Technology-related landscapes become more perilous to navigate as companies approach new technology tipping points in the digital world. CIOs and technology business unit leaders must note that tipping points can become tripping points if they are not prepared to be bold in adopting innovation.

Opportunities and Challenges

- Predictions are a key asset in strategic planning in a fast-changing world.
- The mainstream is adopting formerly advanced technologies faster than ever and opening the door to innovation.
- Mastering a new pace of change in technology is essential to modern business success.
- Risk-averse organizations must learn when and where to become risk-tolerant or be bypassed.
- "Make it digital, make it programmable, and make it smart" means that using digital technology trends like Internet of Things (IoT), algorithms and artificial intelligence together requires a multidisciplinary approach.

What You Need to Know

To build and expand a digital business:

- CIOs must prepare for the coming onslaught of IT and business risks, and increasing user demand.
- CIOs must consider and test new strategies and directions for their businesses as they contemplate future uses of technology to drive revenue growth.
- Technology strategic planners should take a broad view of all these predictions as a means of defining a strategic basis to grow their business. They must recognize that the landscape is shifting for individuals, businesses and IT organizations.
Technology business unit leaders should find these predictions useful for examining their implications on some of their business activities.

Technology and service providers should use these predictions to guide their strategic investments in R&D, marketing and demand generation.

Insight From the Analyst

Leadership Is About Managing Change

Daryl Plummer, Vice President, Gartner Fellow and Chief of Research

Lead, follow, or get out of the way. That is the mantra of the change agent.

It's said the only constant in the universe is that "change happens." Well, anyone paying attention in the IT-related world is likely drowning in change. And, it's not enough to simply say, "We have to keep up with the times." Nope. In many cases, the "times" are changing so much that they seem like a dream for some and a nightmare for others. When change threatens our very beliefs and expectations about technology, the nightmare takes hold. And, the only way to combat it is to wake up.

So we awake now to a world where we live in a permanent state of upgrades, and many of these are now automatic or cannot be opted out of (for example, SaaS). Leaders look around and see that change is the norm and is overtaking the mainstream faster than almost anyone expected.

Our predictions this year reflect that waking reality. Across all segments, technology change is overtaking the mainstream — not just small advanced segments. And with mainstream involvement comes mainstream concerns. In particular, those companies in industries not known for riding the leading edge of technology are having to act more expediently than before. Those that can't keep up are likely to be overrun — so pick a lane.

In our normal research, Gartner asks the question, "How can we help?" Gartner Predicts asks the question, "Where will you need help tomorrow?" True leaders never forget that question.

In this Trend Insight report, we'll explore the following:

- How is predictive disruption entering the mainstream?
- Why are Type B and Type C customers being pushed into Type A decisions?
- What trends will be pervasive across all segments?
Executive Overview

Predicting the future in a world of rapid change is as risky as picking the stock market. For CIOs, it becomes a gamble because CIOs must make a commitment to some technology action that will involve resources and funds that are scarce. Because of the rapid pace of innovation, CIOs and technology business unit leaders must note that tipping points for new trends can become tripping points if they are timid and not prepared to be bold in adopting digital innovation.

Gartner’s 2017 predictions are broad and deep. They reach across the most significant areas of IT and the IT industry. Track these predictions throughout 2017 and use them to frame the strategic planning assumptions that will drive your business in the next decade.

Gartner clients have come to rely on our annual predictions, both as input for their strategic plans and as alerts to potentially disruptive changes. For most enterprises and IT organizations, investments and other business decisions during the next few years are likely to be made against a backdrop of continuous change and major technological disruption. Anticipating these changes is more important than ever, and predictive disruption then becomes a critical part of any strategic plan.

Definition

Predictive disruption describes the state of the uncertainty that comes with constant resetting of expectations about the future. It is commonplace in times of uncertainty and transformation, and it can lead to new opportunities or to paralysis in those unprepared to act on future trends.
Research Highlights

How Predictive Disruption Is Entering the Mainstream

Predictions help aggressive companies forecast what will be the next disruptions. They allow companies to plan strategically for both expected and unexpected change.

