buyer personas and better understand the new customer journey.

But digital transformation takes more than that.

The goal of digital transformation is to deliver a more natural and meaningful experience using technology. Reaching that goal requires an upgrade or a complete reboot of business philosophy. Nothing will move forward without developing a focus on customer-centricity and a support system for discovering what your digital customers would do and determining how that’s different from what your traditional customers do.
RECOGNIZING CODE HALOS

Think for a moment about your personal devices and all the things you do with them: connect with friends, play games, manage your money, read books, work, watch movies, listen to music, monitor your fitness, get directions, buy any number of products, and so on.

Now imagine all of the data flowing through all your devices as an invisible field that surrounds each device. As more and more devices add the ability to connect, the data fields become more complex. They encompass not just a device but a person, organization, or process.\textsuperscript{15}

The multinational IT, consulting, and business process outsourcing company, Cognizant, calls these invisible fields of code Code Halos. \textit{Code Halos: How the Digital Lives of People, Things, and Organizations Are Changing the Rules of Business}, written by Cognizant Center for the Future of Work members Malcolm Frank, Paul Roehrig, and Ben Pring, clearly lays out how companies can use this data to unlock insights on those lines of code and connect with digital customers in meaningful ways. By creating meaning from the digital information that surrounds people, organizations, and devices, business strategists can extract unprecedented levels of value and insights.

We’re all generating Code Halos all the time.

A few years ago, I introduced a concept of the human algorithm. At a high level, it was an idea for applying a very human filter and process for understanding needs, expectations, and opportunities; generating internal empathy among executives and key stakeholders; and developing relevant strategies, products, and services. It identified and internalized personal information stemming from tech halos, as well as the trends, behaviors, and so forth driving the future of new consumerism.

Clearly, Code Halos are important to us on a personal level; most of us generate and share digital information every day. But they’re also vital to future business success by lifting some of the pressures brought on by Digital Darwinism, or what the authors of Code Halos refer to as an extinction event, the moment when a company falls altogether.

Historically, a winning business model meant making the best product for the best price with the best service. That’s no longer the case. It is still essential to have great products and people, but future-ready businesses understand that it is customers’, products’, partners’, and employees’ digital information — the Code Halos — that can create unprecedented levels of insight and business value and, as a result, a winning business model.

Clearly understanding digital customers’ behavior and expectations is the key to future success. Where do you start? The good news is that this is a time of unprecedented data availability and awareness. Digital breadcrumbs are strewn everywhere for us to trace, decipher, and analyze. We’ve never had such a chance to learn from and empathize with customers. We simply must embrace a new philosophy to recognize this opportunity. We must invest in a new era of information architecture that’s personal and human.

Initially, Code Halos were rooted in our personal interactions with online market leaders. However, established enterprises are now deriving meaning from Code Halos. This trend is moving rapidly into more traditional business sectors, changing the basis of competition throughout many industries.

Cognizant organizes Code Halos into five categories, each representing an opportunity for businesses of any size, shape, or industry to compete for the future right now:

- Customer Code Halos
- Product Code Halos
- Employee Code Halos
- Partner Code Halos
- Enterprise Code Halos

Understanding each category helps us reshape the enterprise from the inside out and the outside in from an informed and even inspired perspective — without the guesswork.
CUSTOMER CODE HALOS: CUSTOMER RELATIONSHIPS GET REDEFINED

Customer Code Halos leverage consumer data and insights to create an enriched customer experience. Sophisticated algorithms are applied to individualized code, such as past usage, to provide input given to systems like the Amazon Betterizer, and artist selections added to Pandora streams, to derive business meaning and then deliver a customized experience.

This is not just reserved for companies with a born-digital DNA. Disney, for example, launched MagicBand bracelets to help guide visitors through its amusement parks, manage ticketing, act as room keys, personalize the guest experience, and even work as a portable bank.

