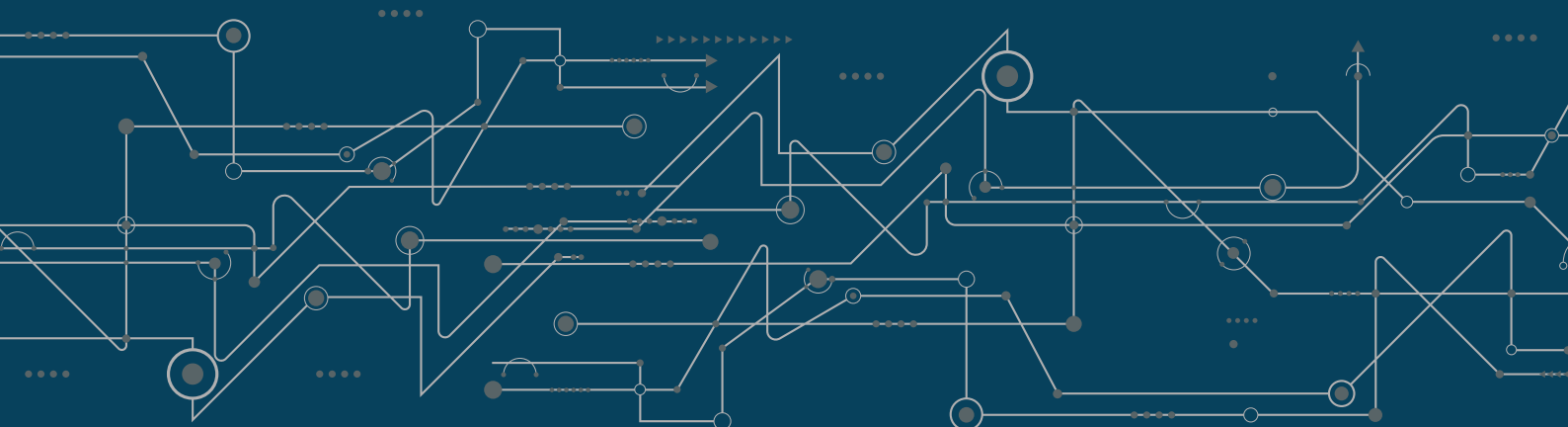# Synoptek®

Tech Trends Driving Digital Transformation in the 2019 Business Landscape

Over the past decade, technology has moved from the back-office server room to the forefront of every business. In the 1990s, companies leveraged two or three tightly integrated large-scale systems. But by the year 2000, organizations were using many more applications that were difficult to integrate into the business and difficult to manage from a data governance perspective. It became harder for in-house technology teams to service these tools and understand how they worked together while keeping them secure, much less keeping up with the pace of change.

Ten years ago, could you have imagined that handheld personal devices would link us to 24x7 information and every service imaginable?

Today, business trends are indistinguishable from technology trends. We've monetized the technology, and it's driving the business landscape. In 2019, how will digital technology trends change businesses of every size, the markets we serve, and the communities where we live? How can you adopt technology quickly given the rising costs, budget constraints, speed of change, and increasing competition?

First, let's look at what's next in digital transformation.

Checking in on digital transformation

Digital transformation was one of the hottest technology buzzwords of the past year. What is it, and how will a business know if they've achieved it?