Mainstream adoption of new digital technology options is reshaping expectations for what is normal. Most companies recognize that continuous change is now unavoidable. The difficulty for these companies may ultimately lie not in their propensity to change, but in their ability to change at the pace the market requires. For example:

- Energy companies have long dealt with the challenges of adapting to change. They will continue to face a turbulent future of transformation, and they must adapt in order to survive and thrive. Digitalization is accelerating the rate of the energy industry’s transformation, while simultaneously shifting the business environment within which utilities operate. By 2020, 25% of new monitoring and control systems in the utility sector will use IoT to enhance algorithmic business capabilities.

- The majority of new CRM software spending is now on cloud implementations. More than one-third of all data analytics projects focus on customer data, half of which aim to improve the customer experience (CX). The use of technology to improve CX is set to rise. In 2016, 48% of all CX projects involved the use of IT, according to those leading the CX initiative.
The traditional oil and gas operating model was developed to support prolonged periods of high prices and rapid, parallel growth. Because of this, the traditional models present serious business risk due to increasingly dynamic markets. By 2020, 90% of oil and gas industry leaders will digitally innovate at scale, faster and more effectively than laggards.

Across the board, we are seeing a relentless pressure and movement toward the use of new technologies to form the mainstream strategies of companies. Cloud, IoT, algorithms and even artificial intelligence — once considered too bleeding edge to be the norm — are now a given assumption.

Related Research

"Predicts 2017: Energy and Utilities Get Ready for Digital Disruption." Utility CIOs must prepare for disruption driven by external exponential technologies, while maintaining reliable service supporting new energy provisioning models, both enabled and challenged by digitalization.

"Predicts 2017: CRM Will Reach Critical Tipping Points for Integration, Analytics and Customer Experience." Most application leaders will soon be forced to invest in a hybrid integration platform, a holistic approach to customer experience analytics, and an IT relationship manager to coordinate demands for more customer experience projects requiring IT.

"Predicts 2017: The Coming Era of Connected and Integrated Oil and Gas Companies." Sustained financial pressure is forcing oil and gas companies to develop more productive, agile and data-driven business models.

Type B and C Customers Are Being Pushed Into Type A Decisions

Gartner has long used three categories to describe different types of organizations: Types A, B and C (for more information, see "Introducing the Enterprise Personality Profile").

Type A companies are aggressive technology adopters. Type B clients are more cautious and wait to see what happens to the Type A clients first. Type C clients are risk-averse and unlikely to change quickly.

Type A companies are the ones that jump off the cliff and figure out how to survive the fall on the way down. While advantage does not always result from this, Type A companies always enjoy the benefit of challenging assumptions about the status quo. Type B and Type C companies are learning from this Type A aggression as technology trends increasingly shape reaction times.

Rapid introduction of new technologies impacts society and makes a Type B and Type C company move faster. For example, our predictions explore the impact of privacy legislation on risk management. Large organizations are being forced to use more modern techniques to protect privacy. By 2020, large global-enterprise use of data masking or similar pseudonymization techniques will increase to 40%, from 10% in 2016. But this is only one place where greater risk cannot be allowed to slow progress.
Banks, often classic Type B or Type C organizations, are risking more and moving more quickly. The reason is that new digital-only challenger banks have announced intentions to disrupt traditional bank business models and value propositions. And, roboadvisors pose a potential threat to traditional wealth management business models and revenue. Modernization trying new models more aligned with Type A behavior will help banks avoid disintermediation due to poor customer engagement.

Customer and employee experience are catalysts for new technology options. For example, employees are more engaged if they have autonomy in how, when and where they get their work done — one of the core tenets of the digital workplace. In fact, we believe that by 2020, organizations that support a choose your own workstyle (CYOW) culture will boost employee retention rates by more than 10%. This has been a Type A strategy that must become mainstream now.

Related Research
"Predicts 2017: Privacy Becomes a Necessity With Opportunity." With current and upcoming privacy legislation broadening and regulators tightening their grip, risk increases for those who stay behind on requirements.

"Predicts 2017: Digital Initiatives Must Focus on Long-Term Transformation to Avoid Failure." Banks are looking to both improve customer experiences and drive digital transformation while navigating the hype around fintechs and startup challenger banks.

"Predicts 2017: Boosting Business Results Through Personal Choice in the Digital Workplace." 2017’s predictions highlight how application leaders responsible for digital workplace strategy will be extending flexible work options.

