



COMPASS INTELLIGENCE

DELIVERING METRICS-DRIVEN INTELLIGENCE & INSIGHTS

Compass Intelligence 2018 Tech Trends

A Review of Major Tech Trends and Highlights of the Annual Awards

June 2018

www.compassintel.com



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This report was prepared by Compass Intelligence, LLC.

About Compass Intelligence

Compass Intelligence is one of the leading market analytics and consulting firms specializing in metrics-driven market intelligence and consulting focused on the mobile, Internet of Things/M2M, green technology, and emerging technology markets. Compass Intelligence provides a number of key services including strategic advisory, market sizing/modeling, competitive benchmarking, executive-level consulting, and turn-key survey services. Providing quality services over 10 years, many of the top technology vendors rely on Compass Intelligence’s expertise and insights to make better and more informed planning, strategy, and development decisions. For more information, visit <http://www.compassintelligence.com>.

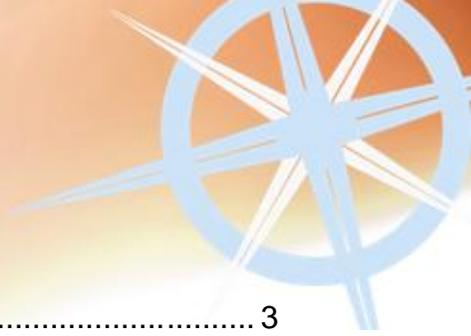
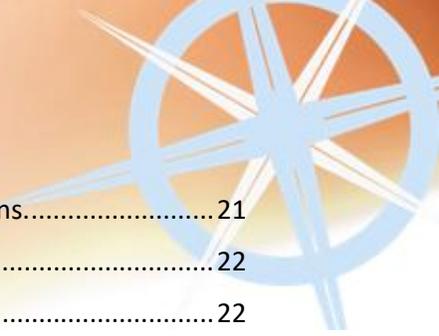


Table of Contents

Table of Contents	3
Introduction	5
The 2018 Compass Intelligence Annual Awards	6
IoT Awards Highlights	6
Inseego	7
ADLINK Technology	7
Spireon	8
Aeris.....	9
Roambee	10
Camgian Microsystems.....	11
Mobile Awards Highlights	12
PTC.....	13
MobileIron	14
NEXT Biometrics.....	14
Bamboo Mobile Awards Highlights.....	15
ecoATM Gazelle	16
HYLA Mobile	16
Compass Intelligence Selected Awards Highlights	17
Sprint	18
Kaazing & PDC	19
Top Tech Trends of 2018 and a Look Ahead	21



- 1. Businesses Leverage Blockchain for Processes, Operations, and Transactions..... 21
- 2. We move from Business Transformation to The Digital Business. 22
- 3. Over-hyped Marketing Terms Come Together for Business. 22
- 4. The Internet of Things (IoT) Proof of Concept Phase (PoC) is Over. 23
- 5. Mobile and Remote Workforces will be Necessary to Access Global Talent. 24
- 6. Robotics will Not Threaten but Enhance our Jobs..... 24
- 7. Autonomous Vehicles are on the Horizon. 25
- 8. The On-Demand Economy Drives New Mobile Customer Experiences. 26

Introduction

Compass Intelligence is its 6th year of producing the annual awards program and launched the A-List in M2M awards 8 years ago. Today's Compass Intelligence Annual awards program recognizes and honors companies who have made significant contributions, introduced innovative technologies, launched creative products, and overall impressed or impacted the overall market and of course our voters, the analyst and press community. Categories run across three primary topical umbrellas including Mobile, IoT, and Bamboo Mobile. Bamboo Mobile is a sub-brand that recognizes companies who are contributing to a more sustainable environment, reusing and recycling materials, and contributing to green tech initiatives. In addition to the 3 main award umbrellas, Compass Intelligence also recognizes up to 6 products/solutions or companies that have made outstanding contributions in innovation, technology advancement, and have contributed a positive impact to the overall technology industry.

"It is a privilege to get to know new and emerging companies, products, and solutions each year. Compass Intelligence is honored to recognize the best of the best each and every year," states Stephanie Atkinson, CEO of Compass Intelligence.

As part of this year's award program, Compass Intelligence opted to share an overview of some of the top companies, highlight a few of the award recipients and share more around the top trends impacting the tech markets today. In this executive summary, we hope you learn more about what's driving the mobile and IoT market today and what is on the horizon, along with learning insightful and engaging content about some of the top companies, products, and solutions that were awarded in this year's Compass Intelligence awards.

2018 CompassIntel Awards



The 2018 Compass Intelligence Annual Awards



IoT Awards Highlights



The 2018 Compass Intelligence IoT Award recipients are listed below:

IoT/M2M/Connected Solutions	Award Recipient
Connected Building: Smart Lighting	Cree
Connected Building: Smart Development and Design	Temboo
Connected Building: Commercial Product Innovation	United Technologies
Connected Solution Leadership: Fleet Management	Verizon Connect
Connected Solution Leadership: Asset Tracking	Inseego
Connected Health & Wellness Product of the Year	Oticon Opn
Connected Home Technology of the Year	Ring Video Doorbell
Connected Home Innovator of the Year	Samsung "The Wall" MicroLED TV
Connected Solution: Building & Energy Automation	Eaton
Connected Solution: Supply Chain Automation	HPE
Top IoT Organization Influencer of the Year	Industrial Internet Consortium
IoT Data: Edge Computing Company of the Year	ADLINK Technology
IoT Data: Data Analytics and Software Company of the Year	Bsquare
IoT Vehicle Telematics Company of the Year	Spireon
IoT App Dev / Platform of the Year for the Enterprise Market	Aeris
IoT Emerging Company of the Year for the Consumer Market	Android Things
IoT Emerging Company of the Year for the Enterprise Market	BlackBerry
IoT Enablement Company of the Year for the Enterprise Market	Particle
IoT Security Platform of the Year	Gemalto
IoT Semiconductor Company of the Year	Nvidia
IoT Sensor Company of the Year	Roambee
Industrial IoT Company of the Year	Camgian
Top IoT Service Provider of the Year	Globecomm

