

# Leading Through Digital Disruption

Gartner insights on  
spotting and responding  
to digital disruption



EDITED BY  
Janelle B. Hill, Gartner Research Vice President and Distinguished Analyst

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# Introduction

Digital disruption can be an intimidating term, and, perhaps more challenging, it is often a topic CIOs and senior IT leaders know they should be thinking about, but aren't sure where to start. The "wait and see" attitude is a mindset that needs to be left in the past, or organizations risk being left behind.

Companies like Uber, Google, Amazon and others have been focused on navigating the complicated landscape of digital disruption, and it's time for all organizations to start creating strategies to stay competitive and create growth.

With this book, CIOs can learn how to identify, respond and navigate through the world of digital disruption. This will require a specific set of talent, and a very different leadership mindset combined with strategic alliances with other business units. Disruptors can be any enterprise from a small startup in the medical field to a tech giant, and CIOs need to be prepared to assist the most senior business executives to identify and compete with or join these organizations.



**Janelle B. Hill**  
Gartner Research  
Vice President and  
Distinguished Analyst

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CHAPTER 1

# Spotting Digital Disruption



It's easy to understand how companies like Uber and Lyft disrupt the taxi industry, but it's likely that few people have considered how the ride-hailing apps affect airports. At the San Francisco airport taxis used a transponder-based system that enabled the airport to account and charge for taxi trips departing from the facility. But when Uber and Lyft arrived, Ian Law, San Francisco International Airport (SFO) Chief Information Officer, needed to find a different solution to manage the new ride-hailing companies. The very nature of the ride-hailing companies meant people used personal cars, and putting a transponder in each one wasn't possible, as they are private vehicles. This presented a business challenge for the airport. The solution?

#### **Disrupt the system.**

Law and his IT team designed a system that takes advantage of the Uber and Lyft GPS apps. The team set up a "geo-fence" that is triggered each time someone with the app running breaches the perimeter. The information allows the airport to track transactions at the airport and charge the fee agreed to in the ride-hailing company's operating permit.

## **Welcome to the age of digital disruption**

Although some CEOs might recognize that companies like Uber or Airbnb are disrupting the business world, many still maintain a wait-and-see attitude. This means responding once the true threat to their own business has been identified. However, in the case of digital disruption, waiting until the threat is clear is often too late. There will not be sufficient time to respond in a way that minimizes the impacts to your business.

"CIOs involved in building or expanding a digital business are dealing with an increased pace of innovation that is very disruptive to their ability to scale or grow. The ability to successfully engage with this disruption can be the difference between thriving and sliding down the performance curve," says David Mitchell Smith, vice president and Gartner Fellow. "True innovators affecting change don't just innovate — they disrupt. They shift fundamentally the dynamics of the situations in which they find themselves. When the average organization is no longer surprised by disruption, but instead uses it as a tool of normal competition, it changes organizational dynamics, the nature of strategic planning, investment priorities and the technologies used to drive the future of business."



**"The ability to successfully engage with this disruption can be the difference between thriving and sliding down the performance curve."**

**David Mitchell Smith, Vice President and Gartner Fellow**

Digital disruptions are more difficult to adapt to than earlier technology-triggered shifts due to their virtual nature. Past technology disruptions were generally triggered by physical technologies such as PCs or ATMs. With the exception of robots and robotics, most digital disruptions are initiated in the virtual world, which makes them difficult to recognize until after the impact is felt, as the SFO airport example highlights. This means that when a digital disruption appears in your market, the investment just to catch up will be large and rapid.

“Digital disruptions typically exist outside of the enterprise’s normal range of vision,” says Janelle B. Hill, research vice president and distinguished analyst. “Although CIOs and business executives acknowledge the potential for a digital disruption, they lack tools, techniques, and criteria for identifying and assessing potential disruptions.”

CIOs can lead the organization to overcome the challenges of digital disruption and equip peers to recognize and deal with digital disruption.

## What is a disruptor?

Digital disruptors are organizations that have “taken advantage of digital capabilities in one form or another to create and drive fundamental shifts — intentionally or otherwise — in their market and perhaps others... either by design or as a secondary effect,” says David Yockelson, research vice president.

Traditional companies often see digital disruptors such as Facebook, Alphabet/Google, Netflix and Amazon and try to emulate them. IT leaders and company executives ask questions such as, “How can we be the Uber of our market?”



**“Digital disruptors typically exist outside of the enterprise’s normal range of vision.”**

Janelle B. Hill, Gartner Research Vice President and Distinguished Analyst

The good news is that despite the intimidation factor of becoming a digital disruptor, given the amount of digital and/or infrastructure platforms and services via the cloud, the entry barrier to explore new digital technologies for their disruptive potential is quite low. This means that it’s possible for your organization to explore potential responses to disruption or initiate a disruptive innovation itself.

Some smaller companies are making digital waves. Wearsafe Labs utilizes a variety of existing technologies (i.e., smartphones, social networking and the IoT) to provide a “social safety net” for hikers, runners or others who could get into trouble while outdoors.

Joining the ranks of digital disruptors doesn’t necessarily mean a total overhaul of technology.

“Often it’s the combination of new or existing technologies — after all, we are talking about digital disruption — and a different business model, focus in a given industry, and/or impact/influence on society that delivers the disruptive experience,” says Yockelson.

There are four elements of digital disruptions: Business, technology, industry and society.

**FIGURE 1:** Select digital native disruptors and their impact on the elements of disruption

	Bu Business	Te Technology	In Industry	So Society
	Market, Development, Pricing, Delivery, etc.	Invention, Design, Usage, etc.	Processes, Standards, Methods, Customers, etc.	Culture, Habits, Movements, etc.
<b>Facebook</b>	No user fee	The “like,” mobility	Privacy vs. access	Social impacts on society
<b>Netflix</b>	Subscription + two-way delivery	Streaming, profiling	Streams vs. stores	Binge watching
<b>Alphabet/ Google</b>	Search and advertising	Page ranking at scale	Monetizing video	“Google it”
<b>Amazon (Consumer)</b>	Warehousing + free delivery + Prime	CX-focused technologies (for example, Alexa)	Shopping for anything (products and services)	Able to lead consumers to new methods
<b>AWS (B2B)</b>	Significant and ongoing capital investment in infrastructure	Innovation in silicon networking and various levels in stack	Failing fast, “yes” culture, continual innovation	Nearest thing to a religious movement in IT

Facebook, for example, was not the first pervasive social platform, given that Myspace had a similar approach. However, Facebook used its own established platform in inventive ways, such as allowing likes and follows, and kept the no-user-fee business concept. It provided the right balance of privacy versus access, and that has had huge implications on social media and society. The company used acquisitions and further innovations to continue to disrupt beyond society, now impacting the media industry (the business element).

Amazon Web Services (AWS) disrupted the on-site server industry via its IaaS/PaaS cloud platform. The company invested heavily in infrastructure as a business model, and focused on innovation in the tech stack. They established internal philosophies about innovation and disruption and created the “nearest thing to a religious movement in IT” as a societal impact, says Yockelson. The societal impacts for other disruptors include now-familiar habits such as binge watching (Netflix) and the phrase “Google it” (Google).

However, in the grand scheme of disruption, these large examples are relatively simple and not necessarily difficult to identify. Consider what happens when you break down the backgrounds of potential and actual disruptors further. This helps distinguish categories that disruptors generally fall into: Emerging tech providers, established providers, vertically focused entities and reactive organizations.

**FIGURE 2:** Categorizing select potential and actual disruptors by elements of disruption

	Bu Business	Te Technology	In Industry	So Society
	Market, Development, Pricing, Delivery, etc.	Invention, Design, Usage, etc.	Processes, Standards, Methods, Customers, etc.	Culture, Habits, Movements, etc.
<b>Emerging Providers</b>	Orbitera (Google) GitHub	Ethereum Twilio Docker	Sunport	Wearsafe Labs
<b>Established Providers</b>	Softbank Adobe Microsoft (cloud)	IBM (Watson) PTC	Intel Samsung	Nintendo PayPal
<b>Vertically Focused Entities</b>	Lending Club Acorns Dollar Shave Club	Digit Local Motors	WeWork Trov	SoFi Lemonade
<b>Reactive Orgs</b>	Unilever Walmart	GE Under Armour Bosch	Allstate Caterpillar	Amazon

"With the provided examples of disruptors — potential or actual; past, present or future — it may be easier to understand and isolate methods and focal points of digital disruptors," says Yockelson.

## Recognize digital disruption

A key aspect of seeing digital disruption is to learn to separate actual digital disruptions from fads. A fad, such as Pokemon Go or Google Glass, will incite lots of excitement but have limited impact. A disruption will completely redefine the market's needs and potentially cause a significant change in the industry and beyond. For example, tablet computers like the iPad caused changes in application development, impacted revenue of desktop and notebook computer manufacturers, and even changed how humans interact with technology, with FaceTime as the first mobile conferencing application. The technology also created an aftermarket accessory industry.