digital transformation
Search term
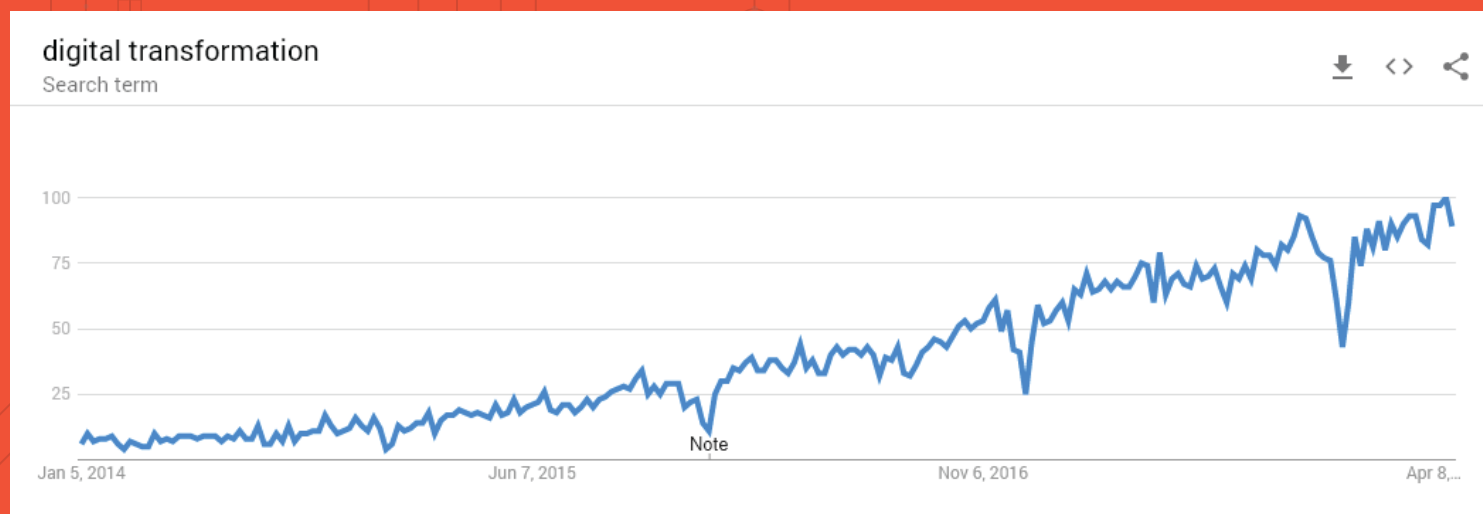
ZDNet[1] says digital transformation is a process encompassing not just technology but also the processes that make businesses better. Under this definition, every business has received some benefit from the technology disruptors of the past decade.

"DIGITAL TRANSFORMATION IS A CULTURAL SHIFT THAT ELEVATES TECHNOLOGY INTO DAILY USE"

But digital transformation is more than just the technologies we're leveraging; it's an actual cultural shift that elevates technology into daily use in an interwoven fabric of corporate and personal life.

Digital transformation affects the people, processes, and technologies within a business. If this is how we define the idea of digital transformation, then it's safe to say that both businesses and the people within have been digitally transformed when processes and technologies have successfully elevated the business.

But what are we transforming into? IT experts suggest that businesses will continue to meld with technology until we have an intelligent "digital mesh" transforming both people and processes.

Naming three disruptors

Digital disruption[2] occurs when new technologies and business models affect existing goods and services' value proposition. One of the biggest disruptors has been the internet and its associated mobile and smart devices, which have given rise to new business models, new consumer trends, how we work, and even the social fabric of society.

Today, many technologies are affecting digital disruption in business. Here are three disruptors that will continue to have a big impact in 2019:

Cloud

IoT

Data Capture and Analysis
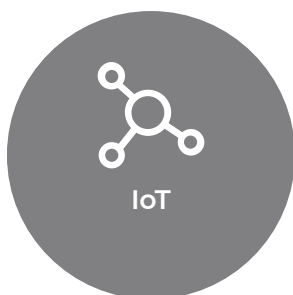
1. Cloud

One of the biggest business disruptors is **the cloud**[3] and the growth of cloud and software-as-a-service (SaaS) models, which **Gartner says will surpass $73 billion**[4] this year. By 2021, Gartner predicts that the cloud will reach 45% of overall IT spending.

$73,000,000,000

While the scalability and cost predictability of cloud models generally trump the capital costs of on-premises applications, perhaps the most transformative benefit has been for growing, midsized companies. Today, small- to medium-sized businesses can set up an eCommerce site, access applications, achieve better computing performance, or run predictive analytics with enterprise-level tools. SaaS is a democratizer, bringing enterprise software to the smallest competitor.

Cloud has become the biggest transformer; cloud and SaaS applications have leveled the playing field for businesses seeking new tools for competitive advantage. It is imperative that a business adopt them before the competition does.

"MODELS SUCH AS ITAAS SAVE COMPANIES MONEY AND TIME"

"CLOUD AND SAAS APPS HAVE LEVELED THE PLAYING FIELD FOR BUSINESSES SEEKING COMPETITIVE ADVANTAGE"

A big measure of success for the SaaS model is that the "as a service" framework has been hijacked into a new set of services such as platform as a service (PaaS), infrastructure as a service (IaaS), and the latest iteration, information technology as a service (ITaaS), where the nuts and bolts management of the IT architecture is put in the cloud and in the hands of a trusted third-party vendor.

