

# IoT

PYMNTS.com

MAY 2020

## Intelligence of Things

Tracker®



### ABB On How **Smart City Technologies** Build More Sustainable Communities

Feature Story (p. 7)

How the UK is using smart city technology to assess social distancing policies

News and Trends (p. 11)

The top IoT players and recent provider directory additions

Scorecard (p. 20)

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Information on PYMNTS.com

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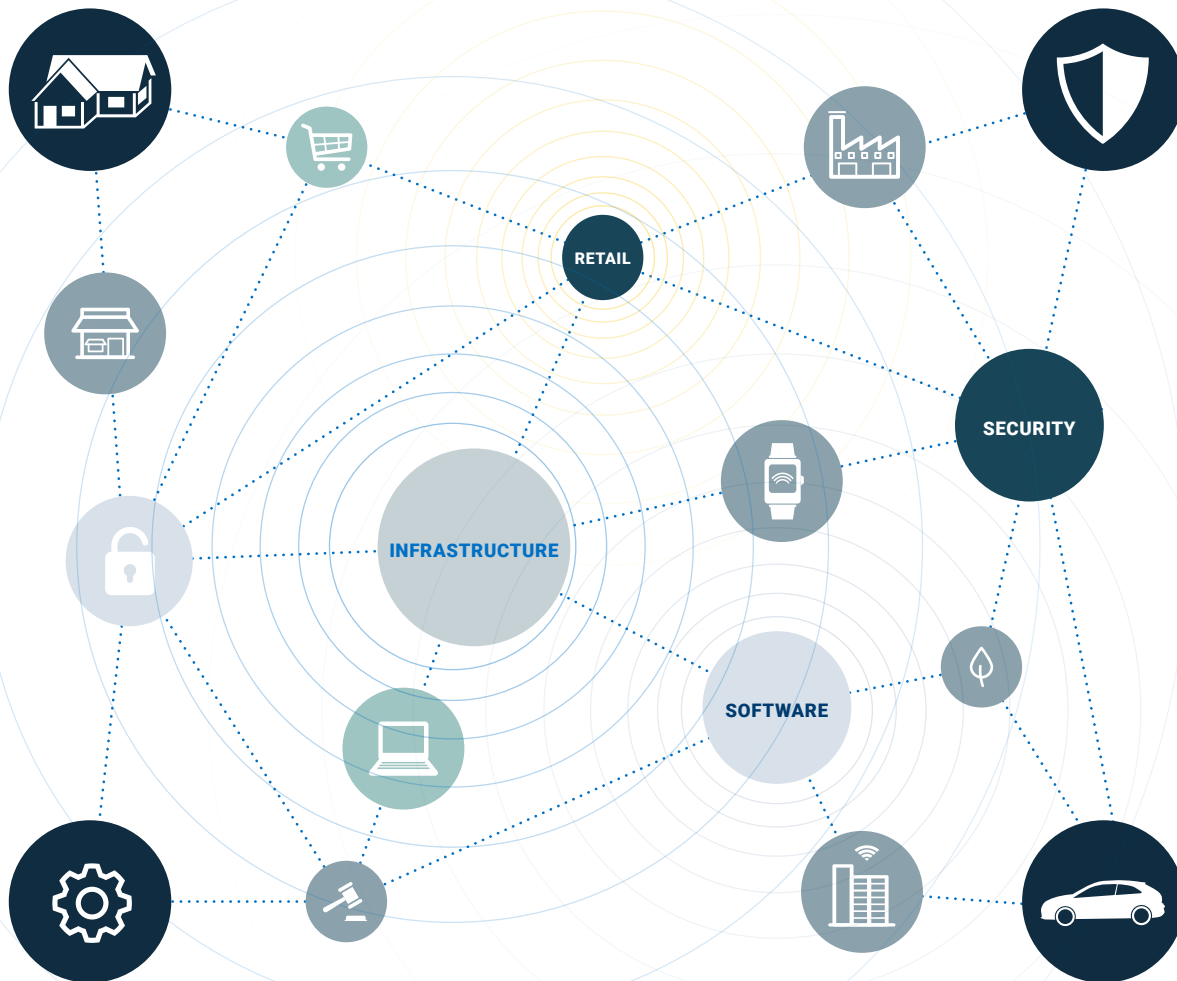
# IoT ECOSYSTEM

## HOME

The COVID-19 pandemic is expected to spur greater use of voice-controlled devices to minimize contact with shared surfaces. (p. 11)

## SECURITY

The IoT security technology market is projected to grow to nearly \$31 billion by 2025. (p. 13)



## FIELD SERVICE

Nokia has developed an AI-based system to aid telecommunications providers in managing 5G networks that support IoT-based applications. (p. 12)

## AUTOMOTIVE

Huawei Technologies is teaming up with automakers in China to build a connected vehicle ecosystem in the country. (p. 11)

# WHAT'S INSIDE

**T**he COVID-19 pandemic has had profound socio-economic impacts that will likely continue for months and years to come. This might seem to spell trouble for the internet of things (IoT) space at first glance. Consumers might be wary about spending money on nonessential smart home devices, and companies and public agencies might be reluctant to sign contracts for large-scale projects such as smart street lighting systems or industrial machinery that can perform predictive maintenance.

These short-term impacts are expected to be far outweighed by the value connected and autonomous technologies will bring to homes, workplaces and the public sphere in the post-COVID-19 era, however. IoT technologies will be essential to facilitating remote work relationships, ensuring air quality and sanitation in buildings and transit systems and minimizing transmission risks in hospitals. One study [projects](#) that the IoT market will grow by a double-digit compound annual growth rate (CAGR) through 2021 to \$243 billion, despite the pandemic-induced economic slowdown.

## **Around the IoT world**

One of the most promising spheres for IoT is healthcare, as demonstrated by the range of technologies deployed during the pandemic – some improvised, others by design. Tablets have been used to enable family members

to converse with sick loved ones, and some hospitals in China are [using](#) robots as guides and delivery and sanitation services.

Analysts expect that the pandemic will ultimately spur growth in the use of IoT for medical care. Diagnostic sensors can minimize the need for direct contact between patients, nurses and doctors, and smart inventory management devices can keep track of which vital supplies may need to be restocked. One study [forecasts](#) that sales of IoT-enabled medical devices to United States hospitals will grow by nearly 20 percent through 2024, reaching \$319.3 million.

The rapid deployment of IoT technology is also reaching other industries, including manufacturing and transportation. Some solution providers have developed wearable positioning devices for office environments that [alert](#) workers when they cross the recommended six-foot distancing buffer, while other firms are using thermal cameras to monitor employees' temperatures.

For more on these and other recent IoT headlines, read the Tracker's News and Trends section (p. 11).

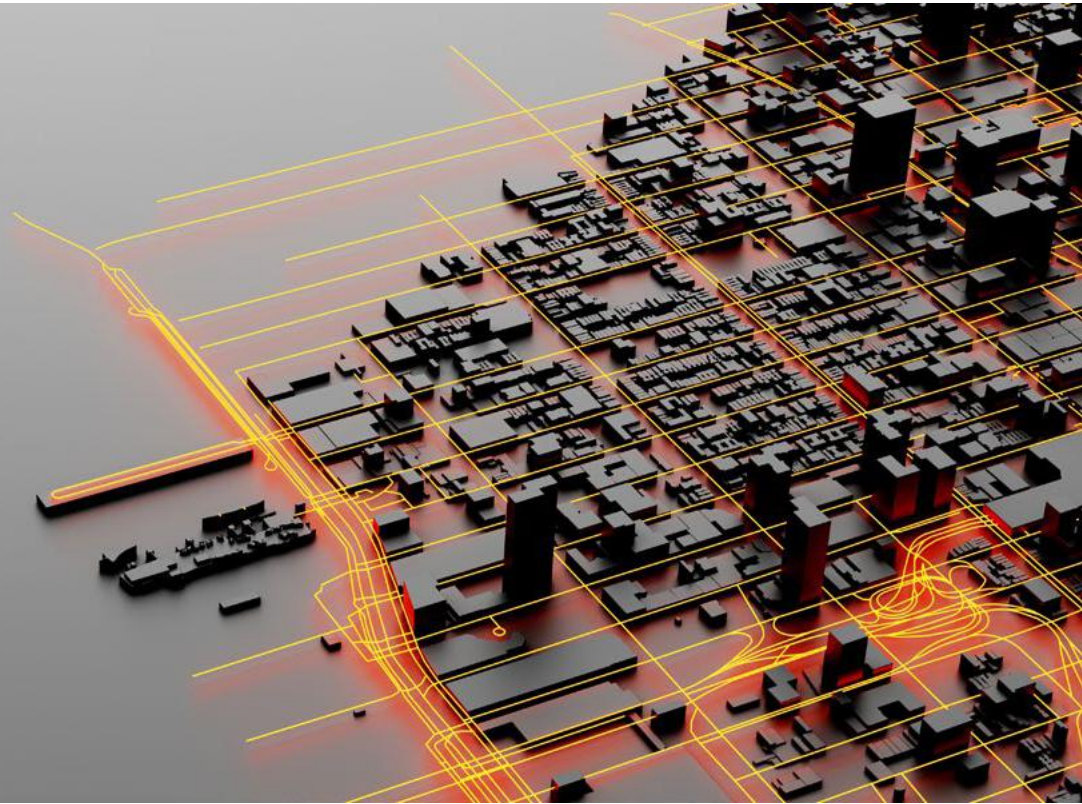
## **Why ABB believes the future of smart cities is all about resiliency**

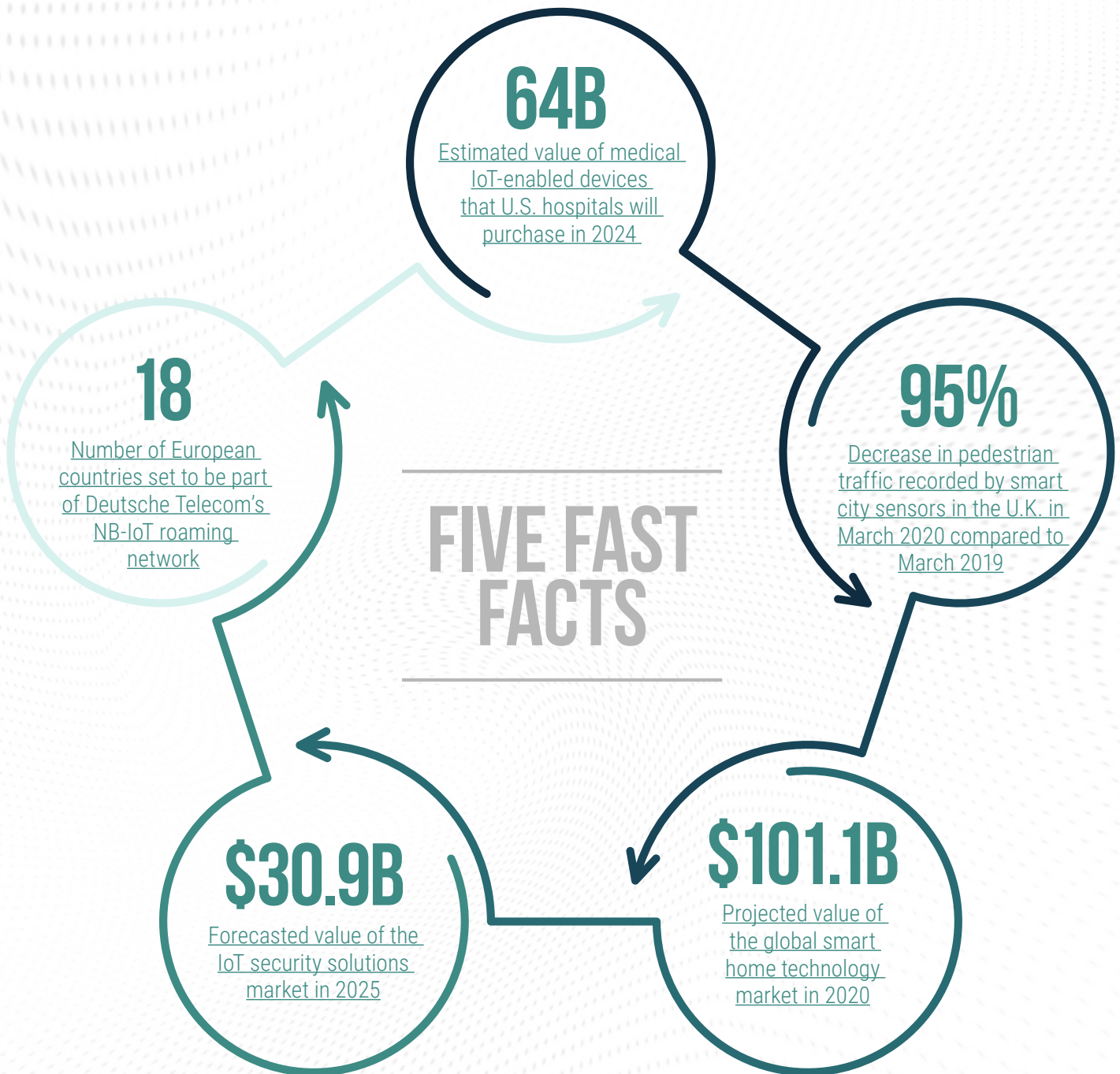
The market for smart city technologies has been estimated in the trillions of dollars, driven by demand for robust 5G networks, more efficient electrical grids and autonomous transportation systems, among other innovations.

One might expect the pandemic to deal a blow to such ambitious agendas, but it has instead prompted city and company officials to get serious about ensuring they can weather unexpected events, according to the global electrical technology company [ABB](#). For this month's Feature Story (p. 7), PYMNTS interviewed Marija Zima-Bockarjova, ABB's smart cities and solutions research and development manager, and Michael Lotfy, its senior vice president for smart building solutions, about how smart city systems can help communities become more resilient.

### **May Intelligence of Things Tracker® updates**

The May edition of the Intelligence of Things Tracker® includes a directory (p. 20) detailing notable providers in the space, including six additions: Ultrack Solutions, Unizen Technologies, Volansys Technologies, Wireless Logic, Xebrium and Zipit Wireless.





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FEATURE STORY

# ABB On How **Smart City Technologies** Build More Sustainable Communities





The global smart cities market is projected to [grow](#) to nearly \$3.5 trillion by 2026, driven by investment in everything from connected street lighting systems to smart electrical grids. The COVID-19 pandemic severely disrupted global economies and supply chains, and some observers might thus expect public officials and company leaders to put the brakes on large-scale smart city investments.

Switzerland-based global electrical technology corporation [ABB](#) has a very different perspective and has been fielding more inquiries than usual since the pandemic's onset. Recent weeks have dramatically demonstrated how important it is for communities to be able to adapt and respond to cataclysmic events, meaning they need resilient systems in place.

“That’s the whole thinking about resiliency,” Marija Zima-Bockarjova, ABB’s smart cities and solutions research and development manager, said in a recent interview with PYMNTS. “Yes, this is a pandemic, and [it is] very tragic to many parts of the world, but it should provoke our thinking. ... There are so many impacts that we’re dealing with that we need to be able to address and prepare for.”

ABB’s focus on smart cities is an outgrowth of its work in designing and building complex electrical systems, including entire grids.

### **A renewed focus on smart cities**

Smart city initiatives around the globe are often built around using connected technologies to improve transportation, construction, electrical power delivery and water infrastructure – an approach ABB has also embraced but



with a focus on building “sustainable” versions of these systems in communities around the world. Deployment of these smart city initiatives tend to have an array of benefits, but there is no standard method to revitalizing existing infrastructure with connected technology.

“There is not one single recipe [that says] ‘that is a smart city, that is not a smart city,’” Zima-Bockarjova explained. “It’s a continuous evolution and journey.”

The pandemic has highlighted one aspect of smart city technologies for many businesses and agencies: rethinking how connected building systems should be built going forward. Buildings are complex systems, involving the circulation of air, water and electricity. Smart sensors can ensure these resources are delivered cleanly and efficiently. IoT-based technologies can employ remotely operated sensors that help buildings maintain satisfactory levels of air quality and sanitation, which are key considerations as offices and shops reopen.

“We’re finding more requirements and requests for everything that has to do with health monitoring in buildings ... and for the concept of resilient cities. Digitalization has become more front and center,” said Michael Lotfy, senior vice president of ABB’s smart building solutions department. “The market is adapting quite rapidly.”

Technology providers have already introduced solutions that can take employee temperatures before they are admitted into offices and other worksites.

“If a temperature is within the normal [range], you get access to the building, and it’s all tied to the building technology itself,” Lotfy noted.

This is not the only example of companies and agencies rapidly deploying IoT-based technologies to adapt to the public health crisis. Software providers have [repurposed](#) existing smart city platforms to help agencies manage hospital capacity and public safety resources during the pandemic. Other communities have [turned](#) to smart city technology to assess crowding levels and compliance with social distancing policies.

### **Adapting to a post-COVID-19 world**

These applications demonstrate how IoT is helping organizations adapt to some of the new realities of life amid the COVID-19 pandemic. Such technologies may hold even greater promise in helping communities adapt as economies steadily reopen, however. IoT systems can be embedded in public transit systems to efficiently manage capacity while avoiding overcrowding, for example. Smart power grids can monitor and repair themselves as well as manage transmission due to damage or surges in demand. Robust communication platforms can help firms and agencies collaborate remotely with more reliability and functionality than the ad hoc systems that were employed immediately after the pandemic set in.

Lotfy noted that smaller-scale smart technologies may steadily give rise to larger systems that can benefit entire societies.