At some point digital disruptions will completely change markets due to their ripple effects, while a fad will not. Consider how digital TV initially impacted analog television, and how Netflix subsequently exploited digital content to completely disrupt the entertainment industry.



**“With the provided examples of disruptors...it may be easier to understand and **isolate methods** and focal points of digital disruptors.”**

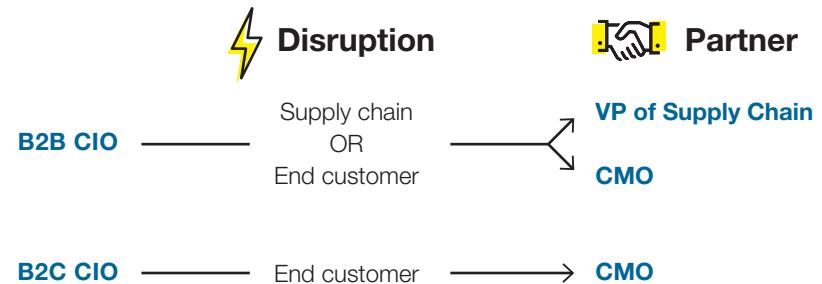
David Yockelson, Gartner Research Vice President

## Set up your sensing apparatus

Enterprises looking to identify disruptors before it's too late should set up a “sensing apparatus” to monitor external indicators. These indicators include shifting customer behavior and consumer trends, as many disruptors originate in the consumer world. Pay attention to where VCs are investing and to disruptions in adjacent markets for indicators. The sensing apparatus will create large quantities of information, so look to data scientists to mine the data lake for insights.

## Befriend the CMO or VP of Supply Chain

Monitoring external industries is new territory for a CIO, but other members of the executive team will be better equipped for such an effort. Depending on the setup of the business, the CIO might look to partner with the CMO, CFO, VP of Supply Chain or the Head of R&D to have a better view of potential disruptors. In a business-to-business setup, disruption can happen in the supply chain or with the end customer, so it's best to partner with both the CMO and VP of Supply Chain. For business-to-consumer companies, disruptions are most likely to happen in the customer segment, so the focus should be on the CMO.



CMOs can offer insight into customer and market behavior. They will also be able to identify potential indicators and will probably have staff with the skills to analyze the data. In return, CIOs can offer CMOs institutional knowledge about IT systems and why certain systems are set up the way they are to provide perspective on how a potential disruption challenges the status quo.

## Prioritize digital disruption

Now that you know how to spot digital disruption, what's the next step? Prioritize.

Digital disruptions should be viewed within three dimensions — the scale of the disruption, the reach and the richness of the experience.

These three dimensions can create huge market advantages given that more content is produced faster, is available on demand, and generally provides a deeper context and extended depth of customer interaction.

"CIOs, in conjunction with business peers, must assess what these advantages mean to their business. Will the disruption reach their market and their customers? With what new value? Any disruption that clearly impacts two or more of these dimensions should be a high priority. Combine judgments about these three dimensions of a disruption with data and insights gathered from the sensing apparatus to prioritize one disruption versus another. This will also help distinguish disruptions from fads," says Hill.

## Watch other companies

When looking to spot digital disruptors, don't just focus on the VC community, although disruptors may emerge from there. Large companies can have a huge advantage if they can crack the digital disruptor code. For example, IBM acquired the Weather Channel for its global-scale platform and data. The digital business giants (Google, Facebook, Amazon) should also be monitored.

"Be particularly wary of what data they could gain or own with respect to your market," Hill says. "This is also where your understanding of your enterprise's economic architecture will help dramatically, by putting your observations into a business context that your CEO and board clearly understand."

## Create a culture of innovation

Companies that are successful disruptors, such as AWS, have created a culture of innovation; that is, innovation is a normal day-to-day activity, not a special once-a-month meeting. Realistically, the digital business era has introduced a lot of uncertainty and concern, but an enterprise that has an established culture of innovation will be able to better respond to the uncertainty and risk that accompanies this era.



**Don't worry if innovation isn't a core competency at your enterprise. It's easy to jump-start innovation. Here are two simple steps to get you started.**

- 1** Challenge assumptions based on tradition, history and known patterns. Think about how and why these assumptions exist and compare the current business to the past. Specifically ask "why" five times. Why do we do X? Because of reason A. Why do we do A? Because of reason B. And so on.
- 2** Wish without boundaries. Set an unrealistically high target such as "We'd like to grow sales by 300% in three months." Since the current business setting makes that impossible, stating the wish requires everyone to think differently and outside the box. This enables your team to ignore best practices and existing policies and think creatively, allowing them to see the possibilities often hidden behind the status quo.

## Respond to digital disruption

One decision every enterprise will need to make when it comes to digital disruption is how to respond to it. Many organizations lack the skills, resources and risk appetite to realistically play the role of disruptor. However, these enterprises can — and should — decide to play the role of "complementing disruptor" by joining the ecosystem around the disruptor. This means looking for ways to add value to the disruption.

If, however, the CEO comes to the conclusion that the company should not complement the disruptor, but should become the disruptor itself, the company must ensure that it has a system of continuous innovation. This entails challenging assumptions and breaking out of familiar patterns or "because that's how we always do them" mentality.

The one decision enterprises shouldn't make is to do nothing. This merely delays the inevitable disruption.



CHAPTER 2

# Think Like a Digital Leader

Now that you know what a disruptor is and how to identify challengers, it's time to take a look inward. As the CIO, your team will look to you to help lead through digital disruption in partnership with the business. The first order of business is to reframe your mindset to succeed with digital disruption.

Consider the following situation.

**It's 2020. A CIO walks into a staff meeting and announces that the new digital product or service that his/her team introduced violated customers' privacy to an extent that now the company is going out of business.**

What happened?

Now, imagine if the CIO had asked in 2017 when launching the digital offering, "What could go wrong with our approach by 2020?"

Mindsets that are not in tune with the changing market realities can derail even high-digital-acuity leaders.



**"All leaders should regularly challenge their thinking and invite challenge from others..."**

Graham Waller, Gartner Research Vice President and Distinguished Analyst

"Your mind may be wired with deeply entrenched beliefs, but they are just in your mind. And you can change your mind," says Graham Waller, research vice president and distinguished analyst. "All leaders should regularly challenge their thinking and invite challenge from others to evolve their mindset assumptions, beliefs and paradigms to ensure they remain matched to their particular marketplace reality."

## **Challenge your existing mindset with pre-mortems**

The CIO in the 2020 scenario could have helped his executive team avoid problems by maintaining a healthy paranoia and running pre-mortems that included business peers as well as his own IT team. During these sessions, the interdisciplinary team would have looked at its current mindset about customer privacy expectations in the context of its planned digital disruption, considered what might negatively affect customers' perception of the new value, considered potential negative ramifications to the company beyond low sales, and what would need to shift to minimize negative consequences.

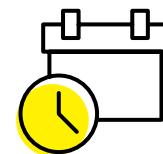
Similarly, imagine scenarios where well-funded digital companies enter the market or specific trends become digital business must-haves — and the best way to respond. During this process, apply the same concept specifically to the IT organization to ensure it remains relevant, vibrant and valued.

To truly challenge core beliefs, inject external and brutally honest perspectives. **Find digitally savvy mentors or “challenge partners” and give them unbridled permission to challenge your thinking and whether it is attuned to future market realities.** Be open to them making you feel uncomfortable and not “letting you off the hook,” as we can all be seduced by what we know. What has served us well in the past can lead to an unconscious bias to repeat past behaviors and find others who agree with us, known as confirmation bias. A challenge partner should be someone who is not an obvious choice, so be aware of biases in selecting this partner.

### Reframe your perspective and adopt proven digital leader traits

By changing the conceptual and/or emotional viewpoint with which you view a situation and placing it in a new frame of reference that fits the “facts” of your future market reality, you can create the new context for the needed change. One CIO changed his perspective on shadow IT based on the new reality of digital disruption, which blurred traditional boundaries and market demands for greater innovation and speed. He reframed shadow IT from something to stamp out to a viewpoint of seeing a business colleague as a partner with ideas to drive the business forward with technology, backed by a willingness to invest both money and talent.

Finally, reserve two hours per week to read about or study how successful leaders digitally disrupt, with the intent of applying that thought process to your own situation. Once a month, meet with venture capitalists or entrepreneurial leaders, and use these opportunities to understand genuine new customer value, enduring business models and economic architecture underpinnings. Adopt key mindset traits as a way of evolving your own thinking to have a higher quotient of digital acuity — a sharpness or keenness of thought, vision and understanding in relation to digital technologies as a source of competitive advantage.



