



Transforming Businesses  
with Artificial Intelligence

## Executive summary

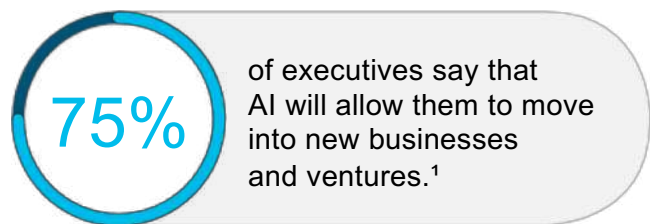
Not so long ago, technology that could learn and solve problems on its own was found only in science fiction. Today, devices with these advanced capabilities are emerging all around us, representing the latest wave of rapid progress. Artificial intelligence (AI) is redefining our way of life, enabling machines to do what people once thought only humans could do. It is also revolutionizing the way we do business.

Businesses need AI and ML so that they can:

- Make their infrastructure intelligent to drive insights and better decisions
- Improve their security posture to secure every endpoint
- Enrich every customer experience to deliver more engaging, personalized products and interaction
- Transform processes and business models to drive efficiency and productivity
- Hire, retain, and empower talent to improve workforce efficiency and engagement

We are building AI-ML capabilities across its portfolio of products and solutions in networking, security, data center, cloud, analytics, and collaboration.

In this paper, we will explore how AI will form the foundation of this new world and show how we can help provide advanced intelligence across the value chain.



### What is artificial intelligence and machine learning?

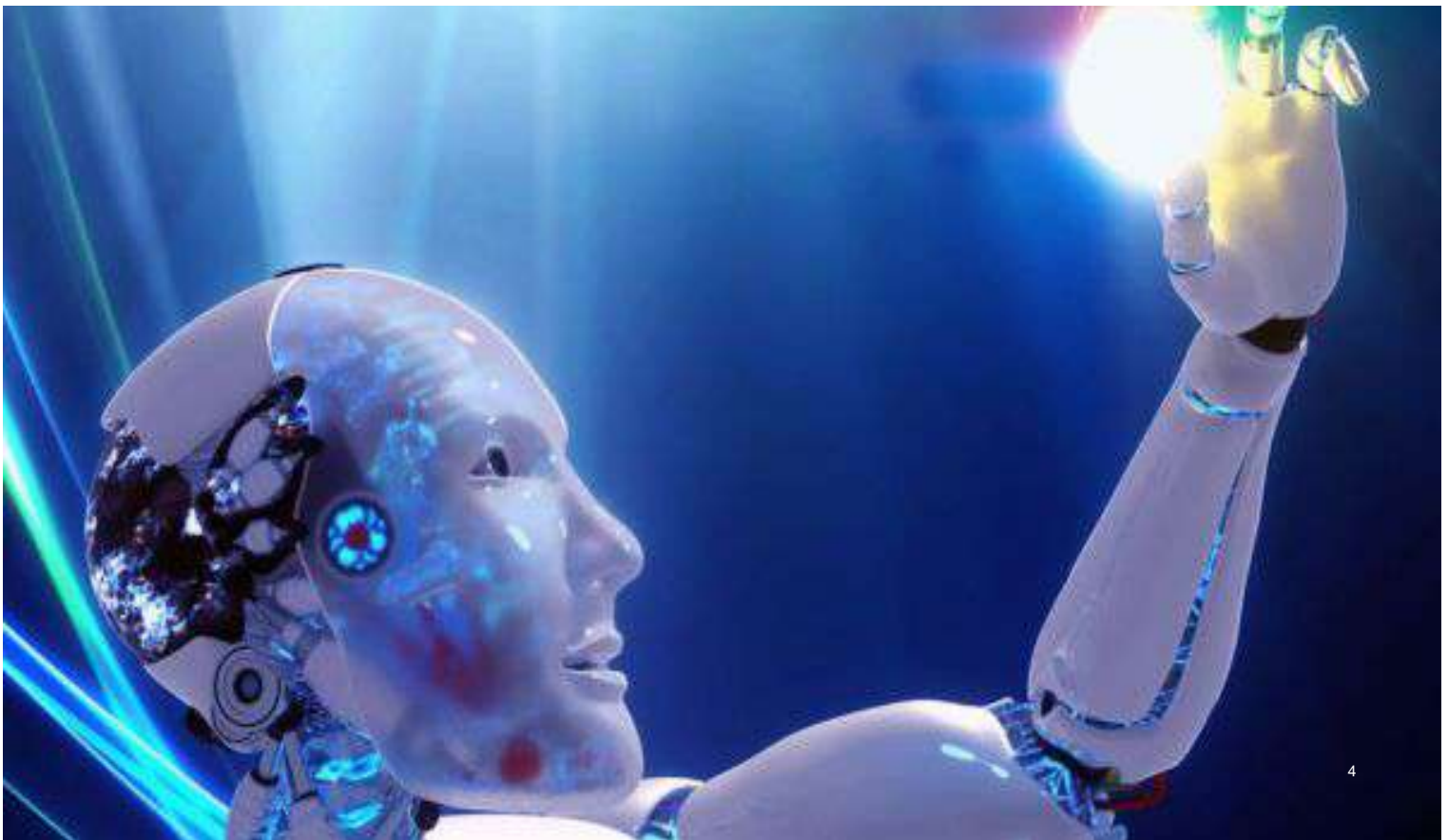
We're entering an exciting new era in technology that is bringing transformative change to the way we live, work, and play. Decades ago, the PC era brought computers and all their capabilities to a wide audience. Then we witnessed the rise of the Internet, which brought more knowledge to people faster than ever before. Next came the rise of mobile and cloud ecosystems, which is putting the Internet in the palm of people's hands, expanding the processing power of their devices, and scaling what they can store to formerly unimaginable levels. Now we are about to move to a new era, which we're calling the era of intelligence.