The MagicBand is already transforming a day at a Disney park from a one-size-fits-all experience to a highly personalized one. As a user of MagicBand, I can attest to its integrated and personalized experience. It continues to deliver value in between park visits, as well, simply by knowing who I am and improving the foundation for engagement over time.

PRODUCT CODE HALOS: PRODUCT VALUE SHIFTS FROM WIDGETS TO DIGITS

One of the key elements in the Wheel of Disruption is that of connectedness. Indeed, we are moving into the era of the Internet of Things, where independent devices, appliances, components, really all things, are connected to the Net. This trend already permeates manufacturers that use advanced sensor technology on the shop floor, but it extends far beyond factory walls.

From GE aircraft engines to mobile phones and even personal grooming tools, such as toothbrushes, more and more devices today are becoming network aware. They all have the potential to generate rich Code Halos that interact with the halos of information from people, business processes, and organizations and generate streams of data ripe for deriving meaning.

As Code Halos grow, these products’ software will become far more valuable than their associated hardware.

For example, with a smart toothbrush, the physical tool itself is a commodity, while brushing habits, dental hygiene history, and health needs create a halo of information that is of premium value. In many sectors, new business processes, industry models, and products are being formed at this Code Halo intersection.

EMPLOYEE CODE HALOS: EMPLOYEES CONNECT TO SOLVE PROBLEMS DIFFERENTLY

Code Halos can be built around individual employees, creating new models by which knowledge work is conducted. In the same way, Employee Code Halos can be far richer and more powerful than many consumer halos, as they comprise work histories, subject matter expertise, perspectives, work styles, and experiences.

Employee halos facilitate getting the right work to the right person at the right time, all contextualized within a work stream, delivering the most appropriate organizational assets to the individual. In much the same way that Amazon’s consumer halos and algorithms individualize the shopping experience, employee halos and organizational algorithms individualize and transform the work experience.

PARTNER CODE HALOS: ECOSYSTEM PARTNERS LINK TO FORM VALUE WEBS

With new technologies and more collaborative mindsets, traditional supply chains (primarily linear and designed for physical products) are reorganizing into tightly integrated systems for sharing and co-creating knowledge assets.

People will still need tangible things, but companies in life sciences, banking, insurance, healthcare, and manufacturing are now using innovative technologies to create more efficient and effective partner ecosystems.
ENTERPRISE CODE HALOS: YOUR COMPANY’S BRAND IS A CODE HALO™

Think of all the digital interactions associated with your company or business unit. Information about products, clients, partners, and employees creates or destroys value every day.

Angry customers, positive media coverage, financial data, and a million other information sources create a perception of your company as real as the bricks and rebar of a manufacturing plant.

Whether you manage it or not, your company is continually defining itself by its Code Halo. In many cases, this halo of information has much greater clarity and authority than your marketing department’s efforts.

THE CROSSROADS MODEL: HOW TO WIN WITH CODE HALOS

Change isn’t an option. Digital Darwinism is real. The future is already here, and we are firmly planted at the crossroads. The question is do we change and do so in the confines of yesterday’s perspectives, processes, and systems? Or do we look forward, making bold investments in new models and decision making, all rooted in a culture of innovation and agility?

Personally, we’ll take the latter, and not only that, we’ll double down.

It is no secret that now is the time for organizations to develop new norms to meet digital customers’ enhanced expectations. For some reason, we still need to tell this story. We still need to create a sense of urgency. To survive an extinction event, better, to win, takes a series of strategic steps. These moves are described by Cognizant’s Crossroads Model, a system for assessing the potential for disruption and investing in transformation to eliminate the likelihood of an extinction event while establishing significant competitive advantages.

The Wheel of Disruption keeps on turning and while it does, it produces a second economy, where there are already winners and losers. The good news is that Code Halos are becoming the key building blocks of the second economy.