“I think we will start to see significant leaps into having really connected cities and buildings in the city. When I look at it, [the process goes] from smart building to smart mobility to smart infrastructure,” he said. “The awareness of energy sufficiency and sustainability will grow from big to small, from community to society to city and country. People will pay more attention [to] the impacts of energy consumption [on] the planet,” he said.

The pandemic could force public and private institutions to grapple with these big-picture socioeconomic trends, whether they were prepared to do so or not. Zima-Bockarjova said this creates an opportunity for officials to assess the sustainability of underlying infrastructure systems and

reliance on fossil fuels – another sector of the economy the pandemic has shifted.

“It is clear the growth in electric power consumption is much faster than any other. It is forecast that electricity will be the oil of the future – [demand for it] will grow faster than demand for oil,” she said.

The pandemic has also prompted institutions large and small to think about they are how they are connected to each other and the technical infrastructures that support them.

“We tended to think, before COVID-19, that we are invincible, that we have the technology to tackle everything. And then this small, tiny virus just made us all stay home,” Lotfy said. “This could lead to a resilient city that can tackle not only a virus outbreak, but other challenges that might come in the future. I think it will give us a lesson that we really always needed: Always prepare for the worst of things, which we did not do in the past, and really take more care of our planet and environment and the communities we live in.”

These are important concerns for communities and entities looking to build smart cities and add IoT technologies to their infrastructure. Those that do embrace connected technologies will be better prepared to weather the rest of the COVID-19 pandemic and handle any challenges the future might bring.



# NEWS & TRENDS

## SMART HOMES AND HOSPITALS

### **U.S. hospitals poised to spend \$319 million on IoT-enabled devices by 2024**

The COVID-19 crisis has laid bare the risks doctors, nurses and other healthcare workers face when caring for patients afflicted with contagious diseases. Some analysts expect the pandemic to spur greater investment in IoT-enabled medical technology in the U.S., which could help mitigate transmission risks for healthcare workers and improve resource management. Demand for IoT-powered medical devices include technologies such as connected sensors that can monitor vital signs, predictive maintenance components in sophisticated equipment like magnetic resonance imaging machines and radio-frequency identification (RFID) devices for inventory and asset management.

Revenues from the sale of medical IoT-enabled devices to U.S. hospitals has been forecast to grow at a CAGR of 18.6 percent from 2019 to 2024, when it is projected to reach \$319.3 million, according to one [report](#).

### **Pandemic expected to lead to 30 percent rise in voice-controlled device sales**

Demand for IoT-enabled devices is not just increasing for medical care, but also for helping consumers engage in connected experiences at home as they seek to reduce contact and adhere to public health guidelines amid the COVID-19 pandemic. ABI [Research](#) projects the value of voice-controlled smart home devices shipped this year will

be nearly 30 percent over 2019 levels – 141 million such devices were reportedly shipped that year. Other smart home devices experiencing growth include light switches, smart lock systems, thermostats and voice-controlled remotes.

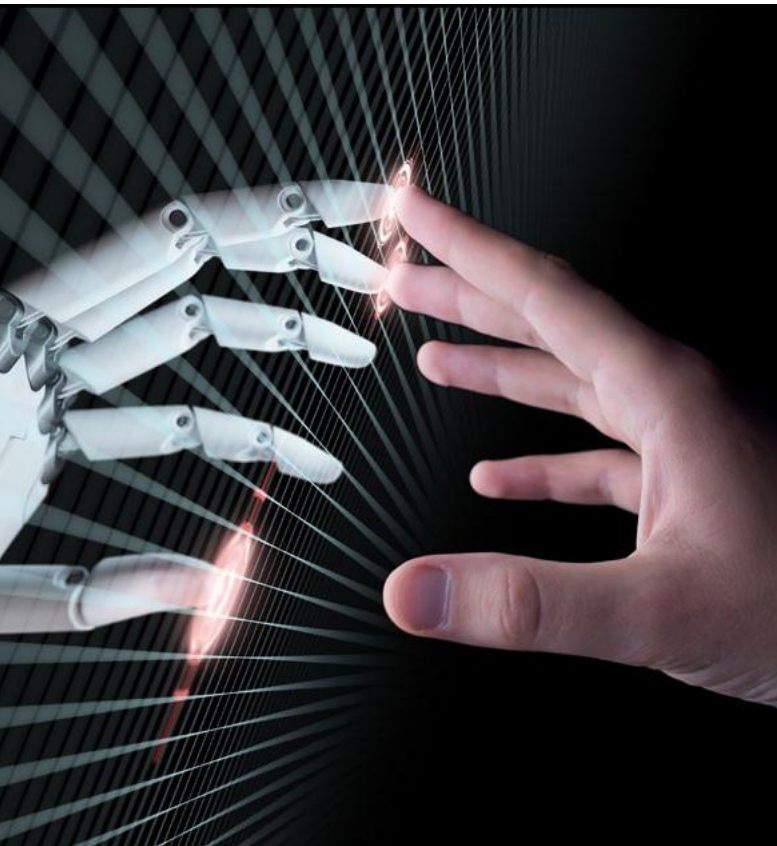
## 5G AND SMART IMPLEMENTATIONS

### **Smart city technology reveals 95 percent drop in foot traffic in the UK**

Cities around the world have been implementing IoT technologies to gather data and improve their efforts to manage traffic, transit, waste disposal and other vital systems. These systems are being utilized to deal with pandemic-related issues, including monitoring social distancing polices. Researchers at the University of Newcastle in the United Kingdom have used a network of public data sensors and closed-circuit cameras to [assess](#) real-time compliance with social distancing rules. The team analyzed 1.8 billion data points to determine that pedestrian movement declined 95 percent in March from the same period last year. The researchers also found that vehicle traffic dropped by half from 2019 measurements.

### **Huawei joins Chinese automakers to bolster connected vehicle ecosystem**

Chinese telecommunications corporation Huawei Technologies is [teaming](#) up with the country's automakers to help them test and roll out 5G-supported vehicle features. The company partnered with 18 domestic automakers to



support a host of data-demanding connected vehicle functions, such as onboard media streaming and diagnostic and payment capabilities. Huawei's tensions with the U.S. government have limited its presence in the country and could threaten its expansion in other parts of the world.

Automakers in the U.S. and Europe have [formed](#) partnerships with other telecommunications providers to support similar connected vehicle systems. Drivers using connected vehicle technology in the U.S. could generate \$230 billion in revenue, according to PYMNTS [research](#).

### **Nokia launches AI-based program to manage demand on 5G networks**

The use of connected technologies — on vehicles and other devices and equipment — has put increased demand on the 5G networks built to support them. Nokia has rolled out a new artificial intelligence (AI)-based service to help telecommunications providers manage this growing need. The service, Nokia AVA 5G Cognitive Operations, [uses](#) AI and machine learning (ML) to better anticipate and address potential network failures.

The company is the latest to apply AI to the complicated task of managing 5G networks, which are seen as essential in supporting data intensive IoT technologies ranging from smart city sensors to autonomous vehicles. AI can help wireless providers “slice” networks that can better [manage](#) bandwidth demand.

### **Mobile IoT roaming network expands in Europe**

One of the more promising uses of IoT technology is in improving cross-border transportation. Mobile IoT-enabled devices are becoming prevalent in the logistics, transportation and waste management industries, with smart meters being used to track and monitor shipments and sensitive cargo. German telecommunications giant Deutsche Telekom is expanding its wireless IoT networks across Europe, with roaming recently agreed upon with three other European telecommunication firms to [expand](#) the operability of its narrowband IoT (NB-IoT) roaming network across nine countries. The extended network is expected to help

mobile IoT-enabled devices function seamlessly when they cross national borders. Deutsche Telecom expects to eventually expand its NB-IoT network to 18 countries across Europe, including Denmark, Greece, Sweden, Switzerland and the U.K.

## INDUSTRIAL IoT

### Businesses turn to IIoT technologies to help maintain distancing policies

The COVID-19 pandemic has taken a severe toll on the automotive, manufacturing and airline industries, disrupting global supply chains that affect thousands of firms. Recent reports found that industrial IoT (IIoT) technologies could play key roles in enabling such companies to adapt to the pandemic-related challenges and emerge better prepared.

An IIoT technology already being put to use on warehouse and factory floors is a wearable device that helps workers maintain distance. A Vancouver-based startup [developed](#) an offering that vibrates when employees near the recommended six-foot social distancing buffer. Other firms are deploying thermal cameras to monitor workers' temperatures. Amazon is among the companies reportedly [using](#) such technologies.

### Market for IoT security solutions projected to grow nearly fourfold by 2025

The anticipated rise in industrial and commercial IoT applications during and after the pandemic will likely be accompanied by investment in security systems designed

to protect them from hackers and other threats. The pandemic has not put a dent in the IoT security market, and a recent study [projects](#) that the value of the market will nearly quadruple between 2017 and 2025, reaching \$30.9 billion that year. Demand for strong security systems will extend across industry segments including those surrounding healthcare, smart homes and transportation, and it will be driven largely by the need to secure cloud-based systems.

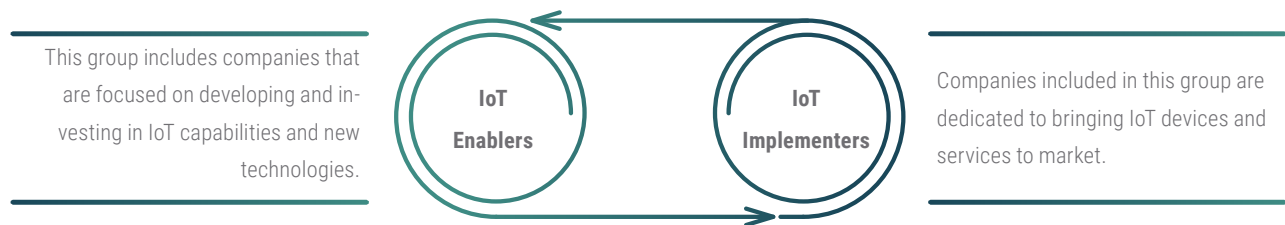


# METHODOLOGY

Every month, we identify active suppliers in the IoT ecosystem by combing through leading industry forums, analyzing research reports and assessing news coverage from around the globe.

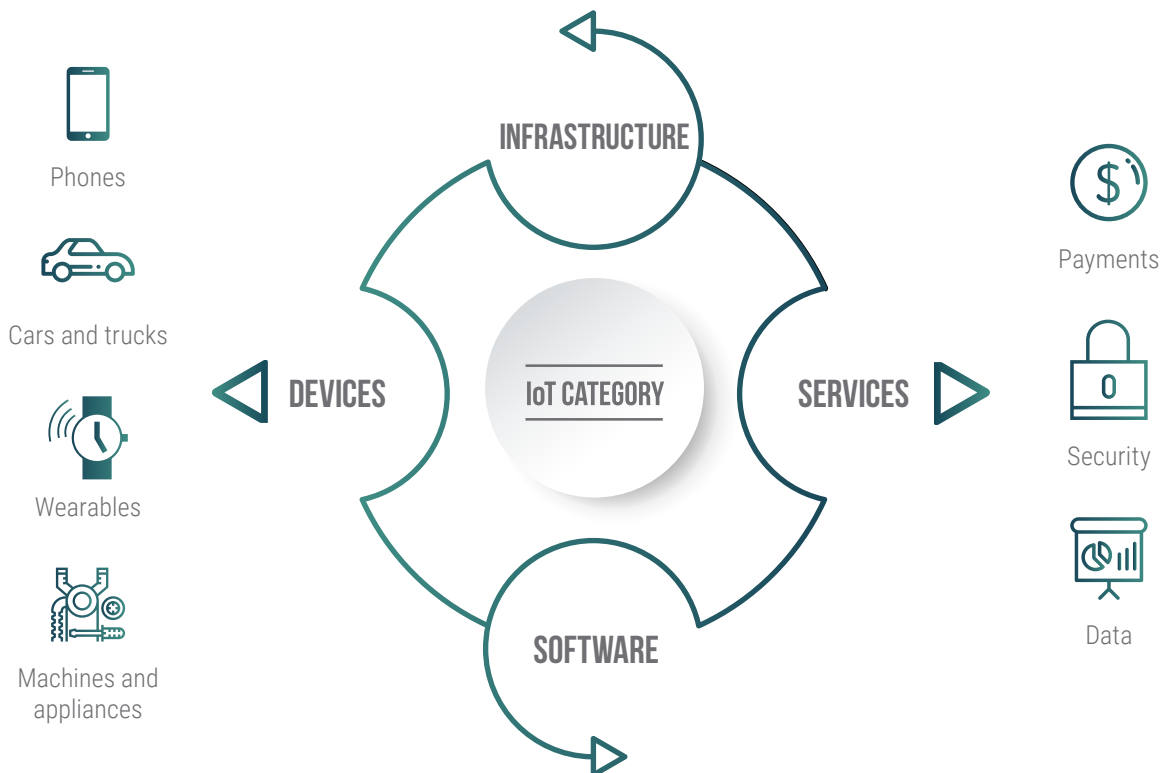
To provide an objective assessment, we group these suppliers under four categories: devices, software, services and infrastructure.

The Tracker's Supplier Scorecard has been further divided into two groups:



Each of the enablers and implementers in the directory are ranked on the services they extend in the four IoT categories. For a conclusive measure, we quantified their recent activity and public innovation profile in the space through LinkedIn and Google, marking them as market and company indicators.

The narrowed list of suppliers selected to be a part of the Tracker are those that appear most often in our research. Information on the selected companies included in our Supplier Scorecard is sourced from their respective websites.

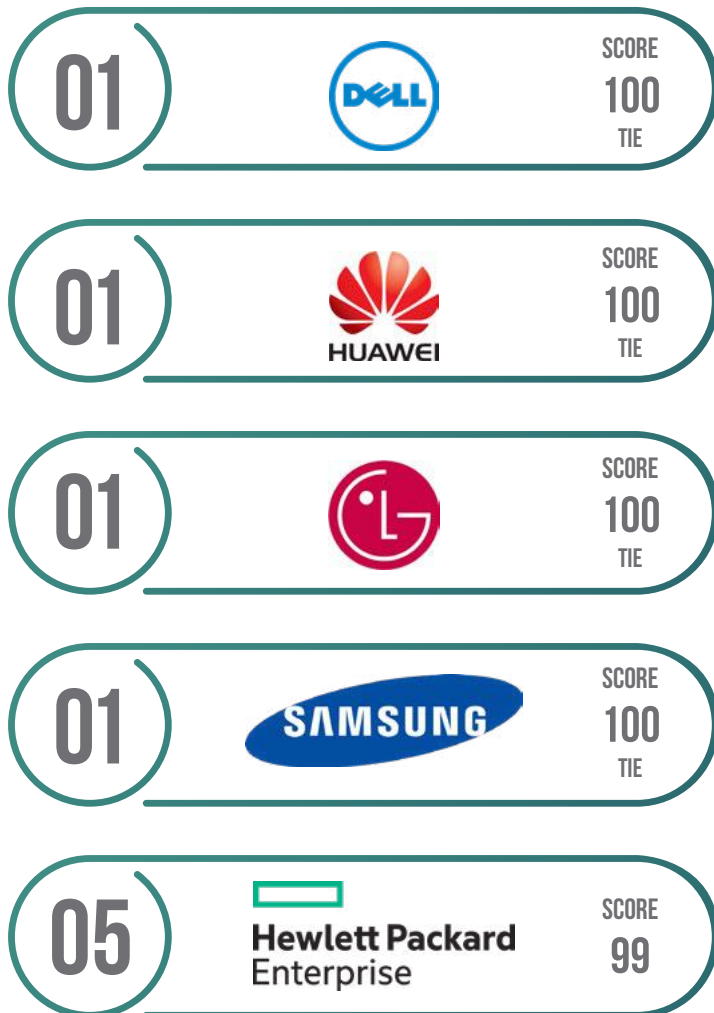


IoT Category	IoT Service	Description
Devices	Wearables	Wearable devices that extend tools such as health and fitness tracking
	Phones	Handsets that come with embedded chips for IoT capability
	Machines and appliances	Manufactured products containing sensors that transmit data
	Cars and trucks	Cars and trucks with integrated circuitry for IoT
Software		Software developments with IoT applications
Infrastructure		Architecture necessary for connecting devices, including sensors, chips, gateways and platforms
Services	Data	Data infrastructure, collection, storage, processing, modeling, analysis and visualization
	Payments	Gateways, infrastructure and software associated with payments in the IoT ecosystem
	Security	Security solutions for the IoT environment, including data and devices

PYMNTS will periodically update scores based on new developments. If you would like your company to be considered for inclusion in the Tracker's Supplier Scorecard, or if you wish to have an existing listing reconsidered for an update, please head over to our [profile submission/update page](#).