Imagine a world where every car is connected and communicating with the cars and traffic signals around it to automatically optimize traffic flows using analytics of vehicle volumes and speeds. Or a city where sensors and guides can provide freedom of movement to the visually impaired. Consider the possibilities if every robot in a manufacturing facility were connected and providing data about product volumes for just-in-time ordering of raw materials, and metrics to enable proactive, preventive maintenance to eliminate downtime.

These breakthroughs aren't far off. They will be powered by AI. It's clear that AI is driving powerful transformations across a variety of industries. Machine learning (ML) is a subset of AI and a central enabler of its capabilities.

Artificial intelligence is still a new and amorphous field, but one widely agreed-on definition is "a system capable of rationally solving complex problems or taking appropriate actions to achieve its goals in whatever real-world circumstances it encounters."<sup>2</sup> In short, it's a computer that can solve problems without direct assistance from a person.

There are two essential kinds of problems AI can solve. The first involves scenarios where theoretical modeling can be applied to approximate and predict behavior. The second focuses on problems where diligent parametric observation provides enough data to fit a mathematical formula. The first type of problem, known as knowledge engineering, involves coders and experts who team up to explicitly program human expertise into a computer so it can act independently. The second scenario, machine learning, focuses on training algorithms—often called learners—to discover their own problem-solving methods with massive amounts of data.



## AI and ML is redefining businesses

### Digital production assistants build cars of tomorrow

Automobile manufacturer BMW is harnessing the potential of AI in innovative automation and flexible assistance systems in production. At its factory in Leipzig, Germany, lightweight robots work directly on the production line together with the human workforce. Their versatility, modest space requirements, and high level of safety grant people access to areas that used to be off limits to everyone except robots.<sup>3</sup>

BMW is also applying AI to support the driverless cars of the future. It has stated that its aim is for its vehicles to achieve full “level 5” autonomy by 2021. Level 5 autonomy tops the scale defined by the U.S. Department of Transportation. It indicates that a vehicle will be capable of driving with no human input or supervision and operate at least as effectively as a human driver—in any conditions and on any road.<sup>4</sup>

### Intelligent production management systems boost uptime

Procter & Gamble, which operates 130 plants worldwide, has had success integrating AI and other smart factory technologies into its manufacturing operations. The tools have helped the company cut unplanned downtime by 10 to 20 percent.

“There’s nothing for us that could be more strategic to the company than to really drive better efficiencies and a better end-to-end operation in our supply chain,” said Robert William, Maximizing supply chain efficiency is a powerful benefit not only for P&G, but manufacturers in all industries. The market for smart manufacturing tools is expected to hit \$250 billion by the end of 2018, according to research company TrendForce.