The industrial economy — from the steam engine onward — has focused on design, manufacturing process, selling, and servicing of increasingly complex physical products and services. The coming phase of commerce is not only about Code Halos surrounding people and products but also business processes that support organizational models that will thrive in the digital economy.

The list of companies finding success with Code Halos is growing every day.

Amazon beat Borders. Netflix knocked off Blockbuster. Even billion dollar startups like Uber and Airbnb are chipping away at the entrenched industries of urban transit and hospitality. These are not isolated or random events; they’re canaries in the coalmine.¹⁶

Both traditional and digital-born companies are harnessing the power of Code Halos. As outlined in Code Halos, GE is creating Brilliant Machines, Disney is launching MagicBands at its theme parks, Allstate is using mobile telematics devices and analytics to transform auto insurance, and Nike has gained tremendous traction with its FuelBand. And though it is decided to stop making the actual device, Nike continues to double down on the data that makes its athletes unique through software innovation and hardware partnerships.

These industry leaders aren’t taking action because they’re threatened or losing ground. They’ve looked ahead and decided to lead rather than react. Leadership within these organizations recognizes that this digital transition is already happening, and they grasp the scale of the opportunity ahead as the second economy grows.
Through its “Industrial Internet” and “Brilliant Machines” initiatives, GE is creating Code Halos around industrial machines such as jet engines, locomotives, and power turbines.

With its “MagicBands,” Disney is creating a wearable wristband to generate Code Halos around its park guests, creating unique tailored experiences for those customers.

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.

With Nike+ FuelBand — a wearable activity monitor — Nike is putting Code Halos around its customers, helping to analyze and improve their levels of personal fitness.

These are just a few examples that demonstrate the optimistic side of Digital Darwinism. Thus, an extinction event is a choice. It just comes down to whether or not you decide to compete for the future right now. As former Intel CEO Andy Grove once said, “Only the paranoid survive.”

For example, an upstart builder of jet engines or power turbines does not seriously threaten GE. Neither 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 value of digital and its impact on customer experiences. Even more, they recognize the opportunity to insert these new capabilities into their existing business models to extend their market leadership.

Leading companies acknowledge that the Code Halo has become the key structural element of today’s business models. It is what leads executives such as GE CEO Jeff Immelt to wax prophetic. “Industrial companies, not just GE, but all industrial companies, are no longer just about the big iron,” says Immelt. “All of us are going to seek to interface with the analytics, the data, [and] the software that surround our products.”

THE PATH TO DIGITAL TRANSFORMATION

The path toward digital transformation is not prescribed. Nor does it end. It is a constant journey, and Code Halos guide the way. The good news is that every step you take toward optimizing for the second economy is also one step away from Digital Darwinism.

Rather than react to change or be disrupted by it, some forward-looking companies are investing in digital transformation to adapt and outperform peers. In the Capgemini and MIT study on digital transformation, research shows that companies that are highly vested in both digital intensity and transformation management intensity, AKA the digerati, derive more revenue from their physical assets, are more profitable, and possess high market valuations.

Why is that?

It comes down to one word: relevance. If consumer behavior is evolving as a result of technology, businesses either compete to get ahead of it, perpetually react to it, or belittle it. One of the most troubling aspects about digital maturity is that technology is both part of the solution and part of the problem. With the onslaught of connected devices and tools enabling brands to connect with consumers in timely, relevant, and experiential ways, companies will have to further empathize for consumer wants, solving the right problems for the digital customer in the right place and channel, right when they want it. This is designing the customer experience.

Some businesses are already succeeding in digitally transforming the customer experience. They’re driving changes that are both externally focused (customer-facing) and internally focused (collaboration, process, technology, etc.) to build a scalable infrastructure for the digital economy. Those changes take reorganization and resilience. A clear vision, an empowering leadership, and ample resources must support digital transformation efforts for the business to achieve meaningful success.