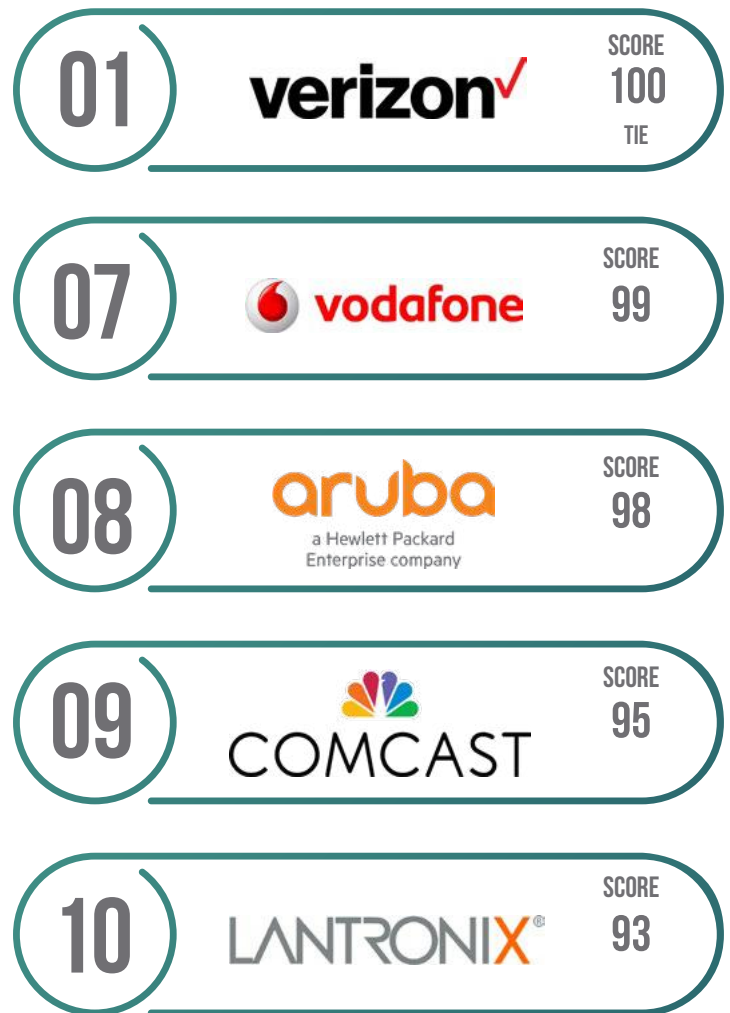
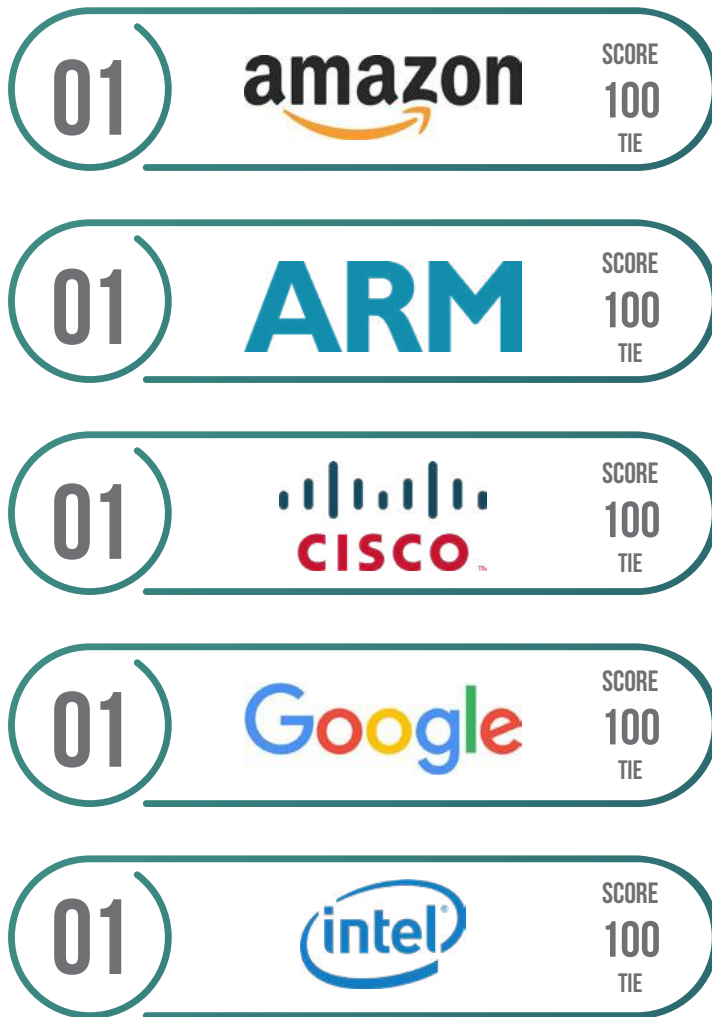
# TOP 10

## TOP 10 IoT IMPLEMENTERS





## TOP 10 IoT ENABLERS



**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**ABB**

Launch date: N/A

ABB manufactures and sells electrification, robotics and motion, industrial automation and power grid products.



**ACER**

Launch date: 1976

Acer makes information and communications technology products including PCs, displays, projectors, servers, wearables, tablets and smartphones, offering a cloud-based ecosystem intended to enable customers and businesses to connect their devices and manage data.



**ADHERETECH**

Launch date: 2011

AdhereTech is a healthcare firm that manufactures smart wireless pill bottles for patients in pharmaceutical and research engagements. These pills are intended to track and improve adherence, collecting and sending all data in real time. Patients that miss doses can receive customizable alerts such as automated phone calls, text messages, light-up alerts and more.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**ADIDAS**

Launch date: 1924

Adidas, the German manufacturer and sportswear designer, has entered the internet of things world with miCoach, a service that covers hardware and software developments for fitness tracking. Adidas commercializes wearables like smartwatches, shoe sensors and smart soccer balls and provides users with activity-tracking apps that allow for real-time coaching and training scheduling.



**ADT**

Launch date: N/A

ADT provides security and automation solutions for U.S. and Canadian homes and businesses. Its solutions can control access, react to movements, sense environmental conditions such as flooding or carbon monoxide and respond to personal emergencies like injuries or incapacitation. Users can also remotely access their security videos and control lights or other facets of their homes or businesses.



**ADVEEZ**

Launch date: 2011

Founded in 2011 in Toulouse, France, Adveez offers a complete solution for monitoring and controlling travel. The solution is an integrated offering comprising electronic boxes installed on vehicles or personnel, a communication network and a Software As A Service (SAAS) software solution for data exploitation.



**AIRBUS  
GROUP**

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**AIRBUS GROUP**

Launch date: 2000

Airbus is an aircraft manufacturer consisting of three major segments: Airbus, Airbus Helicopters and Airbus Defence and Space. It sells to worldwide airlines, governments, militaries and space agencies.



**ALARM.COM**

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**ALARM.COM**

Launch date: 2000

Alarm.com is an internet of things company that develops security and smart home services. Their software and devices offer services like interactive security, video monitoring, access and energy management. The company also provides home automation services that integrate different home devices and let users operate them via their smartphones.



**Alibaba Cloud**

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**ALIBABA CLOUD**

Launch date: 2009

Alibaba Cloud develops scalable cloud computing and data management services that include data storage, relational databases, big data processing, anti-distributed denial of service attack protection and content delivery networks. Its research and development efforts include the advancement of internet of things technology, virtual reality, smart homes, automotive networking and information systems and cloud-based mobile device operating systems.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**ALTIZON**

Launch date: 2013

Altizon is an industrial IoT provider that is focusing on enterprise solutions. The company can design solutions for the industrial internet and uses machine data solutions to provide analytics and insights to partner enterprises.



**AMBARELLA**

Launch date: 2004

Ambarella develops low-power, HD and ultra-HD video compression and image-processing solutions. Its products are used in a variety of professional and consumer applications including automotive video-processing solutions and security IP, sports, wearable and flying cameras. Ambarella compression chips are also used in broadcasting TV programs worldwide.



**ANYBRIDGE**

Launch date: 2011

AnyBridge is a machine-to-machine communications software service that focuses on industrial applications, dedicating solutions to data communications, industrial electronics and low-power systems. The company's work aims to facilitate related IoT applications' design.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**APPLE**

Launch date: 1976

Apple works on the design and development of products ranging from electronics and software to internet services. Its consumer electronics include smartphones, wearables, computers and smart TVs, and its software development offerings include web browsers and operating systems.



**ARROW**

Launch date: 1935

Arrow Electronics is a leading global provider of IoT connectivity products and services. It distributes electronic components and computer products to industrial and commercial customers, offering a variety of products including computer systems, peripherals, software and mass storage products to original equipment manufacturers and commercial customers worldwide.



**ARXAN**

Launch date: 2001

Arxan Technologies offers security services for IoT, mobile and desktop devices. Its products offer customers protection against financial loss, brand damage, fraud, IP theft, stolen credentials, fraudulent transactions, unauthorized access and non-compliance with regulatory and industry standards.



**ASUS**

Launch date: 1989

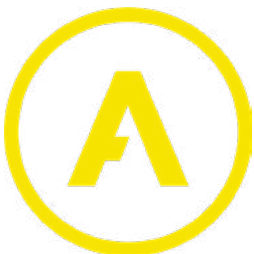
ASUS engages in manufacturing and wholesaling computing, communications and consumer electronics solutions. The company is pioneering mobile trends with the ASUS ZenFone™ series and rapidly developing virtual and augmented reality products as well as IOT devices and robotics technologies. ASUS recently introduced Zenbo, a smart home robot designed to provide assistance, entertainment and companionship to families.



**ATHOS**

Launch date: N/A

Athos provides internet of things-enabled fitness clothing paired with an app offering muscle-activity tracking and insights into more effective athletic training.



**ATLAS WEARABLES**

Launch date: 2015

Atlas Wristband is a connected device that tracks fitness data, such as exercise repetitions or burned calories, and presents it in a mobile app. The system is updated frequently to include new activities and metrics, and allows for two different modes: Coach and Freestyle. Coach mode gives users tracked routines to follow, while Freestyle mode records just the data from users' personalized exercise routines.



**AUGURY**

Launch date: 2012

Augury is an industrial internet of things company bringing predictive maintenance to new markets with cutting-edge machine learning and artificial intelligence technology.



**AUGUST**

Launch date: N/A

August Home develops smart home-access products that use encrypted locking technology, enabling customers to use smart-phones or computers to create virtual keys for their homes. This allows them to grant access to house cleaners, dog walkers, delivery service workers and guests – and control how long that access lasts.



**AUTOMILE**

Launch date: N/A

Automile develops an online platform that connects drivers and fleet managers with vehicle data. Its web app provides mileage and compliance logging, driver identification, messaging, real-time tracking and other features, and the company also offers asset tracking solutions.



**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**AVIVA**

Launch date: 2000

Aviva is the sixth-largest insurance company in the world, measured by net premium income, and has approximately 43 million customers in 21 countries.



**AYYEKA**

Launch date: 2011

Ayyeka develops end-to-end remote monitoring solutions that streamline and secure the process of bringing field data to decision-makers and SCADA systems, enabling smart infrastructure and environmental networks.



**BABOLAT**

Launch date: 1875

Babolat is a sporting goods manufacturer with a connected solution called Babolat PLAY. Connected racquets and smartphone apps enable users to check their stats, power and technique and compare their performances with friends. The company also offers Babolat POP, a connected wristband that can be paired with smartphones and tennis racquets to collect performance data.



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**BAYSHORE NETWORKS**

Launch date: 2012

Bayshore Networks provides cybersecurity solutions for the industrial internet of things. Its products aim help companies deliver safe and secure integration of informational and operational technology networks, systems, data and infrastructure. Its network gateway offers security solutions for operational assets from internal and external cyberthreats while enabling operational data to be shared with business systems for monitoring, controlling and analysis. The company also offers security and protection for smart cities.



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**BETTER SOFTWARE GROUP**

Launch date: 2010

Better Software Group creates software solutions for user experiences and user interfaces, with products that focus exclusively on the development of internet of things and industrial internet of things services. It has provided software for the internet of things-enabled cloud, environmental applications and wearable devices.



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**BIRD**

Launch date: 2017

Bird is a dockless electric scooter rental company that operates in parts of the U.S., Austria, France, Israel, Mexico and Belgium.



**BLOSSOM**

Launch date: 2013

Blossom offers a smart watering device that builds schedules according to local weather forecasts, historical data and vegetable types. Users can also input and customize their own schedules.



**BOEING**

Launch date: 1916

The Boeing Company manufactures airplanes, helicopters, rockets, satellites and missiles. It is currently the fifth-largest defense contractor in the world and is the largest exporter in the U.S. by dollar value.



**BOSCH**

Launch date: 1886

Robert Bosch GmbH is an engineering and technology company with four business segments: mobility, consumer goods, industrial technology and energy and building technology. Its products include well-known brands like Dremel, Dynacord and Siemens.



**BRAGI**

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**BRAGI**

Launch date: 2013

Bragi develops virtual audio assistants to enable productivity, enhance awareness and entertain users. The Bragi Dash Pro is a pair of wireless intelligent earphones featuring Bluetooth connection to other devices. The earphones also enable users to listen to music, or can be used as real-time translators or fitness trackers.



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**BRITISH GAS**

Launch date: 1986

British Gas is an energy and home services provider offering its customers smart meters for gas and electricity that help them monitor and control energy usage. The company also offers a smart thermostat that enables users control their heating and hot water from their smartphones, tablets or laptops.



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**BSQUARE CORPORATION**

Launch date: 1994

Bsquare offers DataV, a software solution designed to enable businesses and industries to improve their operations by using data from connected devices. DataV provides users with several tools, including device-side logic, cloud analytics, predictive reasoning, predictive analytics and business process optimization.



**C3 IOT**

Launch date: 2009

C3 IoT provides an internet of things development platform that allows for the design, development and deployment of Big Data/ internet of things applications that leverage telemetry, elastic cloud computing, analytics and machine learning for the usage of predictive analytics. The company also offers internet of things applications like supply chain optimization, predictive maintenance and customer engagement.



**CAEDEN**

Launch date: 2014

Caeden develops design-focused earphones and wearable devices that can sense and manage stress via tracking of variables such as pulse and physical activity.



**CATERPILLAR**

Launch date: 2014

Caterpillar manufactures construction and mining equipment like backhoes, compressors, diesel engines and tractors. It was known as the Caterpillar Tractor Co., but simplified its name to Caterpillar Inc. in 1986.



**CEL**

Launch date: 1959

California Eastern Laboratories (CEL) sells and markets compound semiconductor devices from the Renesas Electronics Corp. The company's products include radio frequency components, solid state relays and photo detectors. It also develops Cortet, a connectivity management suite that includes radio services like modules and gateways, software libraries compatible with multiple ecosystems, and the Cortet App, which allows for devices control and cloud solutions.



**CENTRICA**

Launch date: 1997

Centrica is a British multinational utility company headquartered in Windsor, Berkshire. Its principal activity is the supply of electricity and gas to businesses and consumers in the U.K. and North America.



**CLEAR CHANNEL OUTDOOR**

Launch date: 1901

Clear Channel Outdoor entered the internet of things market with Clear Channel Outdoor RADAR, which uses aggregated mobile data to gain information about who is exposed to its advertising displays and how they interact with brands afterward.



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**CONTROL4**

Launch date: 2003

Control4 manufactures wireless home automation products and enables users to virtually control any home or business devices. The company has developed hardware and software solutions to remotely monitor and automate home theater and television, video, multiroom music, lighting, energy, temperature and security functions.



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**CUBICAL LABORATORIES**

Launch date: 2013

Cubical Laboratories offers solutions to remotely monitor electrical appliances at households, hotels and office environments. The company produces smart home controllers and switches, wireless cameras as well as the software and applications necessary to control electronic devices, lighting, fans and curtains via smartphones or laptops. Users can also get real-time insights, graphs and analytics regarding energy usage data and consumption.

**DAIMLER**

33

**DAIMLER**

Launch date: 1926

Daimler produces premium cars and commercial vehicles with a global reach. Its divisions include Daimler Buses, Daimler Financial Services, Daimler Trucks, Mercedes-Benz Cars and Mercedes-Benz Vans.



**DEAKO**

Launch date: 2015

Internet of things and smart electronics provider Deako offers an upgradable smart lighting system, allowing users to control their homes' lighting without requiring mobile apps or additional remotes.



**DELL**

Launch date: 1984

Dell's participation in the internet of things industry covers areas from infrastructure solutions to analytics capabilities, as well as security services.



**DENSITY**

Launch date: 2014

Density has developed a small sensor that measures how busy locations are in real-time, using depth sensing technology, computer vision and an onboard quad-core processor to anonymously measure and manage entrances and exits through doors. Density system is designed to protect privacy and can be deployed into places where video cameras are not allowed, such as stadium bathrooms, churches, secure corporate offices, elementary schools and dressing rooms.





**DIGICERT**

Launch date: 2003

DigiCert provides identity, authentication and encryption solutions for the web and internet of things. Its standard sockets layer tools and public key infrastructure certificates ensure correct authentication of devices as it connects, and protects communication between devices.



**DISPLIO**

Launch date: N/A

Latvia-based Displio produces a self-standing WiFi-connected digital display capable of showing information such as email alerts, weather updates and shipment tracking information.



**DHL**

Launch date: 1969

DHL is a leading global logistics company with a presence in more than 220 countries and territories across the globe.



**DRONEHOPPER**

Launch date: 2015

DroneHopper is a drone designed to act in extinguishing forest fires. It is a high-tech, self-guided drone designed to act in controlling and extinguishing forest fires.



**DYSON**

Launch date: 1993

Dyson produces vacuums, air treatment devices, lighting solutions and hand dryers. Dyson Pure Cool Link is an air purifier embedded with connectivity technology that can be controlled from users' phones, relaying information on air quality and its own functioning. It also provides insights into data such as devices' usage and pollution levels throughout the day.



**EASTER PEAK**

Launch date: 2010

Eastern Peak is a software provider that provides internet of things software and support in Europe. It is based in Israel and helps companies manage enabled products and development.



33

**EATON**

Launch date: N/A

Eaton Corp. is a power management company that develops products and systems to manage electrical, hydraulic and mechanical power. These include vehicle automation, aerospace actuators, connectivity and more.