## What is motivating the emergence of AI and ML?

AI and ML have rapidly progressed over the past few years. According to Robert, 2017 marked a period of meteoric rise of this technology. ML in particular is playing a prominent role in digital transformation for several reasons, such as the falling cost of data storage. Commodity hardware, the spread of open-source technology such as Hadoop, and the growth of the cloud are making it very cheap to store data, resulting in the rise of big data. Much of this data provides excellent training material for learners and is being packaged for easy use in resources such as ImageNet and data.gov.

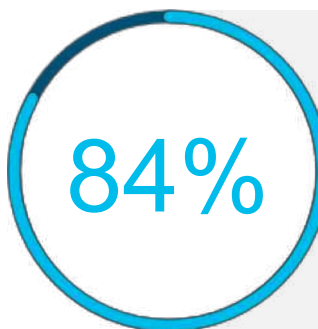
In the past, training an ML system was often too computationally expensive. Fortunately, improved CPUs, GPUs, and cloud computing have massively reduced the price of compute power. Mathematical advances have also made training neural networks easier and more effective.

A public-private ecosystem including universities, companies, and government has also encouraged rapid progress in the field. The combination of these trends has created a prime environment for the growth of machine learning.



## Why do you need AI and ML?

Data is the lifeblood of business. It helps drive insights and better decisions; improve processes; and offer a deeper understanding of customers, partners, and business. AI and ML enables us to learn from data, identify patterns, and make smarter decisions that augment human capabilities. This capability empowers organizations with new ways to grow revenue, attract and retain customers, and become more operationally efficient. AI and ML can help automate tasks and accelerate untapped insight in previously unexplored areas.



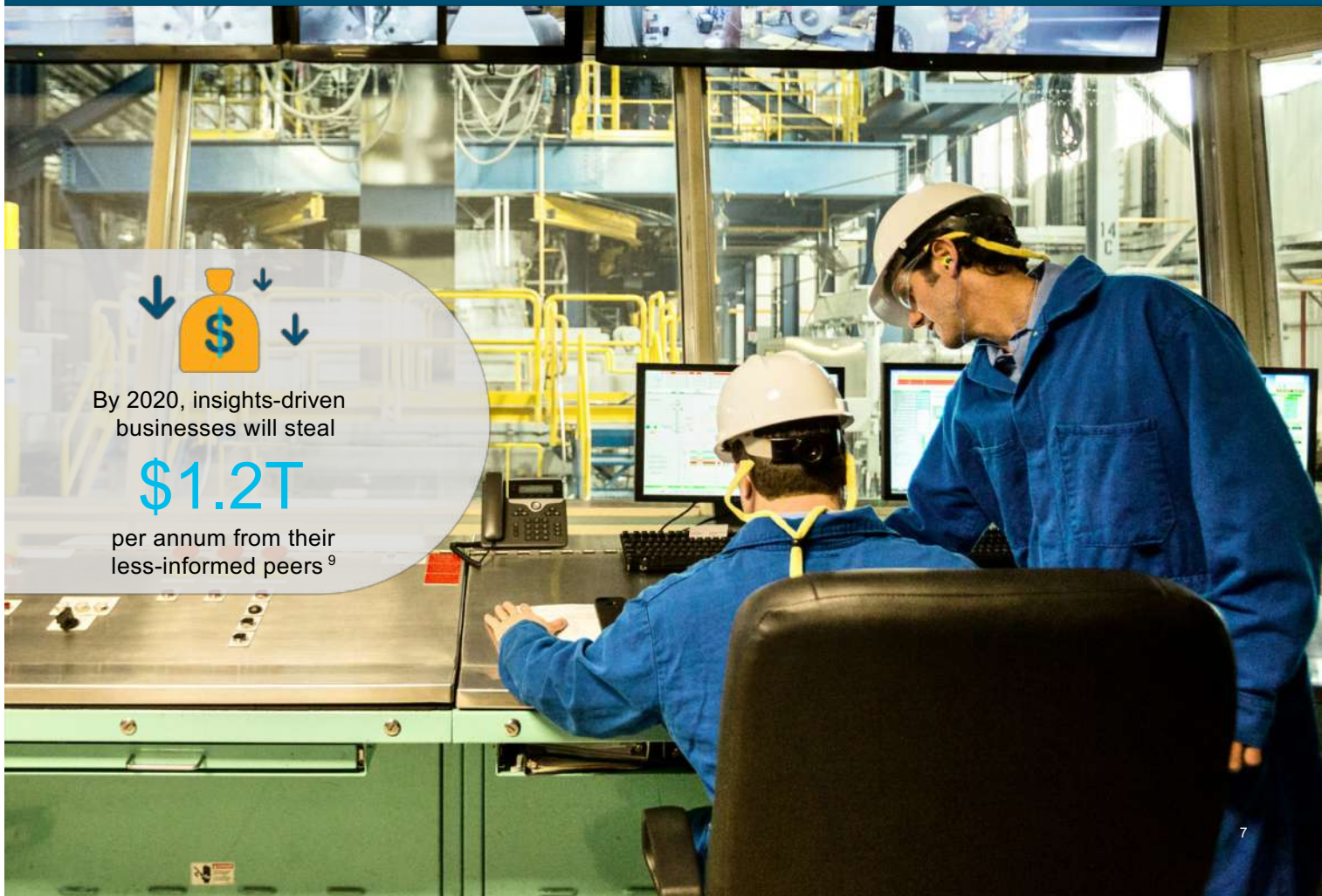
of executives say AI will enable them to obtain or sustain a competitive advantage.<sup>8</sup>