THREE ELEMENTS OF DIGITAL TRANSFORMATION

Altimeter Group identified three elements of successful digital transformation that, when combined, react to form the base for digital transformation:

- Vision and leadership
- Digital customer experience
- A digital transformation team

Code Halos, the information running through and around everything, informs and inspires this process.

While technology makes discovering Code Halos possible, these beacons of data and insight transcend constructs like IT, big data, and 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 are new and essential management skills that are not yet clearly or widely understood.

It takes an entire organization to compete in the second economy, and that takes digital transformation.
THE THREE ELEMENTS OF DIGITAL TRANSFORMATION

**ELEMENT ONE: Inspire Leadership with a Vision**

Whether it is running under the banner of customer experience, convergence, omnichannel, or another moniker, a customer-centric culture guides businesses on the uncharted path of digital transformation.

It takes vision to earn executive sponsorship and rally teams in new directions. We learned that traditional vision statements typically aren’t specific enough to communicate what’s different about digital transformation or why it is important. Often, it takes a renewed focus on the customer to better communicate a vision centered on digital transformation.

The Role of the Change Agent

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 recognized yourself. Code Halo leaders, by their very nature, become the spark for change. They become the change agents and get the ball rolling.

But the business case needs more than evidence or anecdotes; it needs a story and a vision for what change looks like and what it delivers. Change doesn’t just appear, and in very few cases does digital transformation come from the top.

Change agents leverage leadership to identify the players and influencers within the company who can help move the needle. The key is to find an executive or stakeholder who believes in what digital can do and make them the focus of a targeted pilot. Code Halos provide the insight to identify those executives and stakeholders.

This is the time for change agents to rise, unite with one another, and partner with executives to collaborate and organize to create digital leadership. Code Halos chart the course.
To compete in this new world, managers must understand how the Code Halo economy works, because it already affects organizations today.

Customers are using technology their way, regardless of your intentions, and the customer experience strategy must align with their journey and aspirations. Digital customer experience begins with Code Halos, and research — not guesswork — is necessary to study personas, behaviors, and expectations throughout every stage of the customer lifecycle.

Once a business is armed with information, its digital transformation will take shape. Its people, processes, and technologies will be aligned with the business’s goals and milestones, mapping an effective journey for digital customers.

Map the Journey: What Would My Digital Customer Do?

What would my digital customer do?

How is that different than traditional customer activities and preferences?

Code Halos lead the way. To compete in the second economy, businesses must define or improve the customer experience, which requires an understanding of the digital customer journey and the experience it delivers. Code Halos assemble into a journey, which reveals a map of engagement and relevance. However, someone has to assemble those halos into a map that everyone across the organization can appreciate and take action on.

Customer journey mapping is actually two actions:

- Outlining the customer journey through physical and digital touch points.
- Researching and charting the customer journey based on digital customer behavior and trends.

The two actions aren’t always related, but they should be. A best practice is to combine the two: Invest time in researching physical and digital journeys and how customer behaviors and expectations play a role at each touch point.

Another way to think of this is as decoding the Code Halo for each customer. After all, journey mapping may reveal a complicated, tech-laden path where customers continuously hop from one route to the next.

Serendipitous Product and Service Innovation Through Journey Mapping

In discussions with companies on the frontline of digital transformation, we’ve found that studying customer expressions along with journey mapping reveals common customer questions, interesting ideas, beneficial product opinions, and competitive sentiment. The insights that emerge from this work can spark ideas to improve, end the life of, or invent products and services.

For example, credit card provider Discover invested in journey mapping to visualize the customer lifecycle and to learn where customers go, how they pay for goods, when they borrow money, and more. In the process, they discovered an opportunity.

“We’re proud of the exercise, because the result was coming up with a product that is now entering the market in a louder way. Our new Discover it card was born from customer decision journey work we did that uncovered how people online behaved differently. Now, this new product speaks to the digital needs of our customers,” representatives from the company said. This finding shows that Code Halos represent opportunities for innovation as well, improving not only how Discover adapts but also how it will compete for new business.

