How APIs Fast-Track IoT Opportunities Across Industries
The combination of ubiquitous connected mobile devices and Moore’s Law has created an enormous market opportunity to put chips into everyday hardware, creating a network of smart devices commonly known as the Internet of Things, or IoT. By harnessing this cyber enablement of the physical world, leading enterprises are developing new digital experiences that surprise and compel customers—and ultimately create competitive advantage.

According to Forrester¹ in a survey of global businesses, over the next 12 months:

- 45% are investing in digital experience technologies
- 45% are creating a mobile and tablet strategy for customers
- 40% are prioritizing developing smart connected products or assets enabled by IoT/M2M
How APIs Power IoT

What’s driving this massive IoT opportunity? Investments in technologies like sensors, wearables, network connectivity, mobile devices and apps, and application programming interfaces (APIs) that enable seamless systems interoperability and data sharing. But IoT is not about technology for technology’s sake; it’s about delivering novel experiences to customers.

As the building blocks of the application economy, APIs provide the needed interface between the Internet and connected devices by exposing data and application functionality that enables multiple devices, data streams and systems to interact through new technology-driven workflows. In a Forrester survey of global enterprises that identified accelerating their digital businesses as a top priority for the next 12 months, 53 percent are currently exposing APIs outside the organization, and 55 percent are currently exposing APIs internally.²

Instead of reinventing the wheel and developing new solutions as the business expands, developers can use APIs to control and simplify access to enterprise apps. They can create reusable interfaces that apply common security and management standards to new connection points, making more data available to more developers and partners—which opens up a variety of new business opportunities.
The Four Key Business Opportunities of IoT

Across verticals, organizations like yours can unlock untapped value and pursue new revenue streams and routes to market by investing in IoT technologies and utilizing APIs to transmit and receive data.

When you embrace IoT as part of your digital transformation strategy, you’re better able to develop partnerships, pursue more qualified and higher-value sales opportunities and strengthen customer relationships in four key ways:

1. Improve customer, employee and partner experiences
2. Reduce costs and develop new business models
3. Create wider ecosystems of applications, partners, developers, devices and services
4. Nurture innovation through technology and the sharing of data

On the following pages, we’ll explore how organizations in a variety of industries are utilizing IoT—through the application of networked technologies, mobile and APIs—to unlock new value in these four areas.
One of the best ways to understand the unique innovation opportunities and value propositions presented by IoT is to examine the number of different industries that it will reach. In this section, we’ll look at how IoT is powering better experiences, new business models, wider reach and more innovation in:

### Healthcare IoT

**Better experiences:** Connected medical devices, such as wearables, allow patients to more proactively monitor and manage their health 24/7.

**New business models:** Access to patient data enables insurance providers to create more accurate policies and pricing structures that benefit all parties.

**Wider reach:** Sharing more data across an ecosystem of networks, labs, pharmacies and various third parties enables a better understanding of population health.

**More innovation:** Technology helps shift the healthcare model to self-managed, preventative care that is more accurate, personalized and data-driven.

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Did you know that, via APIs, connected devices like insulin pumps can automatically update electronic health record (EHR) systems for better long-term disease management?
IoT Innovation Across Industries

Did you know that drivers can opt to share vehicle operational data with insurance providers through APIs to receive safe-driver discounts?

Automotive IoT

**Better experiences:** Automatic braking, parking assist and other smart technologies increase safety and convenience for drivers.

**New business models:** In-car infotainment systems enable direct sales opportunities for manufacturers and third-party app developers.

**Wider reach:** Car manufacturers are increasingly partnering and sharing data with insurance providers, advertisers, developers and local governments.

**More innovation:** Vehicles will continue to evolve with technology to become safer, more connected and—eventually—autonomous.
Did you know that APIs are what enable consumers to book travel, manage their reservations, view real-time status updates and check-in remotely, all from within a mobile app?

**Travel and Transportation IoT**

**Better experiences:** APIs enable customers to book travel from their preferred apps, websites or third-party services.

**New business models:** Additional revenue streams for the travel industry are created by opening up backend booking systems to third-party websites and mobile applications.

**Wider reach:** Technology enables transportation companies to support larger, more connected fleets and integrate with systems from third parties, consumers and local governments.

**More innovation:** Similar to the automotive industry, autonomous transportation and wireless vehicle-to-vehicle communication will drive innovation.
Did you know that consumers make purchases on mobile apps or smart devices via APIs that interface with a retailer’s inventory management system?

Retail and Hospitality IoT

**Better experiences:** Retailers can deliver a unified experience across Web, mobile and physical channels to create more personalized, contextual and relevant offers and services.

**New business models:** New purchase channels, such as Web, mobile and connected devices, alongside data-driven targeting create additional sales opportunities.

**Wider reach:** Partnerships with technology manufacturers and third-party service providers help retailers reach more customers in- and outside of stores.