***Eddie Stobart***

49

**EDDIE STOBART**

Launch date: 1960

Eddie Stobart Logistics is a logistics and warehousing provider that offers transportation services via its fleet of trucks and trailers. The company's customers include operators in the manufacturing, industrial, eCommerce and retail sectors.

**eFishery**

46

**EFISHERY**

Launch date: 2013

eFishery is an automatic fish feeder for all types of fish. Users can access the tool's data feed anytime, anywhere, and is designed to eliminate the problem of over-feeding, fish feeding or feed irregularly diverted.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**EMERSON**

Launch date: N/A

Emerson Automation Solutions develops components and software for automation equipment manufacturers.



**ECOBEE**

Launch date: 2007

Ecobee is a smart thermostat enabling users to control their homes' temperature using smartphones, computers, tablets or via voice recognition. The Ecobee device also comes with sensors that recognize rooms' hot and cold spots and can detect occupancy.



**EGGPLANT TECHNOLOGIES**

Launch date: 2014

Eggplant Technologies is the developer behind "Move It," a smart, mobile-connected personal gym. The equipment is composed of a smart handle that is interchangeable with four types of training devices and is capable of detecting 16 different types of exercise. The company provides a mobile app that synchronizes with the equipment and allows users to interact with other people to find workout buddies or challenge friends.

**enlighted**

73

**ENLIGHTED**

Launch date: 2009

Enlighted manufactures light control platforms for smart buildings, providing sensor technology and data analytics systems for energy savings, space utilization, security and more. Its smart sensor can monitor real-time occupancy, light levels, temperatures and energy usage, among other things. The solution has been designed for commercial office, education and health care spaces.

**EPSON®**

28

**EPSON**

Launch date: 1942

Epson is a manufacturer of printers, projectors, scanners, professional imaging, system devices and factory automation products. The company also offers wearable devices such as smart glasses or fitness trackers, point-of-sale products, cameras, home entertainment devices and more.

**FANUC**

33

**FANUC**

Launch date: 1956

The Fuji Automatic Numerical Control (FANUC) Corporation supplies factory automation products like lasers, molding machines, precision cutters and robots.



**FITBIT**

Launch date: 2007

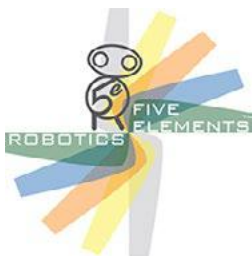
Fitbit develops a range of different wearable bracelets that can track activity. The Fitbit app can track daily activity and sleep quality, record exercise routine stats and help users organize workouts. The app also adds different features of social engagement and helps with nutrition care by allowing for food logging or weight tracking with a Fitbit-connected scale, Aria. The information is displayed on users' phones, as well as the bracelets themselves, which can also receive and display phone data such as calendar entries or calls.



**FITPAY**

Launch date: N/A

FitPay is a proprietary technology platform providing contactless payment capabilities for wearables and internet of things devices.



**FIVE ELEMENTS ROBOTICS**

Launch date: N/A

Five Elements Robotics is a technology company focused on the development of personal and consumer robots. The firm is behind DASH, a retail robotic shopping cart that allows users to import their shopping lists from their phones and gathers data to offer targeted marketing.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**FLEETSPACETECHNOLOGIES**

Launch date: N/A

Fleet Space Technologies designs, builds and launches a network of nanosatellites to provide global connectivity to the internet of things, serving the mining, oil and gas resources, precision agriculture, transport and logistics sectors.



**FOOBOT**

Launch date: 2013

Foobot is an air quality-monitoring system enabling users to control indoor air pollution. The company's app offers indoor air metrics, outdoor pollution levels at users' locations and home automation features.



**FORESCOUT**

Launch date: 2000

ForeScout Technologies Inc. is an internet of things security technology developer whose solutions can determine which devices are connected to the network without requiring endpoint agents, allowing it also to detect nontraditional internet of things devices. The company's solutions integrate with more than 70 network, mobility, information technology and security products, allowing for information sharing and operation synchronization.



**FRIENDLY TECHNOLOGIES**

Launch date: 1997

Friendly Technologies is a platform provider offering solutions for smart home, internet of things, TR-069, LWM2M, MQTT and OMA-DM device management, and its software is designed for service providers and those participating in internet of things utilities, transportation and smart cities markets.



**Frontpoint®**



**FRONTPOINT**

Launch date: N/A

Frontpoint Security Solutions installs, monitors and maintains security technology offerings, including home security systems that can be controlled remotely with an app.



**FUJITSU**

Launch date: 1935

Fujitsu is an information and communication technology company offering internet of things platforms ranging from enterprise wearable devices and middleware applications to standardized business solutions for customer verticals. Its internet of things platforms provide data aggregation and management as well as application development services and device management capabilities. The firm also builds electronic devices and hardware products.





**GARMIN**

Launch date: 1989

Garmin manufactures and designs products for the automotive, aviation, marine, outdoor and fitness markets that are capable of running GPS technology. Other products sold by the company include smartwatches, cameras and sensors, and it has developed applications that enable users to manage and control their devices.



**GEHRING**

Launch date: 1976

Gehring manufactures machines for honing metal, and uses industrial internet of things (IIoT) technology to enable customers to view live, real-time data on machine performances before placing orders.



**GEMALTO**

Launch date: 1979

Gemalto designs and manufactures digital security solutions. The company's IoT solutions are mostly aimed to provide reliable connectivity, reliable security and agile monetization frameworks. Gemalto's M2M portfolio is enabling solutions in industries ranging from health care, retail services, smart energy, transportation, logistics and automotive. Besides, their consumer electronics portfolio includes solutions for smartphones, tablets, PC and wearables.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**GLOW LABS**

Launch date: 2014

Glow Labs is an IoT solutions provider for automated home appliances in the luxury space. The company provides technologies for new, third-party, IoT-enabled product designs.



**HARLEY-DAVIDSON**

Launch date: 1903

Harley-Davidson is an American motorcycle manufacturer. Its offerings include heavyweight motorcycles, motorcycle parts, accessories and other related services.



**HCL TECHNOLOGIES**

Launch date: 1991

IoT WoRKS HCL Technologies enables organizations to develop internet of things ecosystems that enhance their connections of things, data and processes. The company's solutions are designed to help businesses enhance communications between devices and the cloud, and it also offers a data analytics platform that allows secure data ingestion, management and syndication.



**HELIUM**

Launch date: 2013

Helium Smart Sensors are deployable in minutes and built to monitor and analyze various conditions. The company offers two main wireless smart sensors: the Helium Blue, which measures internal refrigerator temperature and door state, and the Helium Green, which measures multiple environmental parameters. The company also offers a cloud-based control and storage center for the entire distributed smart sensing system.



**Hewlett Packard  
Enterprise**



**HEWLETT PACKARD  
ENTERPRISE**

Launch date: 1969

Enterprise software and technology provider Hewlett Packard Enterprise offers internet of things management, data organization and additional solutions for the information technology space.



**HIKU**

Launch date: 2012

Hiku offers kitchen devices that scan barcodes and recognize voices to add products to shopping lists. Consumers can use them for shopping in-store and online, add planned updates to receive price comparisons and share shopping lists with others.

# HITACHI

68

**HITACHI**

Launch date: 1910

Hitachi Insight Group is the arm of the Japanese technology firm that focuses on the internet of things, providing its own IoT platform called Lumada. In addition, it develops internet of things solutions for smart cities and energy efficiency, as well as industries like health care, automotive and construction.

# HONDA

The Power of Dreams

51

**HONDA**

Launch date: 1946

Though primarily known as a manufacturer of automobiles, motorcycles and power equipment, Honda is also focused on connecting its cars with solutions like HondaLink, an audio display system powered by users' phones to access online content.

# Honeywell

69

**HONEYWELL**

Launch date: 1985

Honeywell manufactures wireless and scanning technologies used in building, home and industrial applications. The company's solutions are designed to deliver energy efficiency, security and safety, and it also offers software and applications that allow users to control its devices.



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**HOTSCHEDULES**

Launch date: 1999

HotSchedules develops employee scheduling and labor management solutions for the restaurant industry. In 2015, the company introduced its IoT platform, which allows users to capture data, transform it into insights and deploy their own apps, letting restaurants connect things like kitchen appliances, payment devices and drive-through displays into the same platform, gathering data in a single place and allowing for more complete information.



100

**HUAWEI**

Launch date: 1987

Huawei Technologies is a telecom solutions provider that offers infrastructure application software, telecommunications networks and devices with wireline, wireless and IP technologies. The company has developed a wide range of internet of things devices including phones, personal computers, tablets, wearables, audio devices and Wi-Fi routers for smart homes.



49

**HUAMI**

Launch date: N/A

Huami is a Chinese wearable device manufacturer that produces fitness trackers and smartwatches. Its products include the Amazfit and Xiaomi wearables.



**HUMAVOX**

Launch date: 2010

Humavox has developed ETERNA, a wireless charging technology that enables users to recharge their electronic devices from nearly any container in which they instinctively place their devices. The company offers solutions for charging headphones, fitness trackers, smart rings, watches and clothing.



**HYUNDAI**

Launch date: 1967

Korean automobile manufacturer Hyundai's BlueLink service allows drivers to access a group of different features, from safety tools like automatic collision notification and monthly vehicle health reports to external control features like remote start and stolen car location. BlueLink also provides a destination search solution powered by Google and can connect with Apple Watch and Android Wear.



**IHT SPIRIT SYSTEM**

Launch date: 2011

IHT Spirit System developed an assessment platform focused on physical education, and its internet of things software solutions allow teachers to access the data of every student and test their performance.



**INFISWIFT**

Launch date: 2015

Infiswift is an internet of things-enabled platform designed to connect and manage devices and cloud services, offering multilayer security for enterprises, real-time device monitoring and data processing and analysis.



**INGERSOLL-RAND**

Launch date: 1905

Ingersoll Rand is experimenting with the internet of things for consumer air quality projects as well as for the transportation of perishables like fresh produce or dairy.



**INVENSENSE**

Launch date: 2003

InvenSense provides MEMS inertial sensors, microphones, software algorithms, sensor development tools and platforms needed for the product creation and sensor integration of internet of things-connected devices. Its technology is designed for multiple products including smartphones and tablets, automotive devices, wearables, drones and smart remotes for smart TVs.

The logo for Invoxia, featuring the word "invoxia" in a lowercase, sans-serif font. The "i" and "v" are dark teal, while the "x" is red and the "ia" is dark teal.

**INVOXIA**

Launch date: 2010

France-based telecommunications company Invoxia offers clients internet of things products like GPS trackers for personal belongings and connected devices.



**JD.COM**

Launch date: 1998

JD.com provides fulfillment and warehousing services across China, and its JD Logistics business group offers smart supply chain and logistics features to businesses. Its projects include a fully automated warehouse, drone and robot delivery services, an artificially intelligent smart store and more.



**JOHN DEERE**

Launch date: 1837

John Deere provides a variety of equipment, including self-driving tractors, as well as telematics technology for predictive maintenance applications.





**JOHNSON CONTROLS**

Launch date: 1885

Johnson Controls International develops smart buildings, energy solutions, infrastructure and transportation systems, offerings products like energy efficiency, building management and automation solutions. In addition, its Smart Equipment line offers embedded controls and secure connectivity.



**JUNE**

Launch date: 2013

June is an electronics company and the creator of smart home appliances like the June Intelligent Oven, which uses internet of things technology to enable in-home precision cooking.



**KAESER COMPRESSORS**

Launch date: 1919

Kaeser Compressors manufacturers air pumps and compressed air dryers and filters with digital communications integrated into the products. It also uses sensors in air compressors, enabling the devices to track air usage to sell "air as a service." The company also offers "digital twins" for its products and supports predictive maintenance.



**Karamba  
Security**



**KARAMBA**

Launch date: 2015

Karamba develops security solutions for connected cars, offering endpoint security for the externally connected electronic control units of the vehicles that allows only explicitly permitted code to run through them. Karamba also provides early detection of droppers and malware protection services.



**KEEN™**  
home



**KEEN HOME**

Launch date: 2013

Keen Home develops home automation hardware and software products. The company's Smart Vent System enables users to control heating and cooling airflows room by room, and it also connects to the web and other components, giving users the ability to manage all functionalities from the Keen Home app.



**kepware®**



**KEPWARE**

Launch date: 1995

Kepware is PTC's software development business working to provide a portfolio of software solutions that help businesses connect automation devices and software applications and enable industrial internet of things.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**KONUX**

Launch date: 2014

Konux provides the industrial internet of things market with smart sensor systems designed to measure mechanical and geometric parameters such as torque, pressure, force and angle. Konux sensing technologies are combined with a cloud solution that provides customers with real-time data visualization and intelligent data analysis, enabling them to understand their machine problems and make maintenance predictable.



**KOMATSU**

Launch date: 1921

Komatsu is a heavy equipment maker that uses connected technology in its Japanese production facilities, enabling it to remotely monitor operations in real time. The company has acquired United States mining equipment maker Joy Global, which provides connected longwall shearers for coal mining that can wirelessly transmit 7,000 data points per second to its data center.



**KUKA**

Launch date: 1898

KUKA provides robotics and other automation and internet of things solutions, including those that can extend to entire factories. One use case includes helping Jeep build an IoT-enabled factory for quickly producing car bodies using robots linked to a private cloud.

# Lenovo

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**LENOVO**

Launch date: 1984

Lenovo develops, manufactures and markets technology products and services, offering commercial and consumer personal computers, as well as servers and workstations; mobile Internet devices, including tablets and smart phones; storage and networking products; memory and processors; rack and power infrastructure; and laptops, desktops and accessories, as well as operating systems, security and systems management software.



100

**LG**

Launch date: 1947

LG Corp. delivers connected products that go from smartphones, tablets and smartwatches to TVs and home audio devices. The company also works with affiliated companies in telecommunication services such as: LG N-sys, LG CNS and LG U.



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**LIBELIUM**

Launch date: 2006

Libelium designs and manufactures wireless sensors for smart cities and the internet of things.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**LIFX**

Launch date: 2012

LIFX is a WiFi-enabled LED system allowing users to control their home or office lights with enabled devices such as smart-phones, wearables or other smart home products. The multicolored smart light comes with an app offering features like a music visualizer, themes, scenes and schedules.



**LIMEBIKE**

Launch date: N/A

LimeBike is a dockless bicycle sharing company whose app enables users to locate bikes and scan to unlock them.



**LOCAL MOTORS**

Launch date: 2007

Local Motors is a technology company that works on the development of vehicles. Its products include a 3D-printed car and its autonomous electric shuttle, Olli, which uses sensors and data to understand its environment and can help in corporate or municipal transportation needs. The shuttle can also work like a taxi with the user determining a pickup location through the app for later traveling and paying within said app.



**LOFELT**

Launch date: 2016

Lofelt develops “The Basslet,” a wearable watch-size subwoofer. The device delivers beats and basslines directly into the users' bodies, working next to senders that can be connected into devices like smartphones, gaming consoles or VR headsets.



**LOGITECH**

Launch date: 1981

Digital products provider Logitech has developed a range of internet of things solutions mainly focused on smart homes. The company's portfolio includes several products that allow users to remotely control their connected devices and manage their homes' lighting, music, locks, thermostats and more.



**LOGMEIN**

Launch date: 2003

LogMeIn provides software as a service and cloud-based remote connectivity services for collaboration, information technology management and customer engagement.



**LUMO**

Launch date: 2011

Lumo develops body tracking technology, including clips that attach to running shorts or capris to measure cadence and speed, giving the runner instant feedback through earphones. Lumo also offers clip-on devices that monitor posture.



**LUTRON**

Launch date: 1961

Lutron offers a family of internet of things devices including lights, shades and temperature controls for rooms or entire houses. The tools can also adjust automatically to prevent excessive energy consumption.



**MAERSK**

Launch date: 1904

Maersk provides shipping services solutions to small and large businesses in 130 countries and employs roughly 70,000 people. It provides frequent departures on all major trade lanes as well as inland services and mobile cargo tracking.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**MAGNA STEYR**

Launch date: 2001

Austrian automotive manufacturer Magna Steyr uses smart factory capabilities to track assets ranging from tools to vehicle parts and automatically orders replenishments when necessary. Magna is also testing usage of Bluetooth-connected “smart packaging” to track components in its warehouses.



**MARVELL**

Launch date: 1995

Marvell is a fabless semiconductor company with experience in microprocessor architecture and digital signal processing. It develops platforms for storage solutions as well as wireless and networking products between others.



**MASTERCARD**

Launch date: 1966

Mastercard is a technology company developing solutions for the payments industry, with payment processing as its core business. The company develops different payment products, including the use of near-field communication technology, eCommerce applications and security products, and it is also engaged in the development of internet of things technology usage into payment applications.





## MATTERNET



**MATTERNET**

Launch date: 2011

Matternet is an autonomous drone logistics platform developer with its own drone, cloud and usage stations. The company provides aerial delivery transport for healthcare, eCommerce and logistics organizations, along with serving individual customers. The platform is designed to be used in densely populated urban areas that often present delivery challenges.



**MICROSOFT**

Launch date: 1975

Microsoft develops a broad range of software products, from Windows to Skype and from Bing to Office. The company also develops devices like Lumia and Xbox, as well as the Azure IoT Suite, a platform that allows the user to connect and scale projects, as well as analyze the data generated by them.



**MISFIT**

Launch date: 2011

Misfit manufactures wearable and smart home devices and offers smartwatches, fitness trackers and smart accessories. Misfit also offers internet of things-based applications such as the Misfit Link, Home and Cycling apps, which help users better manage wearables from their smartphones.