Collaboration Is Table Stakes

Code Halos are not confined to any one department. They represent the journey and the experience people have and share. They span departments and functions.

For example, some customer service teams don’t have access to customer loyalty statistics, while some marketers don’t have access to customer service issues or trends. Depending on which group customers talk to, representatives can only offer a sliver of what the
company could offer in total. In this silo-driven model, Code Halos complicate cross-functional engagement; more importantly, though, they have the potential to unite disparate fronts around a common cause.

To truly deliver a 360-degree customer experience, businesses must use Code Halos to connect the dots between touch points, business units, and customer expectations. This creates an inherent need for solid internal collaboration to optimize the journey from the inside out. Frictionless teams and smashed silos are no longer signs of advanced organizations. They’re table stakes for digital transformation.

**ELEMENT THREE: Form a Digital Transformation Team**

Successful businesses undergoing digital transformation do break down silos and form new teams, and they do so with an important goal: to more effectively manage the customer journey in real time. They combine Code Halos with strategic company priorities and objectives to define the steps needed for the digital transformation and form specialized teams to lead these efforts. These teams manage programs, analyzing Code Halos, defining roadmaps, and prioritizing initiatives, and then communicate progress and findings to the C-suite.

Research shows that companies successfully pursuing digital transformation create the following three things:

- **A center of excellence/DCX hub.** This steering committee is a cross-functional group tasked with redesigning and optimizing the customer experience. It includes roles, responsibilities, and change-specific projects.

- **An organizational structure to support the transformation.** Digital expertise is not common throughout the organization, but it does exist in pockets. Assemble a qualified team of strategists and then educate key stakeholders along the way.

- **An IT partnership.** A strategic alliance between IT and marketing will streamline and scale digital transformation efforts.

**Build a Center of Excellence/DCX Hub**

Who owns the customer experience? Everyone. But like everything in business, structure, organization, roles, and responsibilities must be defined.

Pioneering organizations form special teams to start talking about change and putting it into motion. These teams go by many names: digital circles, centers of excellence, rapid innovation teams, digital acceleration teams, and more.

Other organizations create the team with a more organic approach. For example, some form multiple working groups, or circles, that aim to understand and act on problems and opportunities based on Code Halo elements. Eventually, those circles unite under a formal digital leadership committee with executive sponsorship to create a dedicated team responsible for bringing about digital transformation across the enterprise.

**Code Halos Unite CMOs and CIOs**

Companies making progress in digital transformation unanimously agree that bringing IT in from the beginning and working with it throughout the process is essential.

In any digital transformation initiative, CIOs and CMOs share goals and outcomes. By creating a strategic partnership, IT and marketing can expedite change while accelerating initiatives that optimize digital customer journeys and experiences. Without that partnership, digital transformation efforts become ad hoc, get stuck in silos, lessen enterprise-wide impact, and prevent true scale.

At Motorola Solutions, the partnership between IT and marketing was elevated to a formal level. Dubbed the MIT Group, marketing and IT officially allied to focus on an integrated approach to digital customer experience and change.

“These two functions have tremendous ability to impact customer experience through change,” says Grant Ferguson, leader for Systems of Engagement at Motorola. “Marketing defines the vision of the company and value proposition for our customers,
while IT touches and enables every part of our business and is the ultimate orchestrator of change. Combining these two functions allows us to more effectively align our strategy and execution to become a more customer solutions-driven business.”

Find Your Halo Heroes

In the world of Code Halos, business and technology are inextricably linked, creating an opportunity for Halo heroes to step forward and lead their organization to new levels of corporate performance through digital innovation. Whether they’re in IT, marketing, or executive management, your Halo heroes are leaning into your business and leading the charge toward digital transformation. It is on you, the organization, to uncover these forward-thinking leaders and empower them to grow their areas of the business around digital.