**Reserve two hours per week to read about or study how successful leaders digitally disrupt and apply that thought process to your own situation.**

## Reinforce digital acuity mindset with daily routines and rituals

Routines strengthen the brain's underlying neural networks, which in turn form connections with new experiences and thoughts. Develop, introduce and eventually ingrain in the culture a series of digital beliefs and design principles that reinforce key concepts. Repeated use will enable these concepts to become subconsciously ingrained as a new mindset. This can be as simple as experiencing a new technology each week, such as a drone, a new virtual personal assistant (VPA) application or virtual reality headset, or model key targeted digital behaviors, such as blogging or communicating via video.

Two types of mindsets are emerging as the business world shifts to be more influenced by digital business. On one side is the incumbent marketplace player, who prefers to invest only in a solid business case and focuses on predictability over speed and innovation. On the other side is the digital-era market disruptor. This person believes in innovation to win big while managing risk by failing fast, and prefers to focus on innovation and speed over predictability.

CEOs, CIOs and other executives understand a shift in business is necessary to adapt to the changing world, but may fail to realize how important their own mindset is to the success of the transition.

"While the world is moving forward at breakneck speed, the core beliefs wired into our brains often are not," says Waller. **The leader's mindset provides a frame of reference that affects how they hear, interpret and act on information, which in turn affects how the company operates.** Successful disruptive digital leaders are able to transform themselves to transform the company.

## Five mindset traits for the digital disruptor

**Five mindset traits can help you gauge your digital acuity against those of a successful disruptive digital leader.**

### 1. Thrive despite uncertainty

While an incumbent marketplace player might be frozen or flail in the face of the uncertainty of the digital era, a disruptive digital leader understands and embraces the idea that uncertainty is inevitable. Instead of expending energy trying to change that, these leaders explore what is technologically possible, how changes will disrupt the markets and the risk-reward tradeoffs, according to Waller. Embracing uncertainty does not mean throwing caution to the wind as far as sound decisions or fiscal accountability. It means establishing a plan that allows for change and evolution, and does not create a fallacy of fake predictability.

### 2. Focus on ideas that leapfrog ahead

Because traditional incremental thinking runs the risk of irrelevance in the digital world, leaders should focus on ideas that leapfrog ahead. Digital leaders are visionary when it comes to the technology frontier, but all decisions are still rooted in the end goal or mission. This demands a risk-tolerant mindset — future technologies are volatile and may be delayed or fail completely. But a true digital leader is driven by the challenge and potential for creating net-new business value by harnessing breakthrough technology.

### 3. Select your digital-era lever

In the new era of technology, it's easy to get distracted by "glitzy" new technologies pursued for technology's sake. Digital leaders look beyond these distractions, seeking to master the digital-era competitive levers. The goal should be to become a pioneer and sustain a

long-term investment to secure a position as a leader in areas such as platform-based business model economics or turning data into customer value via data science and AI techniques. Select a lever, and focus on making it a core competency of the company.

### 4. Start, experiment, learn, iterate

Incumbents might prefer to wait until technology-enabled breakthroughs are proven, while a digital leader's mindset is that stalling due to uncertainty means another company will have already seized the opportunity. Digital leaders understand well-grounded strategic bets based on expected business outcomes and digital levers need to be the focus of the company. Digital transformation leaders will take a start-experiment-learn-iterate approach as a pathway to a breakthrough solution instead of waiting for clarity before proceeding. With certain disciplines, such as lean startup, minimum viable product and data-evidence-based experimentation, companies can harness experimentation as a path to new value while mitigating downside risk.

### 5. Innovate faster than others

In a digital era rich in disruption, companies must be able to innovate faster than their competitors. To encourage innovation at this speed, digital leaders establish a culture of true creativity. They visibly champion this belief at every level from new hires to the boardroom, actively role-modelling a culture that encourages risk taking and discovery.

Companies that are risk-averse will be too slow to innovate, as employee thinking and actions remain bogged down in traditional industry rules and ROI models. On the other side, companies that encourage speed and occasionally reward failure are much better equipped to succeed in the digital world.

## Become a venture CIO

With a newly minted innovative mindset, CIOs should put action to word and create avenues for that innovation to foster. Many CIOs are familiar with how Netflix changed the movie industry by offering a digital option for renting media. Other companies are experimenting with blockchain and wearables to transform their business models. With four of 10 CIOs leading their enterprises' digitalization efforts, according to the 2016 Gartner CIO Survey, **CIOs need to lead disruptive innovation and look outside of traditional investments for faster company growth and deeper business model change.**

"CIOs need to transform themselves into venture CIOs to spearhead disruptive innovation efforts in the enterprise, manage venture capital technology investments and drive successful techquisitions," says Ansgar Schulte, research director.

To become a venture CIO, consider creating an Innovation Center of Excellence (CoE) to foster innovation, and track what startups are working on in your industry.



**"CIOs need to transform themselves into venture CIOs to spearhead disruptive innovation efforts in the enterprise..."**

**Ansgar Schulte, Gartner Research Director**

# What's the No. 1 quality necessary for leading digital business?



## Mark Raskino, Gartner Vice President & Gartner Fellow

Courage. For both CEOs and CIOs, digital business will often mean leading a journey into unknown territory using new and unfamiliar tools and methods. Introducing new products, competencies, business models and technologies will challenge and may expose your personal abilities. It will test or disrupt your business relationships. It is not for the faint of heart.



## Patrick Meehan, Gartner Vice President & Distinguished Analyst

Every CEO and CIO I speak with knows that creating the right culture is the key to being a great digital leader. What's required is a culture that celebrates innovation...and implied in innovation is taking risks. Most companies have little tolerance for failure, yet taking risks means that sometimes you'll fail.

I'm not saying that leaders should accept failure with the ERP system or the email system; what I'm suggesting is that great leaders in the digital business space create the right and relevant culture in appropriate places that permit, or even celebrate, failure.

Typically, if you're innovating in a channel scenario with sensors or location awareness, you're not going to get it right the first time... and that should be OK. Eventually you iterate what's being tried until you do get it right. Permitting that takes solid leadership.



## Graham Waller, Gartner Vice President & Distinguished Analyst

Future leadership success will demand high digital acuity — a sharpness of thought, vision and understanding in relation to digital technologies as a source of competitive advantage. Digital acuity will complement core expectations such as financial acumen, strategy mastery and leadership excellence in the M.B.A. curriculum of the future.



## Janelle B. Hill, Gartner Vice President & Distinguished Analyst

Digital business leaders must be willing to challenge the status quo about everything — about themselves and their own behavior patterns; about the value of their own role and organization/team; about the health (or lack thereof) of the current business; about their industry rules or regulations; about the position of their company relative to others in their market, etc. Digital business changes everything, and only those willing to question everything will see the possibilities.