Together, AI and ML enable you to:

## Make your infrastructure intelligent

In this increasingly connected world, data is more important than ever, and more organizations are looking to unlock its full value using contextual awareness of apps, users, threats, and location. They need predictive and prescriptive insights to respond to market changes faster. They are seeking more adaptive processes and technologies to understand their customers and business processes better. These priorities all require an intelligent infrastructure.

One of the main values of artificial intelligence is its ability to unlock in-depth insights and intelligence from your organization and your business processes. When you gather data from the people, processes, and things that reside on your network and analyze that data by looking at patterns, you can better identify emerging customer needs, uncover trends, and innovate faster than your competitors. The more data you can collect and analyze, the more opportunities will open up for you.



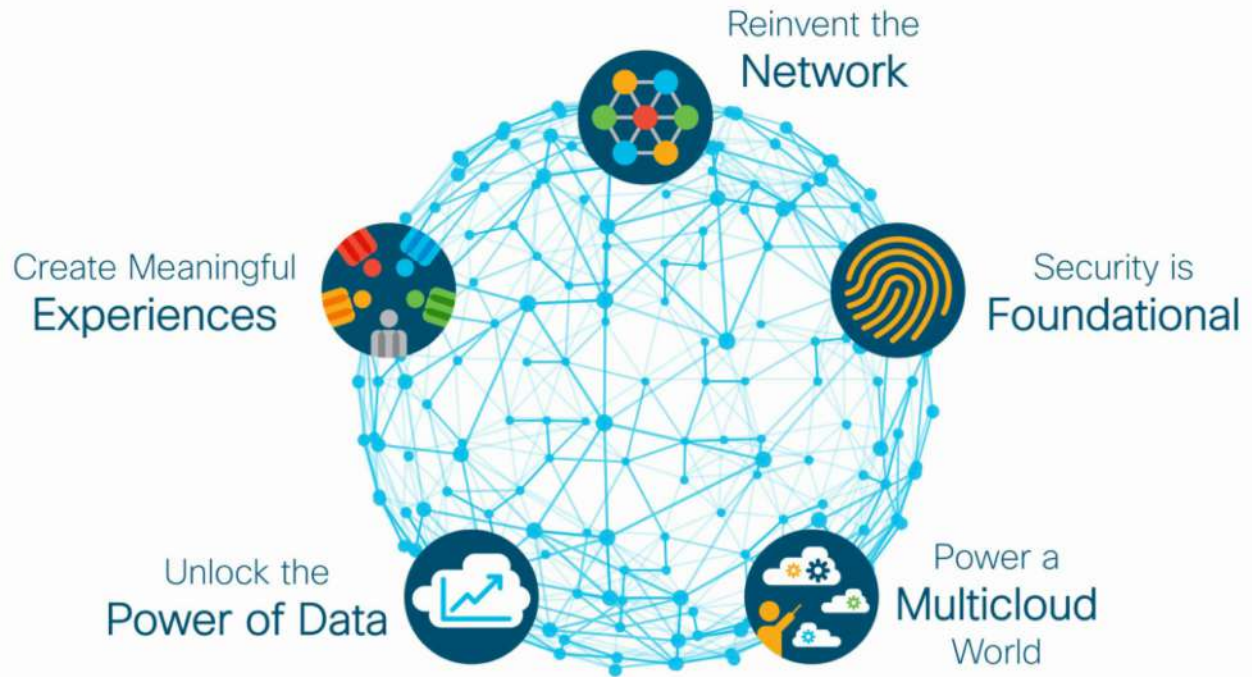
By 2020, insights-driven businesses will steal