**MOCANA**



**MOCANA**

Launch date: 2002

Mocana's internet of things security platform helps companies secure and monitor their devices and gateways in a complex, multi-vendor environment. The device-to-cloud platform functions as a real-time operating system for wired and wireless networking settings.

 **MOEN**



**MOEN**

Launch date: 1956

Moen has developed a customizable shower with personal device integration enabling users to control time and temperature. Once the U by Moen shower is connected to Wi-Fi and the cloud, users can control their showers via their smartphones, Alexa or the shower controller.

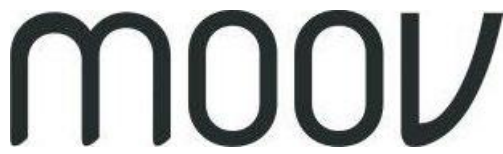
**MONNIT**



**MONNIT**

Launch date: 2010

Monnit manufactures and markets self-installing, low-cost wireless sensor solutions targeted at the commercial, industrial and consumer markets. Monnit's sensing solutions can be used to monitor access, presence of water, luminosity, temperature, humidity and a variety of other metrics.



**MOOV**

Launch date: 2013

Moov is a water- and dust-proof connected wristband designed for sports, including cycling, swimming and boxing. The wearable device can also be used in coach mode, allowing for a voice-guided workout and different metrics, such as amount of repetitions or landing impact. The device can also track 3D movements, allowing it to teach the user more effective exercise techniques, and permits for social engagement and competition with connected friends.



**N'OSAIRIS**

Launch date: 2009

Nosairis is a software firm that focuses on IoT to drive business transformation and delivering connected services.



**NESTLÉ NESPRESSO**

Launch date: 1986

Coffee machines and capsules provider Nespresso has developed a connected coffee machine, the Nespresso Prodigio. It's a Bluetooth-connected coffee machine which enables users to manage capsules stock, program coffee times and receive alerts for machine maintenance and care through the smartphone-enabled Nespresso app.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**NEST**

Launch date: 2010

Nest is a technology company focused on smart home tools, and its products include a thermostat that learns from user preferences, a smart smoke-CO2 alarm and a camera that tracks the user's phone location to know when to activate. The company's devices can communicate with users' products through the Nest app to either provide information or be externally controlled.



**NETATMO**

Launch date: 2011

Netatmo is a smart home company, developing connected consumer electronics. Netatmo designs the mechanics, electronics and embedded software of all its products and also creates the mobile and web applications.



**NEURIO**

Launch date: 2005

Neurio is a home intelligence technology company that gives homeowners the ability to monitor their homes. The company's Home Energy Monitor allows them to track their power use in real time, see bill forecasts, set up budgets, get energy saving tips and more.

**nexiot**

59

**NEXIOT**

Launch date: 2015

Since spinning off from ETH Zürich, Nexiot has provided integrated digital supply chain solutions across Europe.

**NFC | RING**

48

**NFC RING**

Launch date: 2015

NFC Ring provides a wearable ring that can be used to make payments, lock or unlock doors and devices or share and transfer information.



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**NISSAN**

Launch date: 1933

Japanese automaker Nissan offers embedded internet of things technologies in its cars through a service called NissanConnect, allowing drivers to access features including access to different apps such as Google and Facebook as well as security tools like stolen vehicle locating and roadside assistance. The solution can also control car functions like locking doors, triggering horns and controlling the air conditioning.

**NOKIA**

52

**NOKIA**

Launch date: 1865

Nokia is a Finnish multinational communications corporation engaged in the manufacturing of mobile devices, network infrastructure and location-based technologies. It is also engaged in converging internet and communications industries.



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**NORTH STAR BLUESCOPE STEEL**

Launch date: 2009

Steelmaker North Star BlueScope Steel deploys wearables in helmets and wristbands as part of its proof-of-concept project aimed at helping managers track employee safety and spot hazardous scenarios before they lead to injuries.

**notion**

47

**NOTION**

Launch date: 2013

Notion develops sensors that allow homeowners to remotely monitor their homes, using the device to track a group of variables, such as when doors are open, the temperature fluctuates too much or when water leaks. Users can also monitor their homes from their phones and receive notifications.



**nucleus**

44

**NUCLEUS**

Launch date: 2013

Nucleus is a smart home wireless intercom system designed to allow users to make calls from room to room or home to home. Each Nucleus account has a unique Home and Remote code enabling them to establish secure connections between devices. The Nucleus device connects to the internet via Wi-Fi or Ethernet and is Amazon Alexa-enabled.



**Numerex™**

62

**NUMEREX**

Launch date: 1992

Numerex provides a portfolio of managed end-to-end internet of things solutions including smart devices, network connectivity and service applications to address various vertical market needs, including waste management, manufacturing and distribution, public and personal safety, oil and gas, transportation, emergency management and commercial and residential security.

**NUZZLE**

39

**NUZZLE**

Launch date: 2014

Nuzzle has developed a GPS collar that enables owners track their dogs via 24/7 connectivity through dual-band 3G cell, embedded SIM card and Bluetooth. In addition, the GPS collar offers impact detection, and temperature and activity monitoring. Owners can also use a mobile app to track their pets.



**OMNITRACS**

Launch date: N/A

Omnitracs LLC is a trucking solutions provider offering transportation technology and insights, with solutions designed to assist with compliance, safety and security, productivity, telematics and tracking, transportation management, planning and delivery, data and analytics and professional services.



**ONEPLUS**

Launch date: 1989

OnePlus is a manufacturer of waste container fullness and control systems. It also produces technology that can regulate system access and provide users with a cloud-based software through which they can access information.



**OPTIMAL+**

Launch date: 2005

Optimal+ is a data analytics company offering end-to-end solutions to improve quality, yield and productivity for semiconductor and electronics manufacturing.



**OSRAM**



**OSRAM**

Launch date: 1919

Osram implements high-tech devices and smart solutions for lighting technology in the automotive, entertainment and health sectors as well as private consumers. The company also offers smart home products and is developing smart city solutions.

**OSSIA**



**OSSIA**

Launch date: 2008

Ossia is the developer of Cota, a wireless power charger that can power equipped devices. The solution takes energy from a single source and transmits it through a net of antennas to a power receiver within a 30- foot radius. The solution also allows for energy saving, as the system turns off once the devices are off the range or hibernating.

**PetaSense**



**PETA SENSE**

Launch date: 2014

Petasense is an industrial IoT service that offers third-party providers end-to-end solutions, including cloud software, machine learning tools and vibration sensors that utilize wireless technologies. The company's offerings can also support device maintenance.



**PETNET**

Launch date: 2012

Petnet offers the SmartFeeder, an automatic feeder for cats and dogs that enables users to manage feeding times, portion sizes and food supply. The SmartFeeder uses sensors to measure portions based on pets' ages, weights and activity levels. Users can control their pets' feeding from their smartphones.



**PETPACE**

Launch date: 2012

PetPace offers remote pet monitoring services through a wireless smart collar that collects pets' vital signs and behavior patterns. PetPace comes with an integrated health monitoring service to continually analyze the collected health data and send notifications to pet owners' smartphones in case of emergencies.



**PHILIPS**

Launch date: 1891

Philips' internet of things-enabled lighting product, Hue Personal Wireless Lighting, is a connected lighting solution that can be managed from users' smart devices. Hue uses a system called The Bridge that connects smartphones to the Philips Hue lights via Wi-Fi, offering different types of smart lights and giving users the ability to create timers, control brightness, play with colors and synchronize lights to music, TV and games.



**PLACEMETER**

Launch date: 2012

Placemeter creates real-time smart sensors and computer vision integrations for industries like transportation and real estate. Its mission is to aid in building out smarter, technologically enhanced cities.



**POLAR**

Launch date: 1977

Polar is a manufacturer of sports training technologies. Among other products, Polar has deployed GPS-enabled bike computers, fitness and running watches, as well as heart rate monitors and performance trackers. Its devices are designed for activities ranging from swimming, cross-training and yoga to tracking users' daily activities and calorie consumption.



**RACHIO**

Launch date: 2012

Rachio develops a smart sprinkler device that uses weather prediction to ensure more efficient water usage. Its devices can adjust their functioning to suit the yards in which they work or changing seasonal conditions. It connects to a mobile app that allows for the external control of speakers and delivers information about precipitation, watering and yard health.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**RAY ENTERPRISES**

Launch date: 2012

Ray has developed a smart touch-screen remote that enables users to control all their devices and supports a wide range of entertainment devices including TVs, cable and satellite providers, streaming devices, sound bars and DVD players.



**REAL-TIME INNOVATIONS**

Launch date: 1991

RTI works with partners to create technology to divide power grids into microgrid arrays that can each be managed independently to help companies better maintain complicated energy networks that pull from both traditional and renewable origins.



**RED HAT**

Launch date: N/A

Red Hat has a portfolio of secure products and services such as cloud storage and operating system platforms along with middleware, applications and management solutions. It also provides customer support, training, implementation and consulting services.

**RioTinto**

33

**RIO TINTO**

Launch date: 1873

Rio Tinto is a global mining and exploration company active in more than 40 countries. It discovers, mines, processes and supplies metals and minerals used in everyday modern life, and uses driverless trucks, autonomous drilling tools and other Internet of Things supports.

**Rockwell  
Automation**

29

**ROCKWELL AUTOMATION**

Launch date: 1903

Rockwell Automation develops industrial automation and information technology products. Its Connected Enterprise capability enables industries to connect, monitor and optimize devices and processes while its industrial internet of things solution integrates networks and creates a production platform that can enable smart manufacturing.



63

**ROLLS-ROYCE**

Launch date: 1906

Manufacturer Rolls-Royce is using internet of things-enabled sensors that allow jet engines to send data directly to air traffic control, granting a more holistic look at weather patterns and aircrafts' fuel conditions.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**SAGEGLASS**

Launch date: N/A

SageGlass offers electronically tintable glass – known as dynamic or electrochromic glass – for windows, skylights and curtain walls, controlling sunlight levels while eliminating the need for shades or blinds.



**samsara**



**SAMSARA**

Launch date: 2015

Samsara offers internet-connected sensor systems designed for diverse environments from energy monitoring to asset utilization to vehicle tracking. Its traditional sensor model is combined with an integrated, software-centric solution to capture hundreds of metrics, bringing visibility and insight into any operation.



**SAMSUNG**

Launch date: 1938

Samsung's business expands through many industries, from heavy industry to chemical to its more well-known face, Samsung Electronics. The company develops wearable devices, smart TVs and some of the most classic connected devices: smartphones. Samsung has also begun developing smart home applications, from sensors and hubs to connected appliances.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**SATO GLOBAL SOLUTIONS**

Launch date: 1940

SATO Global Solutions develops internet of things solutions, including data-based advice for business operations and customer experience improvements. The company co-founded the Acuitas Digital Alliance, which develops cloud-based IoT solutions to help retailers use Big Data and the internet of things



**SEAT**

Launch date: 1950

SEAT (or Sociedad Española de Automóviles de Turismo) is an automobile manufacturer and subsidiary of the Volkswagen Group headquartered in Martorell, Spain. SEAT has been researching connected car developments with companies such as SAP and Samsung for solutions like parking reservations and payments, as well as digital key sharing.



**SECTORQUBE**

Launch date: 2011

SectorQube's smart oven, Maid, sets the times and temperatures according to serving numbers and users' personal preferences. Maid comes with an intelligent personalization engine that learns user preferences and is connected to an online recipe store. The oven can be controlled and managed through touchscreens or through voices and gestures.



The Seebo logo features the word "seebo" in a bold, black, lowercase sans-serif font. To its right is a graphic of four interlocking rings in purple, blue, yellow, and red. A large green number "44" is enclosed in a semi-circular arc with a double-line border, and a horizontal arrow points left from the arc's center. To the right of the score is a white box with a dark border containing the company name and launch date.

**SEEBO**  
Launch date: 2012

Seebo offers an integrated platform intended to help manufacturers create, develop, analyze, integrate and build internet of things products.



The Sensoria logo features the word "sensoria" in a lowercase sans-serif font, with the "i" and "a" in green. A large green number "43" is enclosed in a semi-circular arc with a double-line border, and a horizontal arrow points left from the arc's center. To the right of the score is a white box with a dark border containing the company name and launch date.

**SENSORIA**  
Launch date: 1987

Sensoria develops wearables that track and communicate data like body weight, eversion and in-footwear pressure. The data is analyzed and displayed in users' mobile devices.



The Sentry logo features a stylized orange circle with a vertical line and a horizontal line intersecting at the center, followed by the word "SENTRI" in a tall, thin, uppercase sans-serif font. A large green number "39" is enclosed in a semi-circular arc with a double-line border, and a horizontal arrow points left from the arc's center. To the right of the score is a white box with a dark border containing the company name and launch date.

**SENTRI**  
Launch date: 2014

Sentry is an all-in-one home controlling solution helping users make their homes safer and smarter. Its device comes with a 120-degree wide-angle camera and sensors that track environmental health including temperature, humidity, air quality and weather. Users can connect and control other smart devices and get mobile notifications when any unusual activity or change in the home environment is detected.



**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**SHELL**

Launch date: 1907

Gas company Shell is implementing the internet of things for more efficient fuel production, claiming that its smart oil fields can generate up to 10 percent more oil and 5 percent more gas than traditional fields. It has also launched other internet of things-related projects to help with this goal.



**SIMPLISAFE**

Launch date: 2006

SimpliSafe Home Security helps clients secure their homes via wireless, internet of things-enabled alarm systems.



**SKYBELL**

Launch date: 2013

Based in Irvine, California, SkyBell is an internet of things security solutions firm using Wi-Fi and sensors to provide a smart video doorbell. The offering pairs with a smartphone app available for iOS and Android that allows users to interact with visitors.

**SKYHOOK°**

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**SKYHOOK**

Launch date: 2003

Skyhook is a global location network that, by georeferencing mobile users, allows companies to deliver more personalized content. The company's location engine is based on Wi-Fi data that is combined with information from GPS, cell towers, IP addresses and device sensors, and its services are suitable for different industries, including app development, advertising, device manufacturing and wearable design.

**SMARTDRIVE®**

61

**SMARTDRIVE**

Launch date: N/A

SmartDrive offers solutions for corporate fleets. Its offerings include security programs, an open analytics platform, and transportation intelligence intended to improve safety and identify opportunities for greater operational efficiency.

**SoftBank**

32

**SOFTBANK**

Launch date: 1981

SoftBank is a multinational telecommunications and internet corporation focused on broadband, fixed-line telecommunications, eCommerce, internet, technology services, finance, media, marketing and other areas.



**SOFTWARE AG**  
Launch date: 1969

Software AG is a software developer whose solutions apply to a range of different industries, including internet of things, banking, energy, government and retail. The company's solutions include Terracota, a data management platform, location-based marketing capabilities, location analytics and manufacturing products such as equipment predictive maintenance, and energy theft detection.



**SOMFY**  
Launch date: 1969

Somfy offers outdoor home products like smart gates, doors, window shutters and alarm systems that can be managed from a mobile app.



**SONY**  
Launch date: 1946

Sony Corp. products range from categories such as television and audio/video solutions to semiconductors, medical equipment and digital imaging developments. The Japanese company has introduced internet of things technology in mobile and tablet devices as well as smart TVs and wearable products like watches or wristbands.

**SOPHOS**

28

**SOPHOS**

Launch date: 1985

Sophos provides internet of things security services that work to protect devices, data and key processes from malicious malware code and dangerous cyberactivity. Among other services, the company offers endpoint, encryption, email, web, mobile, network security and UTM products, as well as a range of tools for home users.

**SPIN**

49

**SPIN**

Launch date: N/A

Spin is a dockless electric scooter rental company that is currently operating in 11 cities and on six campuses.

**Stanley  
Black &  
Decker**

62

**STANLEY BLACK &  
DECKER**

Launch date: 1843

Industrial and household tool provider Stanley Black & Decker has created internet of things-connected tools for its manufacturing facilities and deployed connected security technologies.



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**STATSPORTS**

Launch date: 2007

STATSports provides sports science and performance analytics. Its performance tracking systems can calculate more than 50 metrics in real time and store all data into a cloud infrastructure. The STATSports Apex tracking device connects via Bluetooth LE to multiple devices, including heart rate sensors, EMG shorts, smart watches and tablet devices.



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**STRIIM**

Launch date: 2012

Striim is a real-time data integration and streaming analytics software platform, integrating internet of things data to provide data analytics and protect users against cybersecurity threats. Striim for internet of things combines real-time sensor data with other enterprise data from databases, log files, message queues and cloud environments.



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**SWATCH**

Launch date: 1983

Swatch produces smart watches and other wearables. The company's Touch Zero One smartwatch was specially designed for beach volleyball players and gives users the ability to calculate steps, track calories burned, set goals and check progress. Users can also connect Swatch devices to their smartphones and use an application to check performance insights.



**SYMANTEC CORPORATION**

Launch date: 1982

Symantec Corp. provides cybersecurity services through its anti-virus software Norton. It also offers integrated solutions to defend against attacks across endpoints, cloud and infrastructure. The company has also developed a router to which internet of things-enabled devices can securely connect in a single action.



**TAG HEUER**

Launch date: 1860

Tag Heuer's Connected Modular 45 smartwatch collection, done in collaboration with Google and Intel, offers customized designs, GPS, time management tools and water resistance. The device is also connected to a mobile app.