What Trends Will Be Pervasive Across All Segments
"Make it digital, make it programmable, and make it smart" must be on the business radar in the digital age: These are the three movements that we all face and we all must embrace.
Make it digital: In digital, it becomes necessary to create digital connections and to generate contextual information about the real world. We can make almost anything into a digital asset. And, digital assets can be replicated or changed faster than physical assets. Once things are digital, we open the door to a whole world of software manipulation.

The IoT is at the top of the "Hype Cycle for the Internet of Things, 2016" — the Peak of Inflated Expectations — and represents a prime opportunity for organizations to create digital assets. Clearly identified business objectives and a clear value proposition will be the key drivers of IoT business value; this will happen in many different ways as the IoT market moves to maturity. By 2021, regulatory compliance for critical infrastructure will drive IoT security spend to $1 billion globally, up from less than $100 million in 2016.

Make it programmable: Algorithms and APIs are the prime components of software manipulation. Because digital assets can be controlled by software, monitored by software or even transformed through software, the programmatic nature of software is critical. And, competitive advantage lies in capturing unique intellectual property (IP) in both algorithms and APIs. However, integration can be complex, requiring skilled individuals with deep knowledge of application interfaces and data models.

Applying advanced analytics and machine learning to the task of integration is a logical step and something that leading vendors are actively pursuing. Once everything is opened up through APIs,
integrated and made programmable, everything changes. By 2020, 75% of integration platforms will leverage machine learning to automate integration between application APIs, thus reducing the need for skilled integration specialists.

**Make it smart:** Excitement about artificial intelligence is growing rapidly. The ability to use artificial intelligence and machine learning to enhance decision making or to create autonomous environments will be the payoff for digital in the end. By 2019, artificial intelligence platform services will cannibalize revenues for 30% of market-leading companies.

This kind of prediction is at the heart of disruption and change. Only those who wish to be pushed out of the way will ignore it and its companions.

**Related Research**

"Predicts 2017: Charting a Path to IoT Business Value." The IoT has the potential to create significant profits in the near future. CIOs will need to ensure their IoT projects have targeted the right business values to attain success.

"Predicts 2017: Pervasive Integration Is Getting Ready for Prime Time." Digital business transformation is driving ever-more connections between applications, systems and endpoints in complex, multiorganization ecosystems.

"Predicts 2017: Artificial Intelligence." Artificial intelligence is changing the way in which organizations innovate and communicate their processes, products and services.

**Related Priorities**

**Table 1. Related Priorities**

<table>
<thead>
<tr>
<th>Priority</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building a Sustainable Innovation Process and Culture</td>
<td>The building a sustainable innovation process and culture initiative helps CIOs play a leadership role in driving innovation within their teams and across the broader enterprise.</td>
</tr>
<tr>
<td>Aligning IT, IoT and Operational Technology Investments</td>
<td>Aligning IT, IoT and operational technology investments addresses the integration of these systems and the information they generate in order to power digital business.</td>
</tr>
<tr>
<td>Developing and Managing the Governance of IT in a Digital Business Context</td>
<td>IT governance requires a reset as digital business changes its foundations. This initiative helps CIOs create a business-IT governance model that encompasses digital technologies.</td>
</tr>
</tbody>
</table>

Source: Gartner
Related Resources

Webinars
"Top Predictions 2017 and Beyond: Surviving the Storm Winds of Digital Disruption"

Articles
"Gartner Predicts a Virtual World of Exponential Change"

Gartner Recommended Reading
Some documents may not be available as part of your current Gartner subscription.

"Predicts 2017: 3D Printing Accelerates"
"Predicts 2017: Analytics Strategy and Technology"
"Predicts 2017: Application and Data Security"
"Predicts 2017: Application Development"
"Predicts 2017: Architect the Digital Business Platform"
"Predicts 2017: Artificial Intelligence"
"Predicts 2017: Audit, Compliance and Legal Management"
"Predicts 2017: Automating and Improving Workers' Content Interactions and Experiences"
"Predicts 2017: Automation Is the Heart of IT Service Providers' Drive to Improve Operational Effectiveness"
"Predicts 2017: Boosting Business Results Through Personal Choice in the Digital Workplace"
"Predicts 2017: Business Continuity Management and IT Service Continuity Management"
"Predicts 2017: Changing Dynamics for Semiconductors and Electronics"
"Predicts 2017: Charting a Path to IoT Business Value"
"Predicts 2017: China Will Be the Promising Market for Semiconductor Investments"
"Predicts 2017: Cloud Computing Enters Its Second Decade"
"Predicts 2017: Cloud Security"
"Predicts 2017: Critical Investments in IT Vendor Management Will Enable Growth and Control Risk"