**\$1.2T**

per annum from their less-informed peers<sup>9</sup>

## Kinela drives AI and ML innovation

Kinela's leadership position by virtue of being one of the largest market share holders in B2B areas such as the network, security, cloud, analytics and collaboration, enables us to approach AI-ML in a holistic perspective toward driving business outcomes. Drawing on this wide visibility of data, Kinela is helping customers reinvent their network, make security foundational, power a multi-cloud world, unlock the power of data and create meaningful experiences by harnessing the power of AI and ML.



### Unlock the power of data

Kinela is focused on delivering insight and recommendations at the network layer, the data center layer, and the application layer to optimize for latency, reliability, power, and operating expense. Our next goal is full auto tuning that will make sure of fast movement of data across the network, using the fewest possible resources.

#### DNA Analytics and Assurance

DNA Analytics and Assurance provides contextual insights across users, devices and applications. It assures network performance by using advanced correlation and ML algorithms to analyze data, identify outliers and provides recommendation, driven by 30 years of Kinela domain expertise and constantly evolving best practices, on identified issues.

#### Tetration Analytics™

Kinela Tetration is designed to address security and operational challenges for a multi-cloud data center. It uses machine-learning, behavior analysis, and algorithmic approaches to offer a holistic workload-protection strategy and network-performance insights. This approach allows customers to gain application insights, auto generate whitelist policy and enforce a consistent policy to enable zero-trust model. The platform also tracks process-behavior deviations, identify software vulnerabilities in a multi-cloud infrastructure allowing you to reduce attack surface and identify indicators of compromise much faster.

#### Network Assurance Engine

Network Assurance Engine (NAE) transforms operations in data center networks to a fundamentally more proactive model. Built on Kinela's patented network verification technology, it is the most comprehensive assurance engine that mathematically verifies the entire network for correctness, giving operators confidence that their network is always operating consistent with intent.

#### AppDynamics

AppDynamics monitors applications and discovers and baselines end-to-end business transactions so IT teams can instantly identify and remediate performance bottlenecks that could affect the business. It uses machine learning to deliver contextual insights about application and business health, predicts performance deviations, and alerts before impact.

#### Kinetic

Kinela Kinetic platform helps to extract, compute, and move data from your connected things to various applications. The data produced by all your things is a high-value asset that can change the trajectory of your business—if you can make full use of it. But that can be challenging when you're working with disparate things and a variety of applications that may live in edge or fog nodes, your data center, private clouds and/or public clouds. Kinela Kinetic makes it easy to connect distributed devices ("things") to the network—then extract, normalize, and securely move data from those devices to distributed applications.





## Create meaningful experiences

Kinela is using AI in our products as well as our internal operations to improve employee and customer experiences. Our initiatives focus on making our collaboration products and solutions simple, automated, and intuitive.

### MindMeld

At Kinela, we are calling our ML-enhanced collaboration experience Cognitive Collaboration. It features two primary components: bots and computer vision. Kinela customer-facing bots are built on the MindMeld technology. MindMeld ML algorithms enable complex, human-like natural language search and navigation. They support dynamic user flows and dialogues for conversational UI, as well as voice assistants. These tools can be used for food ordering, music or video discovery, or even travel booking. Kinela ML algorithms are also in the process of being integrated into Kinela video conferencing products.

### Webex Endpoints

The Kinela vision for Webex Teams and Webex Boards includes a variety of AI and ML enhancements. For example, Kinela is making the bot chat assistant more intelligent, so interactions can be automated and predicted. Kinela is also enhancing Webex Teams with a customer care bot to predict and solve customer issues easily and quickly. Additional enhancements include AI capabilities such as automatic detection of people in the room for intelligent camera framing, voice recognition to place calls using voice commands, and face recognition to identify meeting attendees.