Models such as ITaaS save companies money[5] while also freeing up internal IT teams to work on more strategic business projects. Cloud services will continue to be part of the digital transformation next year, disrupting budgets, workflows, and staffing.

2. IoT

The internet of things (IoT) is the array of remote cloud-connected technologies. **Business Insider**[6] predicts that there will be more than 55 billion IoT devices by 2025, with businesses spending almost $15 trillion in developing these solutions.

But just how are IoT devices driving business transformation? Here are some examples in top industries:
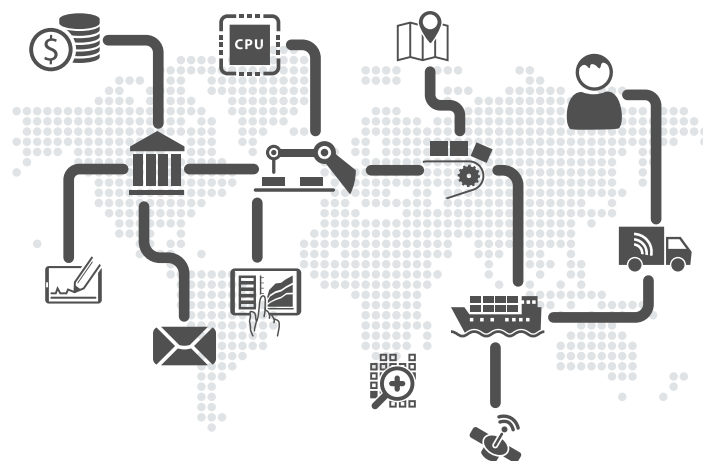
MANUFACTURING

TRANSPORTATION

HEALTH CARE

FINANCIAL SERVICES

Health care[7] – Many IoT devices have been woven into clinical care; there's now a new category of IoT called the **"internet of medical things."[8]** Since most hospital patients spend their time in an inpatient setting, mentioning the latest line of IoT-connected beds is a good place to start. Smart beds connect to the hospital's electronic medical records platform, recording patient data such as movement and weight while sensing and alerting nursing staff when patients get out of bed.

Manufacturing[9] – Firms are using IoT devices to improve operating efficiencies. If an assembly line machine is underperforming, an IoT device can flag the issue before it shuts down production. **Wired[10]** points out that this predictive maintenance will be a big money saver for industrial firms in the future.

Financial services[11] – Companies are using IoT to track how we drive, to determine our insurance rates. **Smart sensors are becoming the norm[12]** for monitoring investments and making underwriting decisions. Trading and investing are becoming automated, and smart gadgets are being used to secure remote payment transactions.

Transportation[13] – This industry has made the news with its forays into **autonomous vehicles.[14]** Self-driving cars are coming, and many believe they will eliminate traffic jams, accidents, and the need for stoplights. Think this can't happen? We already have cars that assist you in braking and parking. Self-driving IoT-connected cars are the next step.

Each of these changes is having a big impact, from increasing transparency to improving efficiency — as well as consumer services we use every day. The IoT will remain a huge disruptor in virtually every business going forward. Companies that fail to adapt to these trends will lose competitive advantage and fall behind.

3. Data Capture and Analysis

Data and its associated analytics go hand in hand with IoT as technology disruptors that have changed business forever. Capturing and analyzing historical and real-time data lies at the heart of every digital transformation strategy. **The Stack[15]** says data is "at the core of the new way in which businesses operate and make money." IDG points out in its **digital transformation survey[16]** that data analytics is the most widely adopted digital technology today. **By 2020, the data business analytics market[17]** will surpass $203 billion.

The concept and implementation of data capture and analysis has affected every industry, every market sector, and every size of business. Data and analytics help companies make faster and more intuitive decisions about their business strategies. For example, data can:

- Improve research and development of new products and speed up go-to-market time.
- Provide real-time analytics on market trends, allowing organizations to adapt to consumer demand.
- Help us segment markets in new ways, potentially opening new revenue streams.
- Improve decision-making and mitigate the inherent risks in decision-making.
- Help companies introduce new business models.

All of these business and technology trends have heavily impacted the people and processes that make up the core of business function. Now that most businesses are well on their way toward digital transformation, what's the roadmap for 2019 and beyond?