"Predicts 2017: CRM Customer Service and Support"

"Predicts 2017: CRM Sales"

"Predicts 2017: CRM Will Reach Critical Tipping Points for Integration, Analytics and Customer Experience"

"Predicts 2017: CSPs Require a New Strategy to Respond to Market Disruptions"

"Predicts 2017: Data Distribution and Complexity Drive Information Infrastructure Modernization"

"Predicts 2017: Digital Business Elevates the Customer Experience Well Beyond Current Retail Multichannel Capabilities"

"Predicts 2017: Digital Business Will Pervasively Transform Product Design and PLM Across Manufacturing"

"Predicts 2017: Trustworthiness and 'Commerce That Comes to You' Present New Opportunities for Digital Commerce"

"Predicts 2017: Digital Increases Pressure on CIOs in Life Science"

"Predicts 2017: Digital Initiatives Must Focus on Long-Term Transformation to Avoid Failure"

"Predicts 2017: Education Gets Personal"

"Predicts 2017: Emerging Markets at a Crossroad Where Innovation Is Monetization"

"Predicts 2017: Endpoint and Mobile Security"

"Predicts 2017: Energy and Utilities Get Ready for Digital Disruption"

"Predicts 2017: Enhance the TSP Customer Experience"

"Predicts 2017: Enterprise Networks and Network Services"

"Predicts 2017: Exploit Disruption Through Collaboration and Technology in Consumer Goods Manufacturing"

"Predicts 2017: Global Logistics Are Embracing New Business Models to Remain Competitively Relevant"

"Predicts 2017: Government CIOs Are Caught Between Adversity and Opportunity"

"Predicts 2017: HCM Technologies Focus on the Worker (Human and Digital)"

"Predicts 2017: Healthcare Providers Take a Step Toward Digital Business"

"Predicts 2017: Identify Your Buyers to Seize Their Personal Technologies Purchases"
"Predicts 2017: Identity and Access Management"

"Predicts 2017: Information Security Management"

"Predicts 2017: Infrastructure Services Become Hybrid Infrastructure Services"

"Predicts 2017: In-Memory Computing Continues to Be Extremely Innovative"

"Predicts 2017: Insurance CIOs Must Balance Emerging Technology Opportunities and Risks to Drive Innovation"

"Predicts 2017: Is Your Technology Investment Future-Proof?"

"Predicts 2017: IT and OT Convergence Will Create New Challenges and Opportunities"

"Predicts 2017: IT Services Market Opportunities Expand in the Digital Era"

"Predicts 2017: Licensing, Legal and Language Lessons for Data and Analytics Leaders"

"Predicts 2017: Life Science R&D — Digital R&D Gets Smart"

"Predicts 2017: Marketers, Expect the Unexpected"

"Predicts 2017: Mobile and Client Platforms"

"Predicts 2017: Mobile Apps and Their Development"

"Predicts 2017: Network and Gateway Security"

"Predicts 2017: Operational Technology Transformation Is Key to CSPs' Digital Future"

"Predicts 2017: PaaS Innovation Leads Applications to Digital Business"

"Predicts 2017: Personal Devices"

"Predicts 2017: Pervasive Integration Is Getting Ready for Prime Time"

"Predicts 2017: PPM Leaders"

"Predicts 2017: Print Market"

"Predicts 2017: Privacy Becomes a Necessity With Opportunity"

"Predicts 2017: Procurement and Sourcing Technology"

"Predicts 2017: Security Solutions"

"Predicts 2017: Semiconductor Technology in 2026"
"Predicts 2017: Smart Cities Must Create the Right Data Orchestration for Sustainable Citizen and Business Services"

"Predicts 2017: Software Adoption"

"Predicts 2017: Supply Chain Trends and Innovations"

"Predicts 2017: The Coming Era of Connected and Integrated Oil and Gas Companies"


"Predicts 2017: The Reinvention of Buying Behavior in Vertical-Industry Markets"

"Predicts 2017: Threat and Vulnerability Management"

"Predicts 2017: Transformation of Technology Procurement and Asset Management"