**TELETRAC NAVMAN**



**TELETRAC NAVMAN**

Launch date: N/A

Teletrac Navman offers GPS-based fleet management and optimization products and services, including real-time vehicle tracking, electronic logging, communications and analytics designed to enable companies to monitor, measure and improve operational costs and efficiencies.

**TERADATA**

48

**TERADATA**

Launch date: 1979

Teradata develops a range of solutions that apply to the internet of things industry, with options like Teradata Unified Data Architecture, which allows businesses to organize and leverage data, or Teradata Aster Analytics, which allows for data visualization and analytics.

**tile**

48

**TILE**

Launch date: N/A

Tile provides devices, a network and mobile app that use Bluetooth technology to assist users in locating keys, wallets, phones and other items.

**Token**

49

**TOKEN**

Launch date: 2015

Token offers a biometric-based wearable ring designed to make payments and provide authentication in place of ID credentials, internet passwords or at physical locations. Its product also can be used with specialized company-made locks to unlock home or compatible car doors.



**TOMTOM**

Launch date: 1991

TomTom designs and develops navigation and mapping products for cars, motorcycles, scooters and trucks and provides fleet management solutions. The company also offers GPS smartwatches and accessories for running, fitness, golf and other activities.



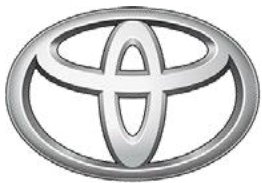
**TOVALA**



**TOVALA**

Launch date: 2015

Tovala has designed a smart oven that can steam, bake, broil and heat prepackaged meals that come with scannable codes to indicate how they should be cooked. The oven can also connect to users' phones through its own app, which allows for tracking of the cooking time.



**TOYOTA**



**TOYOTA**

Launch date: 1987

Japanese car manufacturer Toyota has integrated internet of things technology into its automobiles. Entune, the service the company developed for connecting mobile devices with cars, allows drivers to access their playlists or use voice recognition commands. Toyota also delivers security-connected solutions that can assist in cases of collisions, needing emergency assistance or locating stolen vehicles.



**Implementers Scorecard** – Suppliers are listed in alphabetical order.



**TRACKX**  
Launch date: 2013

TrackX is a software solutions provider focused on asset tracking, inventory management and supply chain solutions, all using a cloud-based asset tracking platform, GPS, RFID and sensors.



**TRITONWEAR**  
Launch date: N/A

TritonWear develops wearables that allow coaches and their athletes to track performance through their mobile devices in real time.



**TRUSTONIC**  
Launch date: 2011

Trustonic is a device security company that provides security for connected devices, associated services and applications.



**UBIGREEN**

Launch date: N/A

Ubigreen is a technology company that develops turnkey solutions with offerings that include web apps to monitor and control energy use or other operations in a building or other site.

New!



**ULTRACK SOLUTIONS**

Launch date: 2010

Ultrack Solutions offers a fleet management software solution designed to serve small to mid-sized businesses and enterprises. The company provides end-to-end solutions designed for web applications. Its fleet management system offers tire management, vehicle identification number lookup, employee management, mileage tracking and GPS tracking.



**UNDER ARMOUR**

Launch date: 1996

Under Armour products include apparel developed for controlling body heat, and intelligent items concentrated on tracking users' performances. The company's interest in internet of things applications pushed the acquisitions of fitness apps such as MapMyFitness and MyFitnessPal.

**Implementers Scorecard** – Suppliers are listed in alphabetical order.



New!

**UNIZEN TECHNOLOGIES**

Launch date: 2013

Unizen Technologies provides end-to-end solutions that range from software design services to electronic hardware design services.



**VERT**

Launch date: 2013

VERT offers wearable solutions that utilize the cloud and internet of things technology to connect user data to social platforms.



**VERY**

Launch date: 2011

Very was founded in 2011 and helps companies with product development and software design inside of the internet of things. The company will create bespoke software solutions for clients to help integrate the internet of things into their offerings.



**VIEW**

Launch date: 2007

View Dynamic Glass' window tint tech helps to control the temperature inside rooms to save energy and improve comfort. The device can automatically adjust to the time of the day, the angle of the sun and weather conditions, taking into account the geolocation of the building and its architectural design. The solution also provides data for users to track energy efficiency.



**VIMOC**

Launch date: 2012

VIMOC Technologies is a platform provider for Landscape-Computing, enabling the deployment of solutions for the internet of things and smart city implementations. The platform is provided through a scalable API that facilitates sensory data access with built-in statistical analysis and a workloads distribution framework.



**VINLI**

Launch date: 2014

Vinli is a small device that can be connected to vehicles to boost connectivity and app usage. Using a 4G LTE network, its device can also be used as a Wi-Fi hotspot to allow passengers to stream movies or download games. The company also offers apps covering security, social engagement and other utilities, such as sending notifications if a collision occurs.



**VISA**

Launch date: 1958

Visa is an American multinational financial services company focused on the transfer of electronic funds. Its portfolio includes Visa-branded credit, debit, commercial, prepaid, mobile and money transfer. VisaNet is the technology behind the company's payment processing solution, which provides its services worldwide.



**VIVINT**

Launch date: 1999

Vivint is a smart home services provider focused on connected home automation and home security cameras and devices, all controllable by an app.



**WEBROOT**

Launch date: 1997

Webroot works on endpoint security and threat intelligence services, providing solutions for businesses and individuals. The company has developed its own internet of things cybersecurity tool, and also produces its BrightCloud Threat Intelligence for IoT Gateways.



**WESTERN DIGITAL**

Launch date: 1970

Western Digital is a data storage company using both the cloud and data center storage, providing clients with software as well as hardware like hard drives and storage devices.



**WHISTLE LABS**

Launch date: 2012

Whistle Labs is an intelligent device manufacturer offering pet owners smart GPS tracker offerings to monitor pets' locations, activity levels and rest cycles. The Whistle app also sends users notifications when pets leave designated "safe spaces."

New!



**WIRELESS LOGIC**

Launch date: 2000

Wireless Logic is a Europe-based internet of things platform provider that works with system integrators, application providers and other enterprises. The company offers a portfolio of services, ranging from private network infrastructure and management platforms to specialist mobile, satellite, fixed line and low-power wireless area network connectivity.

**WIS@key**

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**WISEKEY**

Launch date: 1999

WIS@key is an information security and identity management company that works on data protection and identification, and authentication of people and objects over physical infrastructures, networks and the internet. The company focuses on the internet of things industry and developed a security platform covering identity management, transaction assurance and process integration.



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**XIAOMI**

Launch date: 2011

Xiaomi manufactures and develops hardware, software and internet services, offering a range of internet-connected devices including smartphones, TVs, notebooks, wearables, drones, earphones and more. In addition, the firm develops mobile applications such as MiTalk and an operating system called MIUI.

**spend.**

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**X LAB**

Launch date: 2016

X Lab is the company behind Spendwallet, an electronic wallet that can store the users' credit, debit and gift cards. The device can also be synchronized with users' phones.



**XPED LIMITED**

Launch date: 2008

Xped Limited is an internet of things technology business. Among others services, the company has developed the Auto Discovery Remote Control platform, which is designed to enable users to connect, control, monitor and manage their devices and appliances from a single app.



**YOKOGAWA**

Launch date: 1915

Yokogawa's portfolio of solutions includes cloud-based data sharing services for data collaboration for supply-chain management and optimization. It also offers cybersecurity solutions.



**ZEBRA TECHNOLOGIES**

Launch date: 1969

Zebra Technologies develops tracking technology and solutions that allow companies to know where and in what conditions things are. Zebra products cover a wide range of devices and software, from mobile computers and printers to location solutions and RFID bands. Zebra's technology can also be used in different industries like health care, manufacturing and retail.



New!



**ZIPIT WIRELESS**

Launch date: 2007

Zipit Wireless is a Greenville, South Carolina-based business and technology solutions provider. The company's internet of things billing and subscription management platform develops and supports businesses in creating recurring revenue streams and gathering product insights for improved user experiences.



**ACLARA**  
Launch date: N/A

Aclara Technologies LLC provides smart infrastructure solutions for water, gas and electric utilities worldwide, including meters and various communications networks.



**ACTILITY**  
Launch date: 2010

Actility's ThingPark is an internet of things-enabler platform for the deployment and management of low-power wide-area networks. The software solution allows communication service providers, device manufacturers and application suppliers to develop internet of things applications in vertical markets such as smart cities, energy and utilities or industries.



**ADUK GmbH**  
Launch date: 2004

ADUK GmbH is a Germany-based smart electronics provider. It supports engineering services and creates hardware and software for IoT while also providing machine learning and other machine-to-machine solutions.



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**ADVANTECH**

Launch date: 1983

Advantech provides embedded machine-to-machine/internet of things module integration services and wireless solutions for machine-to-machine communication including Bluetooth, Wi-Fi, 3G/LTE and GPS modules.



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**AERIS**

Launch date: 1992

Aeris Communications is a technology provider and cellular network operator delivering comprehensive internet of things/machine-to-machine services to the automotive, energy, transportation, retail and healthcare industries. Aeris offers a complete technology stack, from an online management portal to an application enablement platform and cellular connectivity networks.



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**AEROHIVE NETWORKS**

Launch date: N/A

Aerohive Networks, together with its subsidiaries, designs and develops cloud networking and enterprise Wi-Fi solutions. These include hardware, software-as-a-service subscriptions and tiered maintenance and support services.

**Enablers Scorecard** – Suppliers are listed in alphabetical order.



**AFERO**

Launch date: 2015

Afero offers an internet of things platform-as-a-service solution that allows for the development and deployment of connected devices. The system is powered by Afero Cloud, which provides services for the development and operation of connected things. The company also helps developers with processes like monitoring, management and prototyping.



**AGILITYIO**

Launch date: 2011

AgilityIO offers software solutions to translate ideas and products into digital and internet of things products. The company handles software development, user exchange and user interface design and product management through the process of idea conception to retail.



**AGT INTERNATIONAL**

Launch date: 2007

AGT International distributes internet of things solutions. The company focuses on integrated logistics support for public safety and security.



**AlertMedia**

**37**

**ALERT MEDIA**  
Launch date: N/A

AlertMedia provides enterprise customers with monitoring services and a communications platform for regular and emergency messaging.



**ALTOROS™**

**55**

**ALTOROS**  
Launch date: 2001

Altoros is a software and open-source development company providing hardware, software and guidance to clients. It uses Java, .NET and Ruby architecture to create cloud-native internet of things applications for companies, and offers smart baggage tracking software for private customers.



**amazon**

**100**

**AMAZON**  
Launch date: 1994

Amazon Web Services has developed a cloud-computing platform providing services such as application hosting, databases and content delivery. The company's internet of things consists of a cloud platform that allows businesses to connect devices to Amazon services as well as to other devices, secure and process data, and enable applications to interact with those devices.

**Enablers Scorecard** – Suppliers are listed in alphabetical order.



**AMDOCS**

Launch date: 1982

Amdocs provides software and services to communications and media companies via solutions to enable digital and network transformation. The company offers a suite of internet of things solutions, including Amdocs Connected Home, a cloud-based solution delivering monitored smart home security services. In addition, Amdocs IoT Services Enablement Platform enables internet of things ecosystem players to offer integrated and easy-to-activate global consumer and industrial internet of things services.



**ANTMICRO**

Launch date: 2009

Antmicro is an embedded software company working with emerging technologies, prototyping and feasibility studies.



**ARM**

Launch date: 1990

ARM designs energy-efficient processors and related technologies for digital electronic products ranging from sensors to servers. The company has developed the ARM Mbed IoT Device Platform, a solution that provides open standards based on a common platform and an ecosystem for internet of things development and connectivity to make internet of things offerings work at scale, from device to cloud.



**ARMIS**

Launch date: 2015

Armis Security is an agentless internet of things security solution that allows enterprises to see and control any device or network.



**ARRAYENT**

Launch date: 2002

Arrayent creates IoT solutions for consumer product manufacturers, using its cloud-embedded software-as-a-service platform to help enterprises connect their offerings to mobile and online applications.



**ARUBA**

Launch date: N/A

Aruba Networks develops operating systems for both wired and wireless network infrastructure, provides remote access services and offers data security solutions.



**ARVIEM**

Launch date: N/A

Arviem is an independent global cargo tracking and monitoring service provider. Its internet of things monitoring device mounts on cargo containers and communicates via phone or satellite networks.



**AT&T**

Launch date: 1976

AT&T provides a wide range of internet of things solutions, including connectivity of devices and development platforms that can be applied to industries from vehicles and smart cities to health care and machinery.



**AUTODESK**

Launch date: 1982

Software developer Autodesk offers Fusion Connect, an internet of things cloud service that connects, analyzes and manages remote products, providing its customers analytics and insight automatically extracted from their devices, enabling them to highlight products' performances and failures.





**AVNET**

Launch date: 1921

Avnet provides organizations with internet of things component and services solutions. It helps companies in deploying internet of things technologies and adding new functionalities, such as security and connectivity. Avnet offers components for industries such as automotive, home automation, energy, industrial and wearables, among others.



**AXEDA**

Launch date: 2000

Axeda is a machine-to-machine communications solutions provider that creates software for IoT-enabled devices and other connected products. The company implements machine-based solutions for IoT applications and is focused on the enterprise use cases of connected technologies.



**AYLA NETWORKS**

Launch date: 2010

Ayla Networks is an internet of things platform provider whose solution comprises three elements: Ayla Embedded Agents, Ayla Cloud Services and Ayla Applications Libraries. These processes work together to connect to the cloud and applications while providing tools to manage, provision and analyze internet of things deployments.



**B-SCADA**

Launch date: 2003

B-Scada is a data visualization service that provides solutions for IoT verticals. Its offerings include data acquisition and human-machine interface software platforms as well as cloud-connected IoT software.



**BASTILLE**

Launch date: N/A

Bastille offers an enterprise security solution designed to include full-spectrum scanning of corporate airspace, working to detect wireless risks and use machine learning and behavioral analytics to offer companies a more informed view of wireless environments, complementing Wi-Fi and traditional security architectures.



**BELDEN**

Launch date: 1902

Belden manufactures and sells a portfolio of cable, connectivity and networking products for the transmission of signals for data, sound and video applications. Its products are designed for a variety of markets including industrial, enterprise, broadcast, transportation, energy and consumer electronics.



**BELKIN**

Launch date: 1983

Belkin offers internet networking products including Ethernet and wireless adapters and routers. In addition to developing connectivity solutions, the company has created WeMo, a Wi-Fi-based home automation network that includes smart lighting systems, Wi-Fi-connected cameras, smart plugs and light switches.



**BITREACTIVE**

Launch date: 2011

Bitreactive offers a visual programming tool enabling Java developers to program embedded software for internet of things devices. The firm serves clients in logistics, telematics, automotive, oil and gas, home automation, smart energy, smart cities and building control industries.



**BOSCH**

Launch date: 1886

Robert Bosch GmbH is an engineering and technology company with four business segments: mobility, consumer goods, industrial technology and energy and building technology. Its products include well-known brands like Dremel, Dynacord and Siemens.



**BROADCOM**

Launch date: 1991

Broadcom is a semiconductor technology provider primarily focused on wired infrastructure, wireless communications, enterprise storage and industrial markets.



**CA TECHNOLOGIES**

Launch date: 1976

CA Technologies supports companies' transitions to use smart technology and monitors, manages and secures clients' information technology infrastructure and applications.



**CALAMP**

Launch date: 1981

CalAmp provides communications devices, cloud platforms and software applications. Its internet of things cloud enables companies to collect, monitor and report data and intelligence from remote assets.



## Cambium Networks



### CAMBIUM NETWORKS

Launch date: 2011

Cambium Networks is a provider of wireless broadband point-to-point and point-to-multipoint platforms, offering sustainable communication networks for companies, enterprises, governmental and military agencies, and the firm's services also include network monitoring, measurements and analytics.



### CENTRI

Launch date: N/A

CENTRI focuses on internet of things technology designed to integrate into organizations' existing applications and services in the cloud, data centers, connected devices and products to secure data. Its solution offers tools including encryption and the establishment of trusted devices.



### CHRONICLED

Launch date: N/A

Chronicled is a technology company using blockchain and the internet of things for supply chain solutions. It offers a decentralized protocol and network, and serves the pharmaceutical, commodities and precious metal and mineral verticals.

**Enablers Scorecard** – Suppliers are listed in alphabetical order.



**CISCO**

Launch date: 1984

Cisco develops internet protocol-based networking technologies. Their products include routing and switching devices, home networking technology, IP telephony, optical networking, security, storage area networking, and wireless technology. Cisco also provides technologies covering connectivity, security, software and data management.



**CLEARBLADE**

Launch date: 2007

ClearBlade is a platform for the industrial internet of things that enables developers to engineer and run real-time, scalable internet of things applications. ClearBlade is deployable in any vendor cloud, on-premise or in hybrid environments, allowing companies to build enterprise internet of things solutions that make streaming data actionable by combining business rules and machine learning with visualizations and integrations to existing business systems.



**CLEARSCALE**

Launch date: N/A

ClearScale delivers cloud systems integration, application development and managed services. The company provides internet of things platform design and automation services, builds infrastructure for connected devices and more.



**CLOUDERA**

Launch date: 2008

Cloudera provides end-to-end data management services including a data storage and analysis platform. It offers and supports Apache Hadoop-based software to businesses.



**COMCAST**

Launch date: 1963

Comcast is a media and technology company that provides customers with video, high-speed internet and phone services under the name of Xfinity. The company also offers Xfinity Home, a platform that integrates users' smart home devices into one personalized platform.