CODE HALOS ARE THE LIFE FORCE OF THE SECOND ECONOMY

The coming phase of commerce is all about the virtual fields of information that surround people, products, places, and organizations. But we can’t just build those Code Halos. We must reimagine and reengineer the organizational models and business processes that will support the halos in order to thrive in the new digital economy. In many cases, this transition will be a heavy lift, as established businesses will have to manage traditional ways along with digital ones, yet this is unavoidable in these times of tremendous change.

To succeed, strive to be a “Meaning Maker.” Cognizant’s research shows that while the potential for using data is vast, not all companies leverage it the same way. The study defines three approaches to leveraging data through the people who leverage it: Meaning Makers, Data Collectors, and Explorers.

Why be a Meaning Maker?

Because Meaning Makers have begun to master the ability to generate meaningful insight from their big data sources and integrate it into their daily work more effectively than others. Data Collectors and Explorers are missing the shift and lag industry leaders.

To be a Meaning Maker and understand the economics of information, just doing analytics isn’t enough. You must:

- Reimagine work at the process level through analytics.
- Build a business analytics ecosystem.
- Separate the signal from the noise, the number one killer business skill for the next decade.
- Pick the right target for disruption (which is hard to do).

To make a Code Halo fundamentally attractive and compelling:

- Make it physically beautiful (interface).
- Create moments of magic through correlations found in big data (personalization).
- Make it virtually beautiful.

It is critical to create trust when you’re gathering and analyzing Code Halos. Here’s how:

- Give your Code Halo a delete button.
- Act with transparency: make the relationship truly elective.
- Demonstrate value.
- Calibrate your approach to a global stage.
- Hard-code organizational self-control.
Orientation

Change can be scary, and in the absence of information, people make assumptions. Success begins with vision and leadership to guide companies and change agents in a new direction. Leadership must inspire and take charge, offering a glimpse of what the new digital customer experience looks and feels like. Remember, leadership can come from the top or from anywhere in the organization.

People

Code Halos, data, customer journey mapping, and observation allow change agents to better understand the digital customer, leading to meaningful investments in a new customer experience.

Processes and Policies

Models, processes, and policies will need to be either amended or rewritten to support new direction and scale, as well as to empower and reward employees for their role in bringing about change. Additionally, you’ll need collaboration and the alignment or integration of cross-functional workgroups to truly make changes. Design an org chart that brings together disparate groups of people to form a team or teams aimed at consolidating and enhancing the journey and the digital customer experience.

Objectives

Define what success ultimately looks like and, equally important, the steps to get there. Take the time to document and articulate short-term and long-term purpose. This helps people grasp what they’re working toward and how they’ll recognize when they’ve accomplished important objectives.

Strategy

Code Halos represent insights that help businesses develop a digital-first or born-digital plan that invests in and optimizes digital touch points and engagement. Each strategy should consider customers’ native expectations and behaviors. More importantly, touch points should seamlessly combine to deliver a holistic, and desired, experience throughout every step in the customer lifecycle. Strategies must also focus on directing and enabling the development of new processes, policies, and workgroups.

O.P.P.O.S.I.T.E.
EIGHT SUCCESS FACTORS OF DIGITAL TRANSFORMATION

There will be no extinction event here. OPPosite — an acronym based on Altimeter Group research — combats Digital Darwinism through a series of best practices that help your organization embrace and understand Code Halos to effectively compete in the second economy.
Insights

Data is of limited use until someone translates it into actionable insights. It is no longer good enough to capture transactional data (e.g., Visitor A purchased Product B for $C at D time). Now you must understand why this transaction occurred, what the motivations were for it, and what the cascading series of events are that will result from it.

These behavioral insights will inform everything, including strategies that grow engagement and build relationships throughout the customer journey. Whichever group houses data and analysis must be empowered to deliver insights to stakeholders and decision makers. At the same time, recipients of the information must be held accountable, with their work being measured against how well insights were integrated and how well they performed.