## Ansgar Schulte, Gartner Research Director

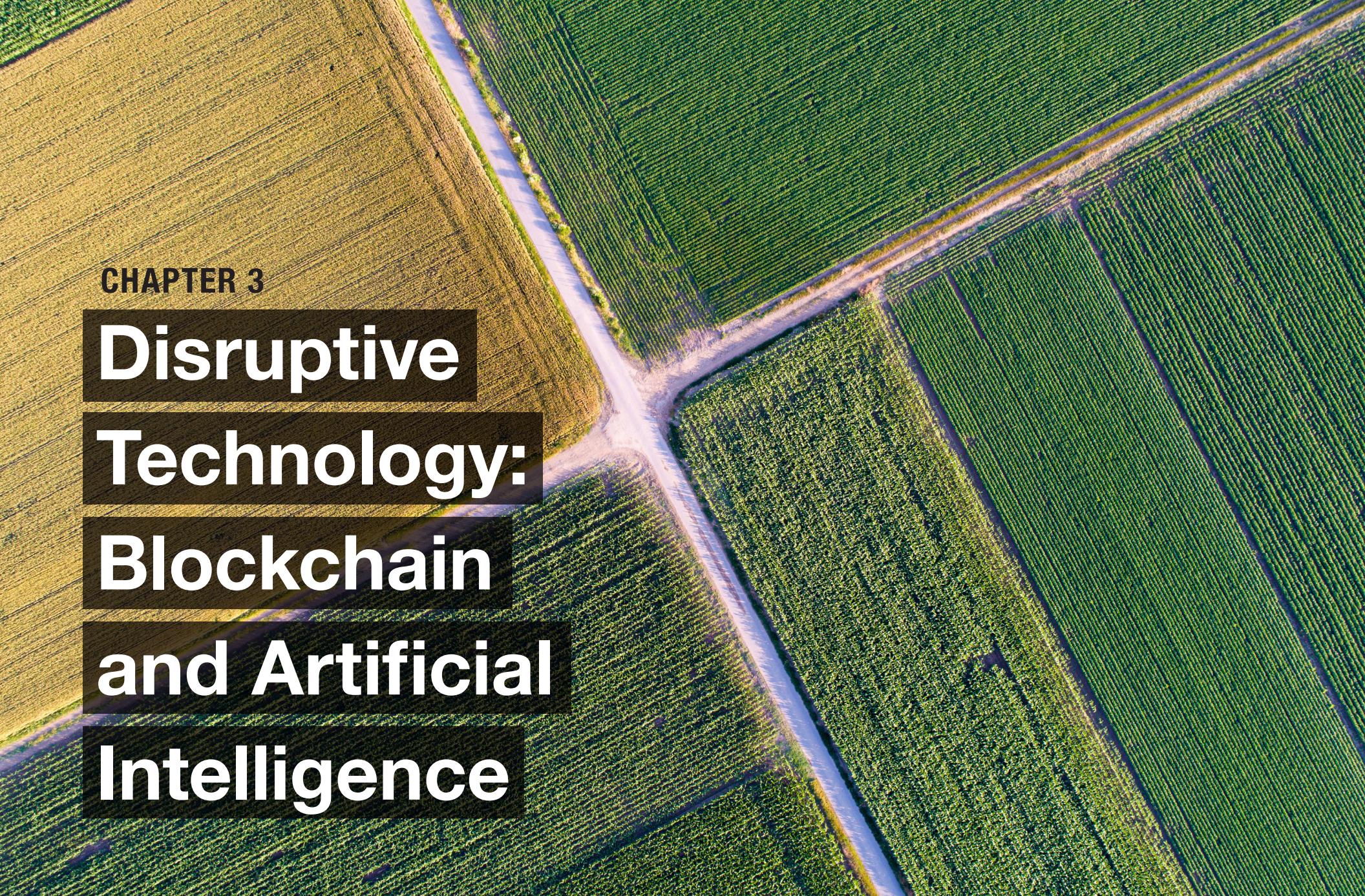
A great digital leader is, above all, able to clearly envision the unique customer value proposition of born-digital products or services, identify the enabling technologies and business capabilities required to develop them, and rally the very best resources, both internal and external to the organization, around a passionate and fearless journey for making this vision come to life.

Although it may be possible to delegate some of these responsibilities to members of a trusted and carefully selected leadership team, the one task that remains broadly with the digital leader is to shape and nurture a digital business vision and to communicate it, compellingly and relentlessly, to all enterprise stakeholders.



## Ed Gabrys, Gartner Research Director

The one quality that is consistent among successful digital business leaders is a willingness to be bold. Digital leaders must be willing to take risks with new approaches, new capabilities, new technologies, and most importantly, the courage to drive and lead a more creative and more conspicuous digital team than they ever have before.

An aerial photograph showing a patchwork of agricultural fields in various stages of crop growth, from yellow to green. A network of dirt roads cuts through the fields, creating a grid-like pattern. The fields are separated by thin, dark lines, likely irrigation canals or boundaries.

**CHAPTER 3**

# **Disruptive Technology: Blockchain and Artificial Intelligence**

The U.K. government is currently considering options for its Land Registry department, the organization that guarantees titles to registered estates and interests. Although digital currency usually steals the blockchain spotlight, land registry provides another interesting application, with pilot projects happening around the world. A blockchain-enabled solution would enable people to discover who owns a particular property, and ensure that the transfer of ownership does not occur without the authorization of interested parties, including a bank holding the property as security on a loan.

Disruption in the digital world doesn't just apply to companies. Technology itself must be re-evaluated and experimented with as it matures. Companies that ignore potential industry-changing technologies run the risk of falling behind.

If you're a CIO, blockchain probably crossed your radar screen a few years ago with news of bitcoin digital currency, and how its distributed ledger technology enabled "anonymous" transactions by computer nerds and also by nefarious entities around the globe. If you aren't in financial services, you might have given the innovative distributed ledger platform little attention. Today, blockchain hype has gained visibility in mass media and in the technology press as consultants and vendors promise to help your company leverage this technology for digital transformation.

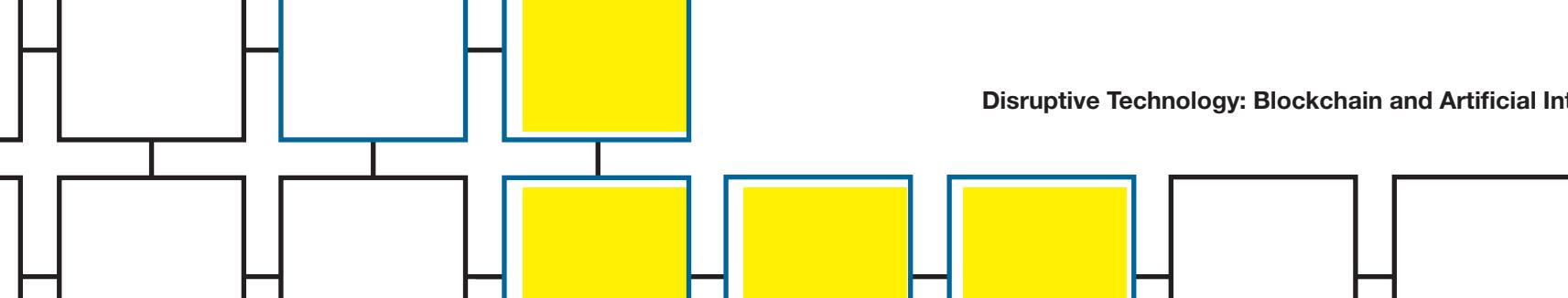
"Gartner clients in industries beyond financial services are asking whether it is too late to join in the contagion of 'blockchain fever' that has struck the financial services sector," says Ray Valdes, vice president and Gartner Fellow. "If anything, it is still too early." The reason it's early is because the technology is not yet able to meet the requirements of these futuristic visions of global-scale digital business and what some call the "Internet of Money."

Yet, it's important for CIOs to understand the possibilities and limitations of blockchain, associated distributed ledger technologies, and future business and technology scenarios for their industries, which over time will evolve to a global-scale programmable economy.



**"[Is it] too late to join in the contagion of 'blockchain fever'... If anything, it is still too early."**

**Ray Valdes, Vice President and Gartner Fellow**

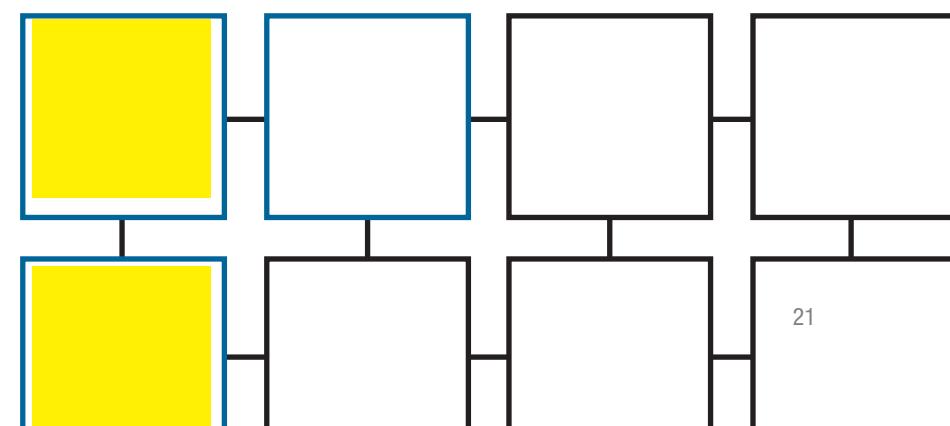


## Blockchain 101

An explanation of blockchain begins with the bitcoin cryptocurrency, since it is the first implementation of distributed ledger technology, launched in 2009, and now, about 500 million transactions later, managing assets worth more than \$70 billion. The ledger records transactions in bitcoin currency in a “chain-of-blocks” data structure, where a block is a group of transaction records added every few minutes in a never-ending series. The ledger records the sequence of every transaction and every “coin” (virtual currency stored as information bits). The smartest criminals on the planet have had eight years to break the security of the information stored in the distributed ledger, and have failed. **The ledger is an immutable, tamperproof, uncensorable record of all transactions since the first “genesis” transaction.** The ledger is called “distributed” because the data gains immutability by being massively replicated across thousands of machines in a network where the participants don’t know or trust each other. Security is handled by cryptographic protocols and techniques that ensure the permanence, resilience and immutability of the data. To achieve this goal of a “trusted record within an untrusted environment,” the ledger in bitcoin relies on significant computational power and interested parties, or “miners,” to validate and confirm transactions, using a structured process for adding transaction records to the blockchain in return for monetary reward.