**COMFY**

Launch date: 2012

Building Robotics is the developer of Comfy, a service that allows office workers to change their workplace ambiances by personalizing temperature, lighting, window tint and more. Changes can also be applied in specific areas, allowing each worker to adjust his or her working conditions without bothering others.



**COMMSCOPE**

Launch date: 1976

Commscope designs, builds and manages wired and wireless networks. Their services include incrementing bandwidth and existing capacity, improving network performance, increasing energy efficiency and the simplification of technology migration.



**COVISINT**

Launch date: 2000

Covisint is a cloud platform for the development of identity and internet of things applications that enables customers to identify, authenticate and connect networks of people, processes, systems and things.



**CRATE.IO**

Launch date: 2013

Crate.io is an open-source database allowing real-time, integrated storing and analysis of internet of things and machine learning data for Structured Query Language developers.





**CROWDOPTIC**

Launch date: 2010

CrowdOptic provides middleware that allows enterprises to manage wearable computing devices in the field from a single platform.



**CYPRESS**

Launch date: 1982

Cypress manufactures semiconductors and electronic products for the automotive, industrial and consumer markets. Among other products, the company develops programmable system-on-chip solutions, capacitive touch-sensing controllers, Bluetooth Low Energy and USB connectivity solutions.



**DATASTAX**

Launch date: 2010

DataStax Inc. Provides database software and data management via solutions including a distributed cloud database built on Apache Cassandra architecture and designed for hybrid cloud. The company's offerings aim to support management and analysis of large amounts of time- and sensor-based information.



**DAVRA**

Launch date: 2011

Davra provides organizations with an application enablement platform for the development of internet of things applications. The platform has been designed to control all elements of the IoT Edge Gateway.



**DEV TECHNOSYS**

Launch date: 2010

Dev Technosys is an Indian Internet of Things application development company with presences in Ireland, New Zealand, the United Arab Emirates, the United Kingdom and the United States. It has created and delivered over 1,500 products for clients in more than 30 countries.



**DEVICEHIVE**

Launch date: 2012

DeviceHive is an internet of things data platform that enables device integration and offers services to connect smart devices to public and private clouds. The solution collects and analyzes data from devices such as sensor networks, smart meters, security systems, telemetry, industrial or smart home devices.

# DEVICE INSIGHT

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## DEVICE INSIGHT

Launch date: 2003

Device Insight has developed a internet of things platform solution called Centersight that offers tools to monitor internet of things and machine-to-machine devices, providing operating data insights and analytics, error reports, machine configuration features, alarming and more. It can be used in the industry and automation, connected products, telematics and fleet management and energy and smart city markets.



64

## DEVICE SOLUTIONS

Launch date: 2003

Device Solutions provides solutions for the areas of engineering consultancy, testing and certifications of products for network providers and its own service, Cellio. Cellio is an end-to-end solution that connects, computes and communicates information from the internet of things. It is made from sensors, a cellular communication gateway and cloud-based software.



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## DGLOGIK

Launch date: 2007

DGLogik provides innovative software solutions that enable and visualize the internet of things



**DIGI INTERNATIONAL**

Launch date: 1985

Digi International develops machine-to-machine and internet of things connectivity products such as embedded modules, gateways, routers and USB and serial connectivity devices. The firm offers remote device managing solutions and wireless design services. Digi International's products are designed for energy, smart cities, medical, industrial, retail and transportation markets, among other industries.



**D-LINK**

Launch date: 1986

D-Link offers networking solutions as well as smart home ecosystems. Their products include surveillance cameras and recording devices, networking tools including routers and extenders as well as automation solutions.



**DRAYSON TECHNOLOGIES**

Launch date: 2007

Drayson Technologies Group is an artificial intelligence and machine learning solutions provider based in London. It supports smart sensor networks using its internet of things platform, which relies on wireless charging technology.

electric imp™

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**ELECTRIC IMP**

Launch date: 2011

Electric Imp offers an internet of things platform that securely connects devices with cloud computing services, helping manufacturers to manage and quickly scale their connected products and services to millions of users.

**ELEMENT**  
ANALYTICS™

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**ELEMENT ANALYTICS**

Launch date: 2015

Element Analytics creates industrial analytics software to help organizations improve their operational performances. The platform prepares time-series data, gives it relevant context and uses machine learning to analyze it and provide surface reliability, productivity and sustainability insights.

**eliNext**

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**ELINEXT**

Launch date: 1997

Elinext offers big data and IoT products to companies across Asia, Europe and the U.S. It has currently supported more than 200 IoT-connected projects.



**EMNIFY**  
Launch date: 2014

EMnify offers a connectivity, control and management platform for internet of things and machine-to-machine devices.



**ERICSSON**  
Launch date: 1876

Ericsson's internet of things solutions cover a wide range of capabilities and functions including service enablement, data analytics and billing, data connectivity, and standardized APIs. Its products include its Smart Metering as a Service, an end-to-end automatic meter and data management solution.



**ESEYE**  
Launch date: 2007

Eseye is a global provider of machine-to-machine cellular connectivity for the internet of things. It aims to simplify enterprises' global device deployments.



**ETISALAT**

Launch date: 1976

Etisalat is a telecommunications company offering coverage of 3G and 4G mobile technologies, and is currently working with 5G services. The firm offers machine-to-machine solutions and controlling and monitoring services for both government and enterprises.



**EUROTECH**

Launch date: 1992

Eurotech researches and develops connected hardware, supplying products such as computer boards, modules, computer devices and systems, and offers software to create machine-to-machine and internet of things applications.



**FILAMENT**

Launch date: N/A

Filament provides blockchain hardware and software solutions for enterprise and industrial internet of things. The solutions enable secure connections, allowing devices and machines to safely interact and transact value.

**Enablers Scorecard** – Suppliers are listed in alphabetical order.



**FLEXERA SOFTWARE**

Launch date: 2008

Flexera Software develops software licensing, compliance, cybersecurity and installation solutions to help application producers and enterprises manage application usage and increase security. The company's FlexNet Producer Suite for intelligent device manufacturers is a part of a strategic solution for application usage management.



**FLEX LTD.**

Launch date: 2004

Flex designs, manufactures and distributes internet of things products and offers a range of aftermarket services, including prototyping, design, manufacture and logistics distribution, as well as its retirement of the market. The company also offers its expertise in a range of products from sensors and connectivity to security and software.



**FOGHORN**

Launch date: N/A

FogHorn Systems is a multi-tier internet of things application deployment platform that bridges information technology.





**FUSION INFORMATICS**

Launch date: 2000

Fusion Informatics was established in 2000 and offers internet of things support for 31 disparate industries, including banking, electronics, manufacturing, retail, security and utilities.



**GEM**

Launch date: 2016

GEM provides platform-as-a-service and platform-as-a-product offerings to improve productivity, quality, security and experiences for enterprises and individuals.



**GENERAL ELECTRIC**

Launch date: 1892

General Electric is rolling out internet of things tools for industries including automotive, aviation, chemical, food and beverage, healthcare, oil and gas. Predix, one of the company's main internet of things solutions, is an operating system and platform for building applications that connect to industrial assets, collect and analyze data, and deliver real-time insights.



**GLASSBEAM**  
Launch date: 2004

Glassbeam provides a software-as-a-service-based solution for product analytics based on machine log data.



**GLOBETOUCH**  
Launch date: 2010

Globetouch provides connectivity, management and deployment services for machine-to-machine and internet of things solutions. The company offers GConnect, a platform enabling internet of things connectivity through CloudSIM technology, and the firm's GControl platform provides connectivity management tools to launch and manage its services.



**GOOEE**  
Launch date: 2014

Designed for residential, commercial, retail, hospitality and industrial applications, Gooee has developed an enterprise scale internet of things lighting ecosystem that provides sensing, control and communication components enabled to integrate with an enterprise scale cloud platform for lighting manufacturers to connect to the internet of things.



**GOOGLE**

Launch date: 1998

Google Inc. develops a family of technology products that go from the known search system, desktop tools and operating systems to communication hardware, payment solutions and wearable devices.



**GRUNDFOS**

Launch date: 1945

Grundfos provides pump systems and water technology that is connected to the internet of things. The company works with family homes, commercial buildings and industrial complexes.



**GSMA**

Launch date: 1982

The GSMA is a trade body that represents more than 750 mobile operators worldwide, including device makers, internet companies and software providers. It is also connected with nearly 400 additional companies that are associate members in the body. GSMA seeks to provide more clarity on how the internet of things world will intersect with mobile and telecommunications.



**Hologram**

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**HOLOGRAM**

Launch date: 2013

Hologram is a platform for building internet of things products with a focus on cellular. The cloud-friendly Hologram Cellular Platform enables users to connect devices to the internet, and the company also offers software that allows users to talk to their devices, route incoming and outgoing messages, and open up secure purchasing power parity sessions via a secure application programming interface.



**Software**

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**HQSOFTWARE**

Launch date: 2001

HQSoftware is a full-stack Internet of Things, augmented reality and virtual reality development agency, offering a range of IoT services, platforms, frameworks and protocols. The team provides analytical, mobile and prototyping services as well as software integration and web services. Its portfolio includes 450 successfully delivered and launched projects for clients worldwide.



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**IBM**

Launch date: 1911

IBM develops an array of solutions among industries such as analytics, commerce, security, cloud and mobile, and its Watson internet of things platform extends the power of cognitive computing by enabling the connection of devices and the application of cloud-based services like device management, predictive and real-time data analytics or information management.



**IBOT**  
Launch date: 2006

iBot Control Systems is a research and development company providing a platform and other software intended to help manufacturers and other businesses use the internet of things.



**IMPINJ**  
Launch date: 2000

Impinj has developed a platform comprised of hardware and software using advanced intelligence network radio frequency identification to wirelessly connect to the internet of things. The platform provides businesses with real-time insights about their connected devices, and the company also offers gateways and reader chips.



**INDEEMA**  
Launch date: 2014

Indeema Software is a software solutions development company specializing in Internet of Things technology integration. It operates in web development, industrial IoT and mobile development.



**INFERNA**

Launch date: N/A

Infinera Corp. provides optical transport networking solutions, equipment and software and services worldwide.



**INFLUXDATA**

Launch date: 2012

InfluxData is the creator of open source time-series database InfluxDB. The company's technology handles massive volumes of time-stamped data produced by internet of things devices, applications, networks, containers and computers. It helps developers and organizations store and analyze real-time data to more quickly build and scale monitoring, analytics and internet of things applications.

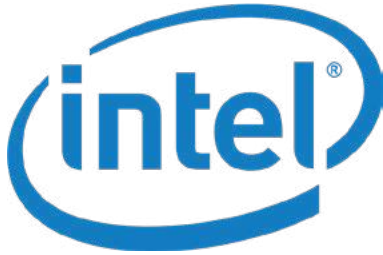


**INGENU**

Launch date: 2008

Ingenu enables long-range, low-power connectivity for internet of things and machine-to-machine communication. Its wireless network serves industries including smart cities, fleet management, smart agriculture, usage-based insurance and connected cars.

**Enablers Scorecard** – Suppliers are listed in alphabetical order.



**INTEL**

Launch date: 1968

Intel offers companies end-to-end platform of IoT solutions, and its platform provides reference models and a portfolio of products based on foundational technologies that let companies connect, secure and manage data from existing business assets that were previously unconnected from new smart and connected things.



**INTERDIGITAL**

Launch date: 1972

InterDigital provides wireless technologies for mobile devices, networks and services. The company has developed solutions used in digital cellular and wireless products and networks, including 2G, 3G, 4G and IEEE 802-related products and networks.



**IOTIUM**

Launch date: 2015

IoTium is a computer infrastructure and network security services firm providing solutions to manage industrial internet of things network infrastructure.

**Enablers Scorecard** – Suppliers are listed in alphabetical order.



**IRIDIUM**

Launch date: 2000

Iridium is a mobile satellite service company offering global coverage via cross-linked satellites, providing voice and data services for areas not served by terrestrial communication networks.



**ITRON**

Launch date: N/A

Itron provides end-to-end solutions to measure, manage and analyze worldwide energy and water usage. These include smart electricity, gas and water meters, smart network technologies and meter data management software.



**JASPER**

Launch date: 2015

Jasper, formerly Inoventive Technologies, provides an artificial intelligence-powered recruiter bot that uses machine learning and natural language processing to innovate the engineer recruiting space.





**Karamba  
Security**

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**KARAMBA**

Launch date: 2015

Karamba develops security solutions for connected cars, offering endpoint security for vehicles' externally connected electronic control units that allow only explicitly permitted code to run through them. Karamba also provides early detection of droppers and malware protection services.



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**KII**

Launch date: 2010

Kii's platform enables the building and development of internet of things programs to help connect devices to the cloud and allow users to monitor and manage them. The service also provides analytic insights and app development tools and support features such as geolocation, user and data management and A/B testing.



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**KORE**

Launch date: 2011

KORE is an internet of things and machine-to-machine service provider and network connectivity solutions developer, offering global coverage through Global System for Mobile, code-division multiple access and satellite data services.



**KPN**

Launch date: 1915

KPN is a telecommunications provider of network services such as IP-VPN, E-Line, E-LAN, corporate internet, managed video-conferencing, international private line, wavelength, IP transit and dark fiber. The company also offers device management and network analysis reporting.



**KYOCERA CORPORATION**

Launch date: 1959

KYOCERA Corp. is an electronic technology provider manufacturing multiple mobile devices. The company offers multiband modules supporting LTE, UMTS and Global System for Mobile, and are designed for automotive and various machine-to-machine applications.



**LANTRONIX**

Launch date: 1989

Lantronix is a provider of secure data access, connectivity and management solutions for internet of things and information technology assets.



**LINK LABS**  
Launch date: 2013

Link Labs offers low-power, wide-area network technologies for the internet of things. Its Symphony Link solution connects enterprise or industrial internet of things devices to the cloud. The company also offers an end-device-certified LTE Cat-M1 modem for battery-powered application.



**LORIoT**  
Launch date: N/A

LORIoT AG develops enterprise software for LoRaWAN and end-to-end applications, serving businesses, cities, municipalities and wireless network operators.



**LPRS**  
Launch date: N/A

LPRS provides low-power radio frequency solutions for original equipment manufacturers. It manufactures and supplies radio modules, antennas and sensors for the industrial, scientific and medical markets.



**M2M INTELLIGENCE**

Launch date: 2011

M2M Intelligence offers multinet network subscriber identity modules letting users connect their internet of things devices. The subscriber identity modules are designed to maximize the area from which the devices can connect, enabling them to reach better alternative networks. The firm has also deployed the M2M Insight, a portal allowing users to manage the performance of every device's subscriber identity module on a one-page dashboard.



**MACHINEMETRICS**

Launch date: 2014

MachineMetrics provides a fully automated manufacturing analytics solution, visualizations of real-time manufacturing production data, predictive notifications and historical analytics that allow workers to make more informed decisions based on real-time data.



**MAGICCUBE**

Launch date: 2014

MagicCube is a device-independent internet of things security platform that protects against on-device, cloud and network attacks. Its solution secures digital transactions on all devices, in transit and in the cloud, without the complexity and costs associated with many hardware deployments.



**MAGNETO**  
Launch date: 2009

Magneto IT Solutions creates mobile applications for internet of things devices to help clients enhance their usability and it also offers security solutions and simplified user experience design.



**MAGORA**  
Launch date: 2010

Magora develops software for companies that includes support for internet of things-enabled devices. It also creates custom software solutions for its clients.



**MICROCHIP**  
Launch date: N/A

Microchip provides microcontroller, analog, field-programmable gate array, connectivity and power management semiconductors.



**MICROCHIP**

Launch date: 2011

Mindinventory is a web development company that offers IoT app development services. The company, established in 2011, provides access to more than 130 IoT technologies and partners, including Amazon Web Services and Google Cloud.



**MNUBO**

Launch date: 2012

Mnubo provides Big Data and analytics to the internet of things and machine-to-machine space. The company assists with the development of “smart objects” and works with clients in the wearables, home, automotive, industrial and health care spaces.



**MOBIQURITY**

Launch date: N/A

Mobiqurity is a mobile computing professional services firm that helps clients design, develop and deploy custom solutions.



**MONGODB**  
Launch date: N/A

MongoDB offers a document database solution to help businesses in a variety of industries leverage data to create new security applications and improvements.



**MOVIDIOUS**  
Launch date: 2005

Movidius develops vision processor chips, software and development tools, and its products can be applied in different industries like robotics or smart security.



**MYDEVICES**  
Launch date: 2013

myDevices develops a white-label internet of things platform providing a range of services, including device installation, activation, communication and management. The solution allows for data management capabilities, including real-time streaming and analytics and visualization capabilities. The service also includes features like subscription management and back-office tools.



**MYRIOTA**

Launch date: 2015

Myriota is an Australian company that provides low-cost access to high-value small data in remote locations.



**NETBURNER**

Launch date: 1998

NetBurner offers development kits for internet of things devices, enabling developers to create or modify the devices. NetBurner also offers Ethernet servers and core modules for network enabling.



**NEURA**

Launch date: 2013

Neura is an internet of things data management company that protects users' privacy by establishing digital identities for them which they alone can manage. It allows users to connect their accounts to exchange personal data for services.





**NEXCOM**

Launch date: 1982

NEXCOM is an intelligent solutions provider focusing on the internet of things, intelligent platforms and services, internet of things automation solutions, intelligent digital security, mobile computing solutions and network communication solutions.



**NEXENTA**

Launch date: N/A

Nexenta provides open-source, software-based enterprise storage solutions including cloud and virtualization-optimized storage management and plugins.