2019

The next transformation phase: The intelligent digital mesh and your business

We're about to enter phase two of digital transformation. Future businesses will thrive under what Gartner calls **"the intelligent digital mesh,"**[18] an interwoven connected landscape of devices impacting every business function and the people, processes, and technology within. This all-encompassing net will require **a broad range of skill sets and technologies**[19] to achieve the best results.

The next link in the digital mesh will be widespread adoption of artificial intelligence (AI) commercialized in commonly used home and office devices. The biggest impact will be human task automation. This includes everything from driving a car to managing application security layers. **In the next few years, the mesh will look like**[20] "a swarm of connected intelligent things, with multiple devices working collaboratively, either with or without human input."

Throughout the mesh, AI will make its way into the analytics sector. We anticipate that data migration and management, **business intelligence,**[21] and process mining will all be affected. Could this eliminate the need for data scientists that slice, dice, and visualize the numbers? It's possible we're moving toward a new era of **"citizen data science"**[22] that democratizes our ability to cull insights because the machines will do it faster.

Don't worry, the human touch will still be necessary; computers still need someone to write the code. But machine learning algorithms, automation, blockchain, and predictive analytics are already used in development circles. Is it possible that AI will enter the realm of the software engineering field? The answer is that it's already there: There's a rapid shift in the market in which professional data scientists must partner with application developers to create most AI-enhanced solutions to a model in which the professional developer can operate alone using predefined models delivered as a service.

Increasingly, businesses will look outside their IT teams for additional expertise to manage the digital mesh. The next transformation phase will empower new types of third-party models to handle the nuts and bolts of IT infrastructures. Watch for a proliferation of as-a-service models **led by the managed IT market in the cloud,**[23] which is expected to hit a compound annual growth rate (CAGR) of 11.5%, worth more than $256.5 billion by 2021.

The tools within the intelligent digital mesh will become an immersive part of our everyday work and personal lives, including business intelligence, AI, blockchain, IoT devices, automation, and smarter data analytics.

The impact of the next wave of digital transformation on our homes and offices will include the growth of "smart spaces," **which Gartner calls**[24] "a physical or digital environment in which humans and technology-enabled systems interact in increasingly open, connected, coordinated, and intelligent ecosystems."

All of these trends point to an increasing need for digital disruption in the security space. Keeping the intelligent mesh safe will be job one in an increasingly automated, AI-driven world.

Migrating and securing the transformation: Cloud, hosting, and digital security in 2019

None of these trends matter if hackers have their way. The need for a robust response to the ever-shifting security threat landscape is becoming more important than ever. The attack surface is widening as we pursue the benefits of full digital transformation, and the risk is growing. Hackers are becoming

more sophisticated; the malware, worms, and viruses from the past decade have evolved to include advanced persistent attacks that move horizontally deeper into your network, cull data, and exit safely.

Whether your digital IoT transformation encompasses a migration into the cloud or a hybrid approach, optimizing the network for digital security is an imperative. Is a private cloud option preferable over the Azure or AWS public cloud? What type of disaster recovery planning will be needed in a new, IoT-driven world? We know that the security threat vector increases exponentially with every new internet-connected device. But what will these threats look like, and how can we prepare? Synoptek can provide managed security and network anomaly detection services that can help you mitigate some of the worst digital security threats:

Ransomware

Ransomware is malware that encrypts a computer or network, locking it until the owner pays a fine. The phenomenon broke last year when **WannaCry**[25] took down major institutions around the world. The Dark Web has spawned a host of **do-it-yourself ransomware schemes.**[26] The unprecedented array of IoT devices has, in some cases, left an open door for malware like ransomware to spread. But it doesn't take a cloud-connected device; most ransomware is spread through a phishing email. **CSO reports**[27] ransomware is going to cost us upward of $11.5 billion next year. By the end of 2019, experts predict ransomware will hit a business every 14 seconds.

AI attacks

Forbes predicts[28] in the next few years we will see a rise in AI-powered cyberattacks. These attacks will be machine-driven, self-learning, and potentially unharnessed. **PWC says**[29] this necessitates that companies increase the volume and speed of their security response, which also requires the use of AI for data protection. They suggest, "AI will become an important part of every major organization's cybersecurity toolkit."