In its current form, bitcoin blockchain suffers from significant limitations in scalability, functional scope, performance, efficiency and operational manageability — hampered by a lack of organizational governance and agility. There are close to one hundred other blockchain platforms that seek to address the technical limitations found in the bitcoin stack and expand the scope to allow solutions in nonmonetary areas such as healthcare data, government records, legal contracts, supply chain manifests, manufacturing bill of materials, Internet of Things data, and so on. Most of these platforms are still under construction, and even if released, are very new and largely unproven. The strong second to the bitcoin stack is the Ethereum platform, which is more powerful and more scalable but still suffers from significant limitations.

The magic of blockchain lies in the innovative use of multiple disciplines (cryptography, distributed computing, behavioral economics) to enable a decentralized business ecosystem of many participants who don’t know or trust each other to interact and share valuable data in a way that does not require a central authority or trusted intermediary. In this sense, the bitcoin system is designed to destroy the banking system as we know it, by making intermediaries such as banks irrelevant. The disruptive potential of blockchain technology has captured interest among many outside the financial sector as well.



## Beyond financial services

This is the essence of distributed ledgers: They have the potential to enable any form of value to be exchanged between untrusted parties in an encrypted format, without the need for intermediation by a centralized authority. The ability to support diverse forms of value exchange (not just payments) around any form of asset suggests a future in which “things” in an Internet of Things (IoT) paradigm can be dynamically monetized. This will foster growth of the programmable economy.

Given the distributed ledger’s distributed, peer-to-peer nature, it’s understandable why leading financial services companies see the concept as both a threat (in terms of disintermediation) and an opportunity to reassert ecosystem control or radically change the cost structure of their operations — if they use distributed ledgers as participatory systems of record. Look beyond these initial use cases to the radical possibilities for value exchange enabled by the programmable economy.

The insurance industry can also benefit from this concept by, for example, verifying assets and preventing fraud. Everledger is a blockchain-based ledger that combats insurance fraud by tracking thousands of diamonds through their entire supply chain cycle, starting with the recording of 40 data points unique to each stone in the tamperproof distributed ledger. Any subsequent trade of the diamond can be traced to the previous transaction.

What’s important for CIOs, notes David Furlonger, vice president & Gartner Fellow, is to look beyond these initial use cases to the radical possibilities for value exchange enabled by the programmable economy. Land titles can be verified, giving landowners in developing countries an indisputable record against corruption and theft. Immutable education records will foster global mobility of talent. Or, consider how autonomous cars will negotiate and pay for parking spaces, rideshares and even lane changing.



**“Anything developed today, especially capabilities built on the original blockchain, will have a useful life of at most 24 months.”**

**David Furlonger, Vice President and Gartner Fellow**

CIOs should explore the potential of this disruptive technology but also recognize the limitations of the current generation of blockchain platforms. They should gain an understanding of the current state of the art by doing basic proofs of concept, followed by implementing tactical, narrow-scope deployments that solve specific business problems, according to Valdes. “The goal is as much in lessons learned as in business value delivered, especially as the enabling technologies are still immature/unproven,” he says.

Next, while acting tactically, organizations should think strategically and conceptually about the longer-term business models enabled by next-generation distributed ledger platforms that will facilitate their use.

"Anything developed today, especially capabilities built on the original blockchain, will have a useful life of at most 24 months," says Furlonger. "At which time they will be replaced by more evolved distributed ledger alternatives."

## The disruptive potential of blockchain

"Blockchain (distributed ledger) technology is viewed by many pundits as enabling the next big wave of technology-driven business transformation on a global scale," says Valdes. "Although it appears with the timing of the bitcoin launch and the surrounding rhetoric that blockchain was intentionally designed to disrupt the banking and financial industry. It seems unlikely to succeed in that goal due to a combination of technology limitations and established effective solutions." In other industries where blockchain could be disruptive, risk-averse companies are keeping a tight hold on the risk factors, resulting in incremental improvements instead of game-changing disruption. These industries include healthcare, supply chain and government.

However, even traditional disruptors such as Uber and Airbnb could be disrupted by the eventual successful implementation of blockchain. These companies, part of the "peer-to-peer" economy, still rely largely

on a middle man to conduct business. Companies looking to utilize blockchain technology will be able to remove the central authority figure altogether. For example, Slock.it launched with the idea that renters could deal directly with individual lodging owners instead of dealing with real estate agents. Using blockchain and smart contracts, the idea was that the company would disrupt the current peer-to-peer economy by creating a true peer-to-peer economy. However, due to a large hack, the company lost funding, and only recently received more seed money, with a beta release targeted for 2018.

Enterprises need to be cognizant of the hype surrounding blockchain, as often the projects are a solution in search of a problem; however, there are potential situations where blockchain could be beneficial, particularly in supply chain (for example, overseas shipping on large ships that call in multiple ports, all requiring their own paperwork, or counterfeit medicine in the pharmaceutical industry). Achieving transformative change in this sector will take time due to business challenges in gaining many participants to adopt the system — assuming the technology platform will be able to handle the scale and complexity of these business interactions.

As a CIO, the challenge will be multipronged. Part of your job will be investigating and experimenting with the technology. The other part will be keeping the business in the loop and ensuring that you don't oversell the technology, but don't dismiss it, either. An innovation CoE or lab is a great way to foster collaborative exploration between business and IT.

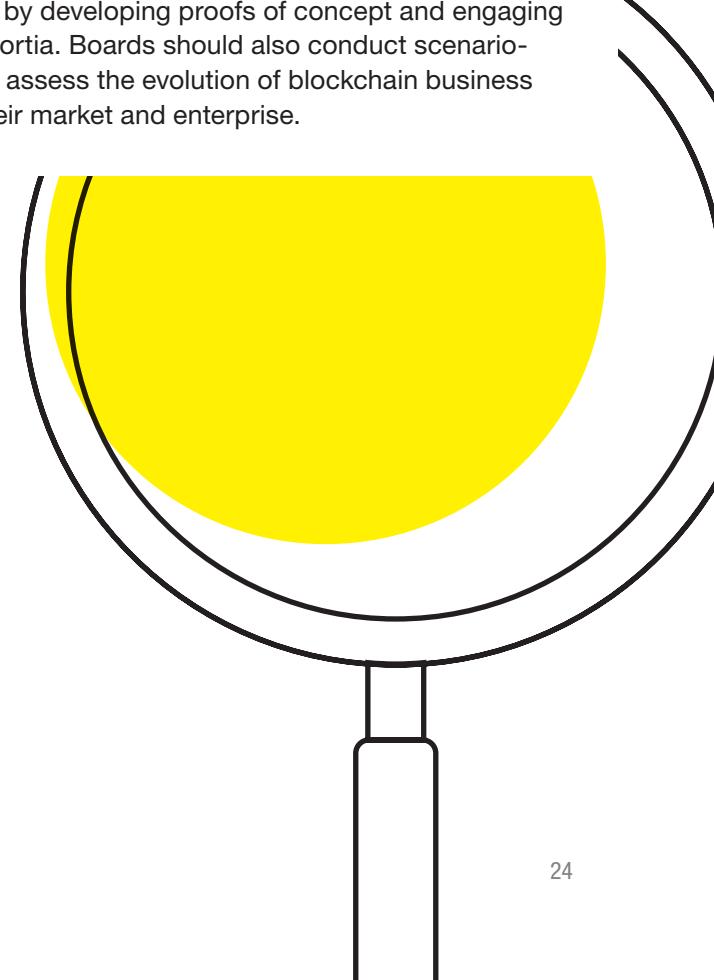
## Clarify the risks of underestimating blockchain to the board

Explaining blockchain to the board is challenging. It's a complicated technology that has been overhyped. CIOs need to explain that companies that do nothing about blockchain run the risk of being left behind, but there are also risks to undertaking a blockchain project. Focus on three areas related to risk: The specifics of the business context (such as customer adoption paradigms), risk management (for example, information management) and legal issues (e.g., smart contracts). Industry boundaries will become more fluid as business ecosystems develop and artificial intelligence increasingly influences decision making. As the programmable economy takes shape, it's difficult to see what business enterprises will look like in five years, as blockchain business models disrupt even today's more advanced platform businesses such as Uber.

Governance, auditability, and control of the networks and blockchain components supporting them is challenging for risk management. Assuming that permissioned operating models will solve a lot of the risk is not necessarily a given due to centralization and reliance on single-supplier stacks. Legally, blockchain enables jurisdictions to be crossed and intermingled, complicating operating frameworks and enforcement.

Much of the legal basis for identity, trust, smart contracts and other components are undefined in a blockchain context. Established laws still need to be revised and amended to accommodate blockchain use cases, and financial reporting is still unclear. Many challenges come along with blockchain, but boards must look ahead to how the technology could affect the enterprise and identify their absolute boundaries that cannot be violated for their own potential usage.

CIOs can start small, by developing proofs of concept and engaging with the various consortia. Boards should also conduct scenario-planning exercises to assess the evolution of blockchain business and the impact on their market and enterprise.