Halo heroes will pave the way here. What is the most important ingredient that allowed Code Halo masters to win their markets and build so much value? The highly individualized experiences created by managing the Code Halos meaning.

Technology

Most organizations’ IT functions are moving through their own version of the Crossroads Model. Expectations for IT as the enabler are evolving just as quickly as they are for customers. Many wonder what the future will hold, with this rapid change only furthering some aspects of technology as being seen as a slow-moving cost center that offers, at best, competitive parity.

The OPPOSITE approach requires strategists to think about technology’s role in the customer journey. Technology is no longer the chief catalyst in developing strategies; instead, it is an enabler for digital transformation’s role in improving customer experiences and relationships. Strategists must fight Shiny Object Syndrome, selecting technology solutions that solve problems and create opportunities based on every step in the OPPOSITE framework. It is important to consider legacy investments and how they can play a role in transformation, but do not let legacy alone influence important decisions if current systems are not the right solution for delivering a desired digital customer experience.

Execution

With the incredible amount of work ahead of businesses everywhere, Code Halos may unintentionally cause analysis paralysis. To put transformation in motion, therefore, execution is as important as vision. Execution must be broken into tangible steps, however, with associated metrics and key performance indicators to communicate progress and reinforce or validate work.

Execution triggers learning and learning fosters best practices. This new knowledge should live in a central repository and become part of a recurring cross-functional assembly where insights are shared and questions are asked and answered.

Lastly, execution requires reward. As a result, policies and processes should consider systems for incremental recompense.
In the end, it really is a matter of perspective. We’re optimists. We see the opportunity to utilize the information contained within Code Halos as vast and monumental. Even though Digital Darwinism is real and now part of everyday business, we believe that adopting an infrastructure to use Code Halos to inform and inspire meaningful digital transformation is unparalleled in its promise and potential. Again: an extinction event is a choice and the fate of any organization depends on how we learn from, employ, and shape Code Halos. On the flipside, all of the factors affecting today’s business models and processes are also pushing us to innovate in ways that connected customers and employees will value and appreciate.

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?

Code Halos are already creating an entirely new economy, full of opportunities of unprecedented scale. By their very nature, Code Halos will help you answer those questions and help you not just survive Digital Darwinism but also excel in this second economy. Through their very nature, you become customer-centric. You become agile. You become innovative.

This profound new understanding of data obligates you to constantly anticipate, rather than merely react to, your customers’ needs and expectations. Culture, trust, and transparency take on a whole new meaning. This customer-centric approach informs your digital transformation strategy in ways not possible otherwise. And it is this digital transformation that will carry profound implications for your market, your employee and customer relationships, your partners — basically everything and everyone related to your business.

What an amazing opportunity you have right now. You now can do so much that others before you didn’t have the ability to do.

The future will happen to us or because of us. This is your time.

Define your future.


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About Altimeter Group

Altimeter is a research and consulting firm that helps companies understand and act on technology disruption. We give business leaders the insight and confidence to help their companies thrive in the face of disruption. In addition to publishing research, Altimeter Group analysts speak and provide strategy consulting on trends in leadership, digital transformation, social business, data disruption and content marketing strategy.

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Cognizant (NASDAQ: CTSH) is a leading provider of information technology, consulting, and business process outsourcing services, dedicated to helping the world’s leading companies build stronger businesses. Headquartered in Teaneck, New Jersey (U.S.), Cognizant combines a passion for client satisfaction, technology innovation, deep industry and business process expertise, and a global, collaborative workforce that embodies the future of work. With over 75 development and delivery centers worldwide and approximately 187,400 employees as of June 30, 2014, Cognizant is a member of the NASDAQ-100, the S&P 500, the Forbes Global 2000, and the Fortune 500 and is ranked among the top performing and fastest growing companies in the world. Visit us online at www.cognizant.com or follow us on Twitter: Cognizant.