DDoS attacks

CIO[30] predicts that the convenience of the internet has also made critical infrastructures more vulnerable. From energy and law enforcement to retailers' supply chains, an increasing array of core business functions are in the cloud. What's one of the best ways to bring it all down? Hackers are using distributed denial of service (DDoS) attacks with AI automation and botnets to bombard the cloud infrastructure at a specific point to overwhelm and shut it down. Think of DDoS as a traffic jam on the information superhighway. **Cybersecurity researchers say**[31] these attacks are getting bigger and more threatening.

National level attacks

For the past few years, **Cisco has predicted an increase in attacks**[32] on our infrastructures, including utilities, transportation, and even our democracy. Increasingly, these attacks will be directed between nations via "state-run subversive groups," and their potential for havoc is high.

Fighting back against these attacks requires new approaches to **managed services**[33] as part of an end-to-end digital security strategy.

One way to mitigate the risk is through the use of **business intelligence**[34] (BI) to prevent cyberattacks, including:

- Assessing next-level threats by predicting where an attack could occur.
- Analyzing previous attempts to breach a network and use predictors to suggest trends.
- Using real-time data to monitor and report on suspicious activity.

As hackers automate their efforts in larger and broader strokes, using BI for cybersecurity pits machine against machine in a way that reduces your risk. In tomorrow's digital transformation, BI could mean the difference between managing the risk vector and a costly cyber breach.

The next steps in business transformation

The next steps in digital business transformation require rethinking business processes to make use of smart technologies. These tools are evolving at the speed of the internet — and managing them effectively is both an operational and strategic necessity. Staying on top of the latest innovations while deploying the best iterations is a full-time job.

Today's IT leadership increasingly has a place at the table in a strategic effort to capitalize on the benefits of digital transformation. But this pressure has stretched IT teams to become not only digital engineers but also process improvers and strategic innovators. Finding the right partners for your IT team will help keep the team focused on its charter. It is the new strategic imperative that can help your organization continue to move forward into the technology-driven company of the future.
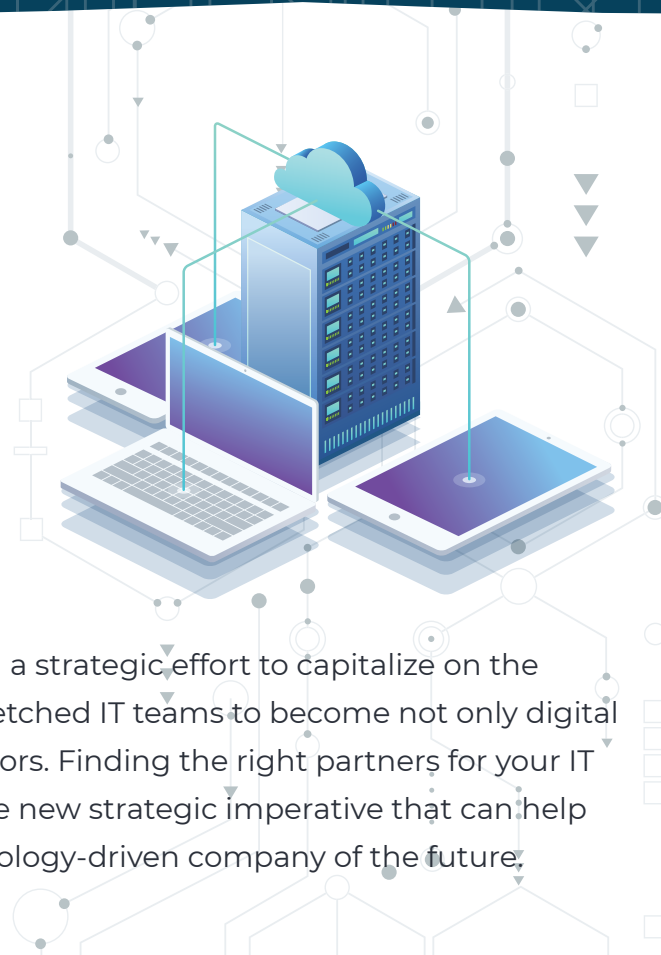
Addressing these issues will be a tremendous challenge, particularly given the lack of sophisticated and knowledgeable talent. Finding sources to expand your capabilities and capacity will be imperative. Are you ready? Synoptek and its IT advisors are here to help.

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