## Artificial intelligence

At some online publications, financial summaries and sports recaps are written by artificial intelligence (AI) solutions, not humans. In some organizations, AI decides which sales opportunities are worthy of a salesperson's time.

Gartner client inquiry on topics closely related to AI increased 200% from 2015 to 2016 and are on track to increase 100% through 2017. As organizations recognize the potential for AI to disrupt business, interest is growing rapidly.

"AI is changing the way in which organizations innovate and communicate their processes, products and services," says Whit Andrews, research vice president and distinguished analyst. "AI continues to drive change in how businesses and governments interact with customers and constituents."

The 2017 Gartner predictions for AI explore how it will evolve in the enterprise and change industries.

By 2020, 20% of companies will dedicate workers to monitor and guide neural networks.

Neural networks require monitoring and maintenance. The idea that AI technologies can be delivered as finished products without further human investment is a recipe for failure. While older rule-based systems could be set up, configured and then ignored for a few years, neural networks need to be retrained whenever new data is available, which is essentially constant. In fact, neural networks only maintain value to the enterprise in an endless retraining and reinforcement loop. CIOs will need to make the business case to ensure the project is provided with necessary resources.

This will require new skills and a new way of thinking about problems. Those with backgrounds in design, data science and logic might be better prepared than programmers who tend to think in more structured approaches. Additionally, neural network responsibilities will be spread across departments and within many applications. CIOs must ensure that IT owns the strategy and the governance of selected platforms.

By 2019, startups will overtake Amazon, Google, IBM and Microsoft in driving the AI economy with disruptive business solutions.

Many AI startups are owned by former employees of large vendors who leave and form a company focused on AI in a specific industry, or academics who have discovered their discipline is suddenly lucrative and exciting. This means there are many packaged AI solutions that should be considered before an organization considers building a custom AI solution in-house. The packaged options require fewer resources and can be deployed faster.



**"AI continues to drive change in how business and governments interact with customers and constituents."**

Whit Andrews, Gartner Research Vice President and Distinguished Analyst

Any industry with very large amounts of data — so much that humans can't possibly analyze or understand it on their own — can utilize AI. Some industries, such as healthcare, are ripe for disruption. As the amount of available data increases, there will be few jobs requiring decisions in real time where humans will be able to match smart machines. However, there are limits to the powers of AI, and CIOs must ensure they combine human thinking and machine analysis. For example, if adequate data isn't available, or if the data is of poor quality in content or structure, smart machines won't be able to make a reliable decision.

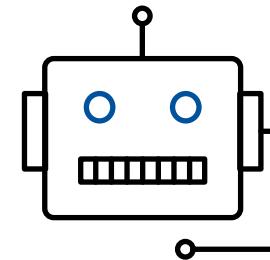
## Conversational AI platforms for digital success

Conversational AI platforms (CAPs) are one of the most talked-about technologies within the AI world. The trend for consumers started with Apple's Siri, but now companies such as Google, Amazon, Microsoft and IBM are visible players, with other companies focusing on business customers or bots/VPAs.

"The ability to use one's voice and more complex voice dialogue — that is, conversation versus command/response — to interact with virtually anything is a disruptive capability, and organizations must begin to incorporate these capabilities to capitalize on this fundamental shift or risk being disrupted (from their customers) by those that do," says Yockelson.

And it's a good time for companies to start experimenting and implementing these systems. "CAP technology appears to be at a point at which consumer knowledge and demand are meeting with technical strength and (enough) maturity for implementation and real user benefits," he says.

It would be easy to dismiss a need to focus on CAPs as some of the technology for speech-to-text has been around for a while, but this technology will soon become an expectation of user experience. Now is the time to become familiar with the technology and how customers will expect to interact with it in the future.



How can I help you?

...

## Emotion AI

"In the future, more and more smart devices will be able to capture human emotions and moods in relation to certain data and facts, and to analyze situations accordingly," says Annette Zimmermann, research vice president.

Emotion-sensing systems will appear in devices as a result of the rise of intelligent agents, such as virtual assistants. Current examples of intelligent agents include Apple's Siri, Microsoft's Cortana and Google Assistant. They use the technological approaches of natural-language processing and natural-language understanding, but they don't currently perceive human emotions. Artificial emotional intelligence ("emotion AI") will change that. The next steps for these systems are to understand and respond to users' emotional states, and to appear more human-like, in order to enable more comfortable and natural interaction with users.

An intelligent agent can be anything that can perceive its environment through sensors and act on that perception through actuators. Personal assistance robots (PARs), such as Qihan Technology's Sanbot and SoftBank Robotics' Pepper, are being "humanized" by training them to distinguish between, and react to, humans' varying emotional states. The aim is for PARs to respond with body language and verbal responses appropriate to the emotions of the humans with whom they interact. If, for example, Pepper detects that someone is disappointed with an interaction, the intention is that it will respond apologetically.



**"In the future more...smart devices will be able to capture human emotions and moods in relation to certain data and facts."**

**Annette Zimmermann**, Gartner Research Vice President

## Emotion AI advances

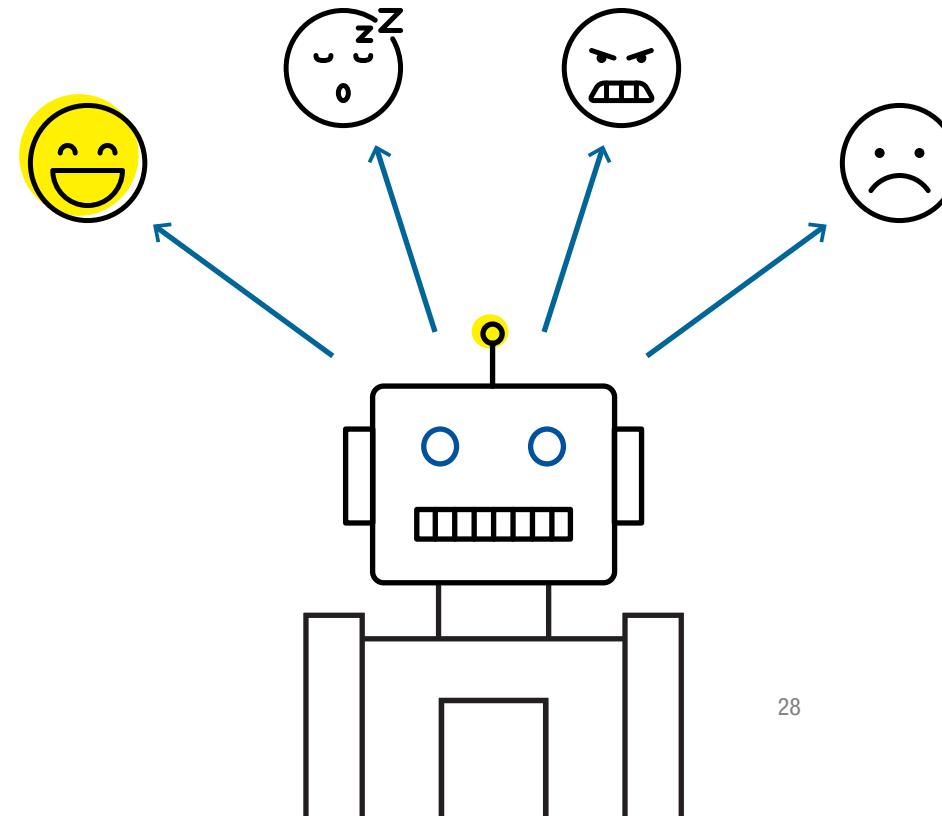
Future smart devices will be better at analyzing and responding to users' emotions, thanks to AI systems that use deep-learning technology to measure the facial and verbal expression of emotion. These systems will play an increasingly important role in how humans interact with machines.