**NOVELTI**

Launch date: 2014

Novelti is a Big Data software company that designs middleware for data scientists and developers.



**NUTANIX**

Launch date: N/A

Nutanix Inc. develops and provides enterprise cloud operating system software including infrastructure, data protection, Big Data and other solutions for the education, energy and utilities, financial services, healthcare, retail, service provider, state and local governments and the U.S. government.



**NXP**

Launch date: 2006

NXP focuses on the development and deployment of automotive semiconductor solutions and general purpose microcontroller products.



**NWAVE**

Launch date: 1988

Nwave is leveraging its low-power, wide-area wireless network, parking space sensor, analytics and payment technologies to disrupt the transportation market by acquisition, analysis and real-time provisioning of vehicle parking data.



**OPTION**

Launch date: 1986

Option offers wireless solutions enabling machine-to-machine communication. The offerings also provide security, processing and management services designed for the retail, transportation, smart building, smart city, smart energy and smart home markets.



**ORACLE**

Launch date: 1977

Oracle develops and offers cloud applications, platform services and engineered systems. The company's internet of things solutions allow businesses to connect data from devices, perform real-time data and predictive analytics, and allow enterprise and mobile applications to control devices. Oracle IoT cloud services also allow for different features including endpoint management and integration standardization.



**ORANGE**

Launch date: 1988

Orange is a Spanish telecommunications corporation that offers machine-to-machine connectivity solutions. The company has rolled out a range of complementary long-range, wide-area solutions as well as LTE-M technology across its 4G networks in Europe.



**ORBCOMM**

Launch date: 1993

ORBCOMM is a machine-to-machine communications solutions developer that operates a commercial satellite network dedicated to machine-to-machine management operations. The company's services include global satellites, cellular and dual-mode network connectivity, hardware, web reporting applications and software. The solutions are focused on the tracking, monitoring and controlling fixed and mobile assets in industries including transportation, oil and gas, heavy equipment and government.



**OSDB**

Launch date: 2017

OSDB builds internet of things web applications, including via Java and Javascript. Its solutions help clients to better and more easily control their smart home devices and other technologies.



**PARTICLE**

Launch date: 2011

Particle is an IoT device platform that enables businesses to build, connect and manage their connected solutions in an easy way. Particle securely connects devices to web and mobile apps so that users can securely control and collect data from their devices. Their portfolio of products includes the Particle Cloud, a cellular internet of things subscriber identity module card and data plan, and cloud-connected microcontrollers.

**Enablers Scorecard** – Suppliers are listed in alphabetical order.



**PIXELCRAYONS**

Launch date: 2004

PixelCrayons is an Indian mobile and web app software development company that offers scalable solutions leveraging artificial intelligence, augmented and virtual reality, blockchain, Internet of Things and machine learning.



**PLUME**

Launch date: 2014

Plume offers Plume Adaptive Wi-Fi, a self-optimizing network powered by a cloud that adapts to users' homes in real time so that every room and device receives optimized internet connectivity.



**PROGRESS SOFTWARE**

Launch date: 1981

Progress Software offers platform and tools for the development of business applications, enabling the deployment of interfaces for different types of devices and offering Big Data connectivity capabilities.



**PROSEGUR**

Launch date: N/A

Prosegur provides comprehensive security services for homes and businesses.



**PTC**

Launch date: 1985

PTC is an American software company that works within the internet of things, augmented reality and application life cycle management industries, among others. The company's internet of things solutions include the ThingWorx Platform, which allows businesses to develop applications; the Axeda Machine Cloud, a cloud-based service for managing connected products; and Coldlight, the company's analytics platform.



**PUBNUB**

Launch date: 2009

PubNub offers developers the ability to connect, scale and manage real-time applications and internet of things devices, and its Data Stream Network enables simultaneous device connections into a single network.



**QORVO**

Launch date: N/A

Qorvo Inc. provides radio frequency solutions and technologies for mobile devices, infrastructure and defense and aerospace applications.



**QUALCOMM**

Launch date: 1985

Qualcomm designs and markets wireless telecommunications products and services, developing a wide portfolio of connectivity-based products, enabling connections and interactions across a variety of networks. Its technologies are designed for most of the internet of things markets.



**R-STYLE LAB**

Launch date: 2006

Software provider R-Style Lab specializes in internet of things solutions, covering mobile, wearable and more traditional web applications in the connected economy.



**RUCKUS**

Launch date: 2004

Ruckus Wireless provides wireless systems for the internet infrastructure market, having developed a wide range of smart Wi-Fi products for both indoor and outdoor usage. The Ruckus Wireless Wi-Fi platform offers various capabilities, including location analytics and engagement technology.



**SALESFORCE**

Launch date: 1999

Salesforce is a developer of cloud computing services for sales, service, marketing, community, analytics, apps and the internet of things. The Salesforce IoT cloud enables users to connect data from every device, sensor, website and interaction and take smarter, more personalized actions by getting better insights and real-time customer actions.



**SAP**

Launch date: 1972

SAP develops a range of products, including a cloud platform that allows users to manage and monitor remote devices, create machine-to-machine apps and develop internet of things solutions. The company covers many industries, including consumer products and retail, energy and natural resources, and financial and public services.





**SCADAFENCE**

Launch date: 2014

SCADAfence offers cybersecurity solutions that ensure the operational continuity of industrial controls system (ICS)/supervisory control and data acquisition (SCADA) networks. The company focuses on smart manufacturing sectors, such as pharmaceutical, chemical, food and beverage and automotive, that are adopting industrial internet of things and industry 4.0 technologies.



**SCHNEIDER ELECTRIC**

Launch date: 1836

Schneider Electric has developed a software infrastructure for smart cities that enables devices, systems and people to connect. The company also offers a real-time condition management solution that collects data from sensors to the cloud, analyzes and converts it into meaningful insights.



**SCIENCESOFT**

Launch date: 1989

ScienceSoft is headquartered in the U.S. and provides information technology consulting and custom software development services for more than 550 IT professionals located internationally. It serves customers such as Baxter, eBay, IBM, M&T Bank, NASA JPL, Nestle, T-Mobile, Walmart and others.



**SEMTECH CORPORATION**

Launch date: 1960

Semtech Corp. develops analog and mixed-signal semiconductor products, and created the LoRa radio frequency platform, a two-way wireless solution that works as a complement for machine-to-machine cellular or Wi-Fi infrastructure. It provides a way to connect battery-operated and mobile devices to the network infrastructure or endpoint. The company's products also include power management, video broadcasting and circuit protection between others.



**SEQUANS COMMUNICATIONS**

Launch date: 2003

Sequans Communications is a 4G chipmaker, offering WiMAX and LTE chips designed for internet of things devices. The company develops LTE chips for devices such as wearables, smart utility meters, industrial sensors, vehicle telematics, alarm panels and retail kiosks.



**SEQUIADB**

Launch date: 2011

SequoiaDB develops and provides commercial support for open source database SequoiaDB, a document-oriented NewSQL database that supports JavaScript Object Notation transaction processing and SQL query. The database can act as a standalone product that interfaces with applications that provide horizontally scalable data storage and processing functions, or serve as the front end for Hadoop and Spark, enabling both real-time query and data analysis.

# SIEMENS

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**SIEMENS**

Launch date: 1847

Siemens is a technology company offering electronics and electrical engineering services for the automation industry, energy and health care markets. The company offers applications of internet of things technologies focusing on electrification, automation and digitalization, including wind turbines connected with sensors, smart factories and internet of things security solutions.



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**SIERRA WIRELESS**

Launch date: 1993

Sierra Wireless offers wireless solutions and has developed a portfolio of 2G, 3G and 4G embedded and networking solutions (routers and gateways), integrating with their secure cloud and connectivity services and management solutions. Its networking solutions provide connectivity, location-based services and remote monitoring.



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**SIGFOX**

Launch date: 2009

Sigfox is wireless network provider with networks designed to connect low-energy devices and enable low-energy consumption, device-to-cloud connectivity and a system to collect data from sensors and devices.



**SIGHT MACHINE**

Launch date: 2011

Sight Machine provides an analytics platform that helps address enterprises' quality and productivity challenges.



**SILICON LABS**

Launch date: 1996

Silicon Labs is a provider of silicon, software and tools for the IoT, internet infrastructure, industrial automation, consumer and automotive markets. Among others, the firm offers microcontrollers, wireless system-on-a-chip services and sensors for the internet of things as well as advanced timing and power management chips for internet infrastructure and industrial automation.



**SILVERSPRING NETWORKS**

Launch date: 2002

SilverSpring Networks offers a comprehensive suite of internet of things networking solutions for critical infrastructure. The SilverLink Network offers cities and utilities worldwide with solutions for smart electricity, gas, water and city services.



**SKYWORKS**

Launch date: 1962

Skyworks wirelessly provides analog semiconductors to connect people, places and things across applications within the automotive, broadband, cellular infrastructure, connected home, industrial, medical, military, smartphone, tablet and wearable markets. Its internet of things product portfolio includes amplifiers, attenuators, front-end modules, power management and switches.



**SOFTEQ**

Launch date: 1997

Softeq develops of web applications, embedded software and wearables that can connect to the internet of things.



**SORACOM**

Launch date: 2014

Soracom is a platform enabling data transmission and connectivity for the internet of things and machine-to-machine markets. The firm offers mobile data transmission using LTE/3G lines as a means of communication. The platform also allows users to manage and monitor the internet of things devices.



**SORBA**  
Launch date: N/A

SORBA provides platforms and services with offerings designed to gather and analyze data from sensors, and include industrial data collection, machine learning and predictive analytics.



**SPRINT**  
Launch date: 1899

Sprint provides wireless and wireline telecommunication services to consumer, business and government users. Through its various subsidiary companies, Sprint also offers wireless voice, messaging and broadband services.



**STMICROELECTRONICS**  
Launch date: 1987

STMicroelectronics is a semiconductors producer for several industries, including micro- electro-mechanical systems and sensors, power discrete, advanced analog products, and embedded processing solutions. It also has an automotive products portfolio including elements going from powertrain, safety and car body to infotainment.



**STORMAGIC**

Launch date: 2006

StorMagic provides a digital storage area network. Its offering can be used IoT projects that require small IT footprints.



**SWIM.AI**

Launch date: 2015

Swim.AI Inc. develops real-time analytics software marketed to IoT developers, manufacturers, municipalities and vendors. Its flagship product is its SWIM EDX, which is designed to make predictions based on streaming edge data.



**SYNAPSE WIRELESS**

Launch date: 2008

Synapse Wireless provides software, hardware, and networking solutions to develop, deploy and manage connected devices. Its SNAP solution is designed to help businesses develop, connect, control and manage networks of "Things" (devices and gateways), securely. SNAP enables the integration between the Things of IoT with Cloud-based IoT Platforms. Synapse also offers a range of hardware products including modules and wireless lighting controls.



**TAOGLAS**  
Launch date: 2004

Taoglas is a provider of external, embedded and base station antenna solutions for M2M applications. The firm enables wireless device manufacturers with telematics and automotive, smart-grid, metering and telemetry, home automation, remote monitoring and medical applications.



**TECHAHEAD**  
Launch date: 2009

TechAhead provides app development solutions to companies in the agriculture, eCommerce, FinTech, healthcare and smart home development industries.



**TELE2**  
Launch date: 1986

Tele2 is a telecom operator offering mobile services, fixed broadband and telephony, data network services, cable TV, and content services. The company delivers connectivity and enables management of the IoT connections.



*Telefonica*

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**TELEFONICA**

Launch date: 1924

Telefonica is a platform provider enabling an automated communication process between machines. The company offers connectivity services to a range of industries including automotive, utilities, vending machines, e-health and consumer electronics, among others. Telefonica's platforms boast features like smart device control, business and fleet management as well as connected car and tracking intelligent solutions.



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**TELENOR**

Launch date: 1885

Telecommunications company Telenor offers voice, data, Internet, and content services. Telenor Connexion is a Telenor's dedicated IoT company which offers: a global Managed Connectivity solution that automates the delivery and management of mobile services to connected devices; Telenor Cloud Connect, an end-to-end solution allowing users to add digital services to their products and Telenor ARTS, a data analytics solution especially designed for IoT devices that enables customers to collect data and insights.



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**TELIT**

Launch date: 1986

Telit's portfolio of IoT products includes cellular communication modules, GNSS, short-to-long range wireless applications and IoT connectivity plans. The firm also offers IoT platform services, a suite of management tools enabling connectivity, device and data control. Telit's solutions are used by the smart transportation, agriculture, retail, health care, automotive, oil and gas, smart manufacturing, smart energy and smart buildings industries.



**TELSTRA**

Launch date: 1901

Telstra offers telecommunications service and information service technologies. The company provides internet solutions for mobile phones, tablets and smart homes. It has also developed a kit of smart home devices including energy automation (with smart plugs and sensors) and a monitoring system (with cameras and sensors).



**TEMPOIQ**

Launch date: 2016

TempoIQ is real-time IoT analytics platform which offers storage, analysis and insights of data from connected applications. Besides, the service enables users to create alerts and monitor the stream of IoT data and analytics, warning them of any change or critical condition.



**TEXAS INSTRUMENTS**

Launch date: 1930

Texas Instruments (TI) develops and commercializes semiconductors, wireless connectivity technologies, microcontrollers, processors and analog solutions. The company offers IoT solutions for multiple industries, including wearables, smart manufacturing, health care, automotive, smart cities and home automation.



**THROUGHTTEK**  
Launch date: 2008

ThroughTek is a solution provider for cloud connection platform. Their main product is the Kalay Platform, an end-to-end IoT solution and software service, enabling solution providers and device manufacturers to easily create their own IoT ecosystems.



**T-MOBILE**  
Launch date: 1999

T-Mobile's 4G LTE network delivers wireless experiences to customers. The company offers the M2M Hub, a solution that provides businesses with an online tool to deliver and manage IoT connectivity. T-Mobile also manufactures modules and chipsets to enable connectivity.



**TUYA**  
Launch date: 2014

Tuya is an IoT solutions provider best known for its signature Tuya Smart platform. The product consists of several embedded modules to seamlessly connect lights, switches, sensors, plugs, cameras and appliances to an IoT hub.

**Enablers Scorecard** – Suppliers are listed in alphabetical order.



**UBIQUITI NETWORKS**

Launch date: 2005

Ubiquiti Networks manufactures wireless data communication products for enterprise and wireless broadband. Ubiquiti products range from connectivity software, wireless radios, routing and switching products to Wi-Fi-connected video cameras and intelligent phones.



**UNABIZ**

Launch date: 2016

UnaBiz is the exclusive operator of Sigfox low-power wide-area networks (LPWAN) in Singapore, Taiwan, designed to support IoT products. The company also provides energy-efficient IoT wireless infrastructure and devices.



**UPTAKE**

Launch date: 2014

Uptake Technologies is a predictive analytics platform developer with customers in the construction, healthcare, insurance and manufacturing industries, among others.



**VATES**

Launch date: 1991

Vates was founded in 1991 as an information technology provider and now develops internet of things-enabled software solutions for its clients. It is based in Argentina and supports services for clients in several international markets, including Chile.



**VDOO**

Launch date: 2017

VDOO provides IoT security solutions, including automation, certification, embedded device research and malware control. Its customers consist of private corporations as well as government intelligence and defense agencies.



**VERIZON**

Launch date: 1983

Verizon Enterprise offers networking products, security solutions and cloud and IT infrastructure services. The company also offers ThingSpace Develop, an IoT platform that allows the users to develop, simulate and test creations.



**VIRONIT**  
Launch date: 2004

Launched in 2004, VironIT offers IoT software development, maintenance, updates and support for applications and clients with-in Eastern Europe.



**VODAFONE**  
Launch date: 1991

Vodafone is a communications company that offers business, mobile, hosting and cloud services. The company also works in the machine-to- machine industry, developing M2M terminals, asset tracking, energy data management and retail solutions between others.

New!



**VOLANSYS TECHNOLOGIES**  
Launch date: 2008

VOLANSYS is an internet of things company that offers an integrated portfolio of services covering product manufacturing, cloud engineering and mobility. The company offers home and industrial internet of things solutions that are compatible with popular connected devices.

**Enablers Scorecard** – Suppliers are listed in alphabetical order.



**W•SENSE**  
Launch date: 2012

W•SENSE is a research and development team grown out of Rome's Sapienza University in 2012. It focuses on communication systems that utilize the internet of things, particularly the internet of underwater things and their potential applications.



**XAGE SECURITY**  
Launch date: 2016

Xage Security seeks to create internet of things-enabled security solutions for industrial automation. One thousand global companies currently use its industrial internet of things offerings.



**Xebrum**



**XEBRIUM**  
Launch date: 2013

New!

Xebrum specializes in client-server and database technologies, embedded systems and mobile and desktop application spaces. The company designs and delivers complete solutions for product engineering solutions.



**ZEBRA**



**ZEBRA**

Launch date: 1985

Zebra designs and manufactures barcode printing and real-time locating systems, including printers, radio-frequency identification software and other supplies.

**ZTE**



**ZTE ENTERPRISE**

Launch date: 1985

ZTE Enterprise develops connectivity products. Its offering includes smartphones, routers and cloud-based management systems. The company also develops railway communication solutions and provides technical consulting services in the energy sector.



# ABOUT

## **About the Tracker**

The PYMNTS Intelligence of Things Tracker® brings you the latest news, developments and insights from the biggest players across the IoT ecosystem. Each month, we look at what companies are doing across the ecosystem and in terms of bringing greater connectivity to everyday items and expanding connected networks.

## **Feedback**

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