**More innovation:** Data about shoppers and their behavior leads to more intelligent marketing campaigns, new channel experiences and personalized sales models.
IoT Innovation Across Industries

Utilities IoT

Better experiences: APIs connect smart meters and grids to mobile applications that consumers can use to monitor, pay for and manage their utility consumption.

New business models: Utility companies can remotely monitor transformers, power centers, substations and more to eliminate manual checks and reduce costs.

Wider reach: APIs extend the impact of devices like smart thermostats and lighting by integrating with connected grids from third-party utility providers.

More innovation: As electric grids get smarter and more connected, energy efficiency increases while usage and demand data drive better service delivery and utilization.

Did you know that, through APIs, vendor and consumer utility investments are linked to create a grid of optimized, real-time utilization data?
IoT Innovation Across Industries

Did you know that bidirectional APIs enable citizens to communicate with government officials through a mobile app and receive alerts for local campaigns, services and upcoming events (such as tax payment due dates)?

Smart Cities IoT

**Better experiences:** Safer, more efficient and cost-effective connected infrastructure and services improve communication and quality of life for citizens and governments.

**New business models:** Connected infrastructure helps reduce consumption, proactively identifies aging or faulty equipment and enables new, subscription-based services.

**Wider reach:** Technologies that link citizens and governments enable city officials to better engage with remote or previously uninvolved citizens.

**More innovation:** With aggregated government and third-party data, city planning becomes smarter, government officials better understand civic analytics, and population health and quality of life improve.
IoT Innovation Across Industries

Did you know that with mobile apps and APIs, police officers can engage with citizens, receive real-time alerts in the field and better manage equipment and deployments?

National Security IoT

Better experiences: Body cameras and mobile apps enable police officers to deliver improved citizen experiences and emergency responses.

New business models: With enhanced monitoring services, the police force can better manage officer deployments to maximize coverage and reduce downtime.

Wider reach: When police officers can communicate directly with constituents via mobile apps, it increases their ability to engage with and protect all citizens.

More innovation: Advancements in technology help create safer, more efficient and more personalized communities, police forces and public departments.
Addressing the Security Challenge

When you consider the expansive opportunities IoT opens up across all industries, you have to wonder why adoption is slow. One answer may lie in the unique challenges IoT presents.

For example, organizations must decide which devices from what third parties they will support, either directly or through customers and partners. They also need to understand the architectural and security requirements for the complementary APIs, which can differ across Web and mobile. On top of this, there are currently no common standards in IoT, so organizations must learn new protocols for each IoT technology they support.

As complex as these challenges sound, there’s one that trumps them all, because if it’s not accounted for, it can lead to lost revenue or a destroyed brand reputation: security.

Externalizing data and functionality through APIs is necessary to create ecosystems that deliver the most value for IoT, but data and interfaces must be secured against attack or compromise—especially when you consider that APIs expose a large volume of personally identifiable information to third parties.

What’s more, the multi-protocol, multi-partner environments typical of IoT adoption only exacerbate these security challenges. The question is, what does it take to orchestrate a standardized security context across a complex mix of mobile, APIs, IoT and other critical services?

In a Forrester survey of global telecommunications decision makers, 32 percent cited security as a top concern for their firm in deploying Internet of Things (IoT) technologies.³
About CA API Management

In order to realize the full value of IoT and avoid the performance and privacy pitfalls of exposing backend systems via APIs, it is vital to employ an API management solution that delivers the full range of functionality for service composition, security, identity and access management, performance optimization, lifecycle management and developer engagement.

The CA API Management suite provides all the components required for effective, enterprise-level API management, including an API gateway designed to simplify all key API security and management processes and an API portal that enables effective developer onboarding and management.

With CA API Management, you can:

- **Accelerate IoT app development** with ready-to-go infrastructure for mobile security, IoT data integration and developer enablement.
- **Protect your applications and data** from external or internal attacks through simple, policy-driven security management from the industry-leading security gateway.
- **Publish, manage subscriptions and control messages** with MQTT interfaces, user messaging and user/group management through SCIM 2.0 interfaces.
- **Use SDKs to create backend services** that connect with IoT devices over MQTT and other protocols.
CA provides API management solutions that enable mobile and IoT technologies to converge and deliver improved customer experiences, enable new business models, promote wide ecosystems and nurture innovation.
It’s Time to Maximize Your IoT Opportunity.

In the race to deliver the next great experience to customers, the winners will be those who can marry creative and innovative new business models with a comprehensive security approach that protects all components of their IoT ecosystems.

To learn more about how CA can help you build a next-gen IoT solution for your business, visit ca.com/mobileapi

CA Technologies (NASDAQ: CA) creates software that fuels transformation for companies and enables them to seize the opportunities of the application economy. Software is at the heart of every business, in every industry. From planning to development to management and security, CA is working with companies worldwide to change the way we live, transact and communicate—across mobile, private and public cloud, distributed and mainframe environments. Learn more at ca.com.