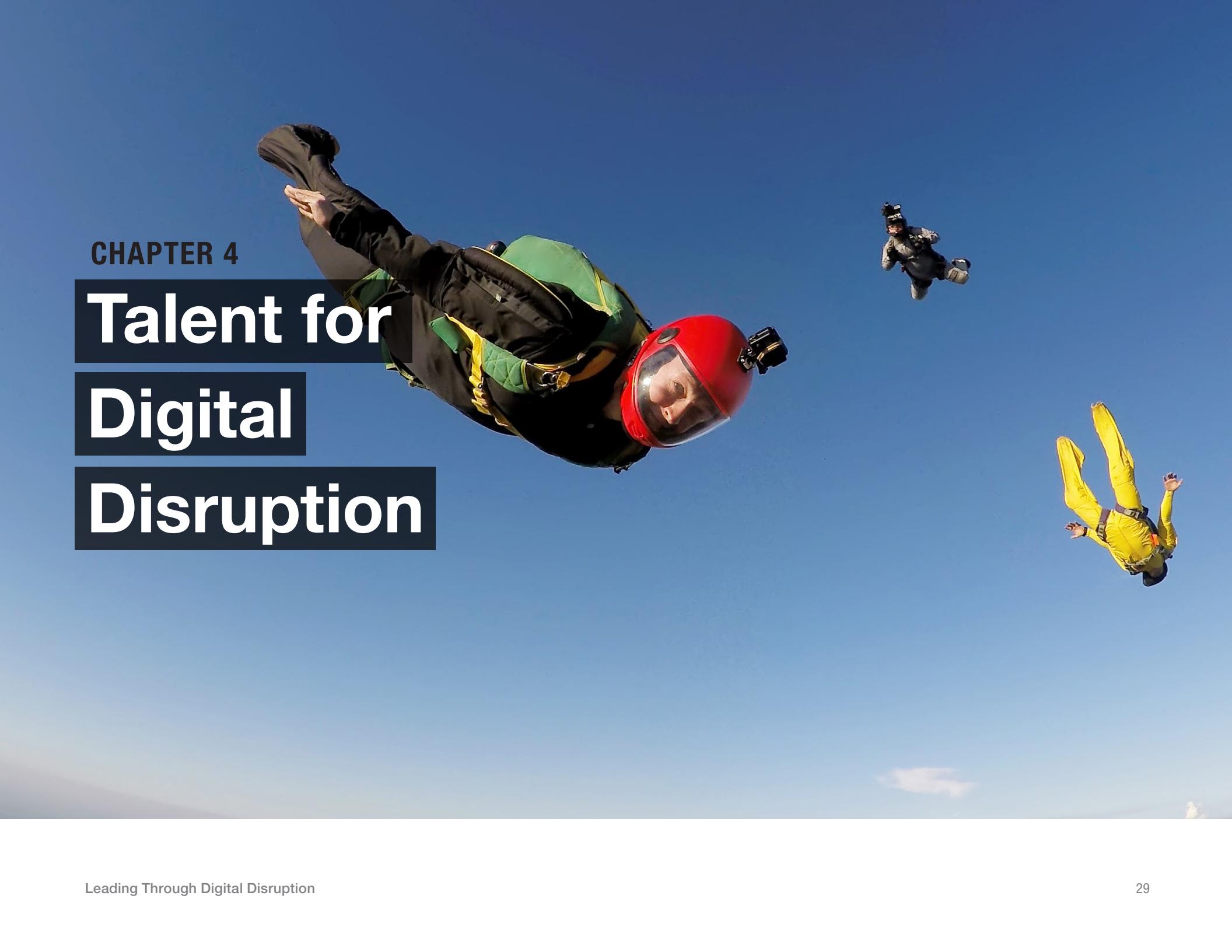
The first steps are already being taken. The video game "Nevermind," for example, uses "emotion-based biofeedback" technology from Affectiva to detect the player's mood and adjust its levels and difficulty accordingly. For example, when a player named Oliver plays Nevermind on his latest game console, the further he gets into the game, the darker the mood and the more difficult the logic puzzles become. The thriller game is sensing Oliver's anxiety as well as when he relaxes, and adjusts the levels based on his mood.

In another field, in-car systems are emerging that adapt the responsiveness of braking systems to the driver's perceived level of anxiety. Imagine a parent named Jeanne, who is already having a stressful morning taking the kids to school after missing the bus, who is on her way to the doctor for her sick newborn, Clara. The car detects Jeanne's anxious mood, and as she approaches a busy crossroad, makes the brakes more responsive to avoid a rough stop.

In these cases, both video game and car are equipped with visual sensors and AI-based emotion-tracking software to enable real-time emotion tracking.

CIOs should evaluate business processes to identify where AI could be beneficial for each enterprise. Look specifically at underserved areas of the company that have very large amounts of data but lack access to analytics. These areas could benefit from the ability to augment and improve human decision making.



A photograph of three skydivers against a clear blue sky. In the foreground, a skydiver wearing a red helmet and green and black suit is looking towards the camera. Behind them, another skydiver in a grey suit is also in mid-air. To the right, a third skydiver in a yellow suit is performing a vertical maneuver. The background is a clear, light blue.

CHAPTER 4

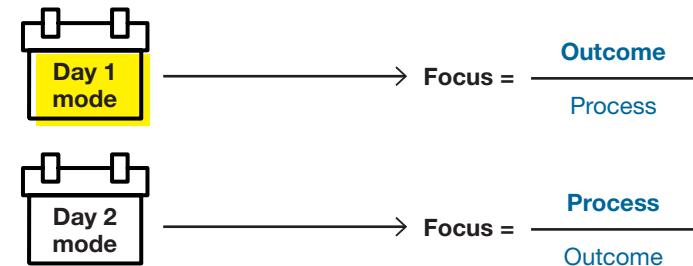
# Talent for Digital Disruption

Amazon is known for its innovation and disruption, but companies of all sizes can look to the e-commerce company for strategies on structuring the organization for long-term disruption.

"CIOs formulating strategies for leveraging disruption can learn from practices of established disruptors such as Amazon," says Smith.

"CIOs should think of Amazon as an 'enterprise partner,' especially with regard to their transformation and innovation strategies."

Amazon founder Jeff Bezos views the company from a Day 1/Day 2 perspective. The idea is that as a company matures, it may become easier to rely on process over results (aka outcomes). A focus on process over outcome is a "Day 2" characteristic. Instead, Bezos wants the company to maintain Day 1 mode, focusing on outcome over process. Amazon's teams are also ideally set up into "two-pizza teams," meaning a small team that can be fed with two pizzas. The company creates a group of product managers, engineers and others so that the team that builds the product is also able to own that part of the business.



In addition to emulating the innovation techniques of Amazon, CIOs need to create strategic partnerships with the business, including the enterprise architect and chief strategy officer. Disruption will happen all around the company, and the more CIOs build and prepare a diverse team, the better off they'll be.

# Step-by-Step Guide to Disruptive Thinking



1

## Select a value component

Something that allows the organization to make money or fulfill a mission (i.e., markets, products, employees, financials.)

**“Customers”**

Insurance Company X

2

## List the knowns

List five things you know for certain about the value component.

**“Our customers prefer to deal with us **in person.**”**

Insurance Company X

**What you'll need:**



90 minutes



12 – 30 people in groups of 5 or 6



Large sheets of paper, Post-its, markers

3

## Turn the knowns around

Come up with opposite statements for each known.

**“Our customers prefer to be anonymous and be **dealt with online.**”**

Insurance Company X

4

## Examine the reality

If the opposite statements were true, what would you do? Have three ideas for each group.

**“We should offer more **online services.**”**

Insurance Company X

OPTIONAL

## Shuffle the groups!

Everyone goes to a new table (minus the host).

5

## Do a sanity check

**“How can this be accomplished, and what is the **feasibility** from a technical standpoint?”**

Insurance Company X

**“Is anyone else doing this and are there industry examples?”**

Insurance Company X

OPTIONAL

## Present to the room

People can comment, but only to remove established barriers, not to create them.



## Collect the opportunities

Write the ideas on Post-its and attach all of them to a whiteboard to view and collect. Take a photo to revisit as time allows.



## IT must work with other business units

For most Gartner end-user clients, the CIO or IT staff will not be initiating the disruptive innovation. The CIO and IT team should create a strategy to work with business-unit leaders as they consider being disruptive and deal with disruption coming from competitors that affects their business.

For example, marketing and sales might see disruption in their customer base, and product managers might recognize disruption in industry trends. These same business leaders might have very different appetites for disruptive innovation. Marketing might want to be aggressive and do something disruptive to attract many more customers, whereas a product owner may not be willing to cannibalize his/her product with a disruptive new capability or offering. IT has a role to play in not only recognizing digital disruptions coming from outside, but also in being knowledgeable about applying disruptive technology to business.

“But there are no true boundaries; the main point is that all business units should be aware of the relationship of all the elements of disruption to their disciplines,” says Yockelson.

Companies looking to ensure that all parts of the business are prepared for disruption must create a culture of experimentation and fast fail. CIOs should also look to the market to identify areas of potential disruption and ensure that IT personnel collaborate with appropriate business units to understand the business outcomes that could be impacted. One further area: Ensure that enterprise architects are also focused on identifying digital disruption.

## The role of the enterprise architect in digital disruption

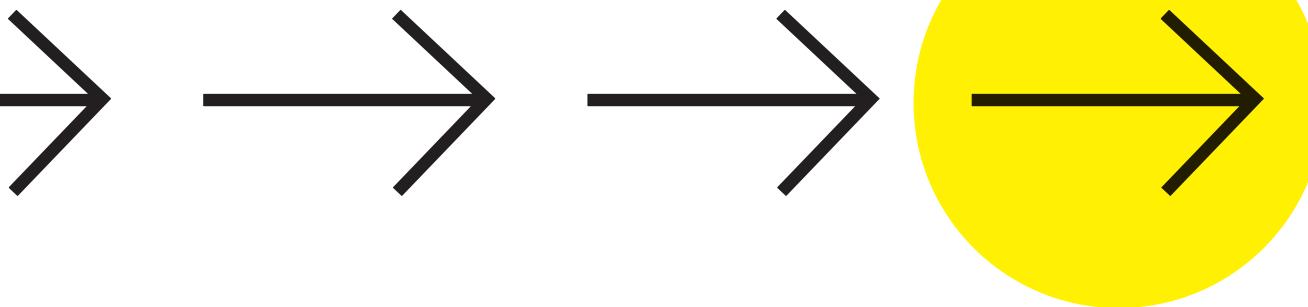
Assembling the right talent for digital disruption can be a challenge, but enterprise architects can offer a good place to start.

“The ability to respond to disruptions requires an understanding of overall enterprise strategy and business model, combined with a focus on emerging technologies,” says Chet Geschickter, research director.



**“The ability to **respond** to disruptions requires an understanding of overall enterprise strategy...with a focus on emerging technologies.”**

**Chet Geschickter**, Gartner Research Director



**Based on in-depth interviews with 35 digital innovation leaders, Gartner has developed five best practices for how enterprise architects (EAs) can respond to and lead for digital disruption.**

#### **1. Proactively scan and respond to digital disruptions**

Technology innovation is a top priority for EAs, who generally have responsibility for making technology recommendations to the business. This includes capitalizing on opportunities to innovate or to initiate a digital disruption. This means they are in a good position to scan for digital disruption, and lead the response. Recommendation: Find ways to collaborate with business leaders on digital disruption and focus EA efforts on creating future-state deliverables.

#### **2. Establish a diverse trend-spotting capability**

When it comes to high-impact technology, top-performing companies involve an EA in the technology identification process and have a dedicated R&D, innovation or market research competency to help with scanning the technology landscape for innovations. Don't limit the scanning to just IT. Establish a cross-functional team, as different departments and people will have different requests and perspectives. Recommendation: Use crowdsourcing, workshops and gamification to attract diverse ideas and contributors.

#### **3. Scope innovation efforts based on strategic priorities**

Top-performing companies establish business goals and then look for technology to enable strategies to deliver on these goals. Use strategic plans to focus innovation efforts. Ideas can come from annual reports, market research or customer surveys. Recommendation: Ask your EA to use future-state business models and business outcome statements to focus trend-spotting.

#### **4. Focus on collaborative governance, less on assurance**

Governance guides decisions and how those decisions will be implemented. Assurance ensures agreed-upon standards. Top performers and underperformers generally differ in how much bureaucratic oversight exists. For example, underperformers might have a process with multiple approvals that allows compliance to weigh in on actual technology decisions. This is a suboptimal situation. Recommendation: Create a governance strategy focused on providing guidance to empower IT and business leaders to make investment decisions.

#### **5. Look for threats as much as opportunities**

Generally, EAs are optimistic about digital disruption, seeing it as an opportunity, particularly when discussing areas of highest-impact technology. But there also is the threat that emerging companies may utilize the same technology in a new way that puts your business in danger. Recommendations: Identify the opportunities and the threats associated with digital disruptions and look into technologies that could undermine relationships, business models or value chains. Develop plans to respond by assimilating these technologies to strengthen your business model, or to develop alternative models that deliver more value.

## Aligning with the CSO

The CIO should look to partner with the chief strategy officer (CSO) to leverage technology for potential market disruption. The CSO is also a good partner for the CIO when it comes to looking at how companies, such as Amazon and Facebook, have successfully implemented digital disruption strategies.

“With digital business comes a fundamental change, and a stark contrast in the way the business-IT (and EA leader-business leader) (and CIO-business leader) relationship operates. Before the digital era, the business-IT relationship was predicated on a “business-led, IT-enabled” approach. In the digital era, the business-IT relationship is based on a “business- and IT-led technology-enabled” approach. It’s no longer about aligning business and IT in the digital era; it’s about surviving extreme competition and prospering by integrating business and IT — in other words, a single, all-encompassing business strategy that addresses business and IT strategy as one,” says Saul Brand, research director.

The enterprise architect must play a role in helping the CSO develop a plan for disruption. And they need it. Only 20% of CSOs believe they are highly prepared for sudden industry disruption, even though 93% believe technology will rapidly change the company’s industry.

“Business and IT strategy are merging. They are no longer aligned, but rather integrated. Moreover, enterprise architecture is tightly linked with business strategy — typically your business model, the services you offer and how your enterprise uses IT as a strategic asset — and all are delivered through IT,” says Brand. “So, you have to understand technology and today’s business and enterprise architecture to shape business strategy. Similarly, the focus of business-outcome-driven EA is shifting



**“It’s about surviving **extreme competition** and prospering by integrating business and IT...”**

**Saul Brand**, Gartner Research Director

from strategy execution to strategy formulation. Innovation is now one of the most important capabilities and responsibilities for EA leaders.”

The EA will be able to help the CSO scan for disruption and look for emerging technologies. In turn, the CSO will be able to leverage this into business potential. The CSO will also have better insight to allow her to organize ecosystems. EA and IT leaders will become important partners to the CSO as she looks to understand how technology can play a role in company strategy for the future.

## Conclusion

**CIOs have quite a role to play in the world of digital disruption.** First, they are tasked with understanding the business’ digital ambition behind the digital business strategy. They also should challenge their own mindset and business approach to adapt to a changing world. Finally, the CIO will need to arrange a team that is able to build innovative ideas and connect with perhaps nontraditional partners in the business and beyond to ensure that no opportunity goes unseen.

“A stream of innovation in technology and digital business models continues to disrupt markets and challenge established incumbents,” says Smith. “As digital business continues to grow, CIOs will need to increase their ability to recognize, prioritize and respond to digital disruption.”

# Additional Research

## Chapter 1 / Spotting Digital Disruption

### SMARTER WITH GARTNER ARTICLES

[Recognize and Respond to Digital Disruption](#)

Smarter With Gartner, July 2017, Janelle B. Hill

### CLIENT RESEARCH

[How to Recognize, Prioritize and Respond to Digital Disruption](#)

Janelle B. Hill, Daryl C. Plummer, May 2017

[Enterprise Guide for Spotting Digital Disruptions and Disruptors](#)

David Yockelson, April 2017

[Digital Disruption and the New Disruptors: Recognize, Prioritize and Respond – A Gartner Trend Insight Report](#)

David Mitchell Smith, Daryl C. Plummer, May 2017

[Enterprise Guide for Spotting Digital Disruptions and Disruptors](#)

David Yockelson, April 2017

## Chapter 2 / Think Like a Digital Leader

### SMARTER WITH GARTNER ARTICLES

[Reframe Your Core Mindset Beliefs to Meet Digital-Era Demands](#)

Graham Waller, December 2016

[5 Mindset Traits of Disruptive Digital Leaders](#)

Graham Waller, December 2016

[Are You A Venture CIO?](#)

Ansgar Schulte, January 2017

[Analysts Answer: The No. 1 Quality Necessary to Lead Digital Business](#)

Mark Raskino, Patrick Meehan, Graham Waller, Janelle B. Hill, Ansgar Schulte, Ed Gabrys, October 2016

## Chapter 3 / Disruptive Technology: Blockchain and Artificial Intelligence

### SMARTER WITH GARTNER ARTICLES

[The CIO's Guide to Blockchain](#)

Ray Valdes, June 2016

[What to Tell The Board About Blockchain](#)

David Furlonger, May 2017

[The Disruptive Power of Artificial Intelligence](#)

Whit Andrews, January 2017

[Emotion AI Will Personalize Interactions](#)

Annette Zimmermann, June 2017

### CLIENT RESEARCH

[The Disruptive Potential of Blockchain Technology](#)

Ray Valdes, David Furlonger, Rajesh Kandaswamy, David Mitchell Smith, May 2017

[Enterprises Must Prepare 'Now' for the Disruptive Power of Conversational AI Platforms](#)

David Yockelson, Tom Austin, March 2017

## Chapter 4 / Talent for Digital Disruption

### SMARTER WITH GARTNER ARTICLES

[Host a Disruptive Thinking Workshop](#)

Bard Papegaaij, August 2016

### CLIENT RESEARCH

[Willful Disruption: Amazon Disrupts Through Scale, Richness and Reach"](#)

David Mitchell Smith, Daryl C. Plummer, May 2017

[Five Best Practices Enterprise Architects Can Use to Respond to Digital Disruptions](#)

Chet Geschickter, Betsy Burton, Mike J. Walker, April 2017

[Four Ways Enterprise Architects Can Help Chief Strategy Officers Conquer Digital Disruptions](#)

Saul Brand, Matthew Goldman, April 2017

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