Source: CompassIntel.com

Inseego

www.inseego.com



Based in the US with operations worldwide, Nasdaq-listed Inseego Corp. is a leading global provider of software-as-a-service (SaaS) and solutions for the Internet of Things (IoT). The company sees airport asset tracking as a growth market and to that end has partnerships key players in the aviation ecosystem, including Undagrid and KLM Equipment Services. The Ctrack Asset Management and Tracking solution for Aviation provide owners of assets across airports a complete asset utilisation solution from tracking to business intelligence. At any given moment, an airport is filled with thousands of people, staff members, vehicles and other pieces of equipment, along with multiple billing systems. That is millions of dollars in investment moving around just a few square miles of area. Tracking and monitoring these assets in addition to seamless integration of 3rd party billing is vital to airports. Deployments are in airports worldwide and include two of the world's largest airports in either passenger or cargo traffic: Schipol Amsterdam and JATS Hong Kong.

ADLINK Technology

www.adlinktech.com



ADLINK Technology is a global leader in Edge Computing. Our mission is to facilitate the use of advanced technologies to help optimize the business performance of our customers. We provide robust boards, platforms and user interfaces; real-time data connectivity solutions; and application enablement for state-of-the-art industrial computing, such as machine learning via AI-at-the-Edge. Together, these also enable innovative end-to-end IoT solutions in support of operational excellence or new revenue streams. ADLINK serves customers across vertical markets including: manufacturing, networking and communications, healthcare, infotainment, retail, energy, transportation, and government and defense.

ADLINK is building a growing eco-system of industry leading technology partners; we are a Premier Member of the Intel® Internet of Things Solutions Alliance, a strategic embedded partner of NVIDIA, and an active contributor in many standards and interoperability initiatives, including Eclipse, ETSI, OCP, OMG, OpenFog, PICMG, ROS-I and SGeT.

ADLINK's products are available in over 40 countries, either directly or through our worldwide network of value-adding distributors and systems integrators. ADLINK is ISO-9001, ISO-14001, ISO-13485 and TL9000 certified and is publicly traded on TAEX (Stock Code: 6166).

Spireon

www.spireon.com



Spireon, Inc. is North America's leading connected vehicle intelligence company, providing businesses and consumers with powerful insights to track, manage and protect their most valuable mobile assets. The award-winning Spireon NSpire platform supports nearly 4 million active subscribers across the company's growing suite of products for new and used car dealers, lenders and financial institutions, rental car agencies, commercial and local fleet operators, and consumers. Learn more at www.spireon.com.

Spireon's NSpire cloud-based IoT platform powers all of the [company's solutions](#) across all markets served, including GoldStar, Kahu, FleetLocate and the FleetLocate Connected by OnStar solution, developed in partnership with General Motors. In 2017, the company introduced NSpire version 3.0, adding enhancements that dramatically increased scalability, type and volume of data collected, interoperability via open application programming interfaces (APIs) and mobility support. New micro-services were also added to accelerate development and go-to-market velocity across the company's software applications. As a result, Spireon was able to deliver more new products to market in 2017 than any other year in its history, including six major software applications, five new hardware devices and five new mobile apps.



Aeris

www.aeris.com



Aeris is a global technology partner with a proven history of helping companies unlock the value of Internet of Things (IoT). For more than a decade, we've powered critical projects for some of the most demanding customers of IoT services. Aeris strives to fundamentally improve businesses by dramatically reducing costs, accelerating time-to-market, and enabling new revenue streams. Built from the ground up for IoT and road tested at scale, Aeris IoT Services are based on the broadest technology stack in the industry, spanning connectivity up to vertical solutions. As veterans of the industry, we know that implementing an IoT solution can be complex, and we pride ourselves on making it simpler.

The Aeris® Mobility Platform (AMP) is a state-of-the-art cloud and micro-services-based IoT platform that provides the critical building blocks that enable the Internet of Things for enterprises and original equipment manufacturers (OEMs).

Leveraging significant experience and investment over the last decade, Aeris has developed AMP to meet the unique needs of enterprises and OEMs who are moving from unconnected products to connected services. AMP specifically addresses the requirements of the burgeoning Internet of "Moving" Things market segment with a robust service creation environment and a full suite of pre-built business services, including data analytics and monetization. By leveraging AMP, enterprises and OEMs can deliver a cloud-agnostic and flexible, globally connected program with market-leading services and unparalleled time-to-market.

AMP is powering the MITSUBISHI CONNECT vehicle program, which debuted in the all-new 2018 Eclipse Cross CUV. MITSUBISHI CONNECT provides owners with an intuitive and convenient driving experience, offering key functionality in safety, security and remote vehicle services that can be accessed in multiple ways: inside the vehicle, through the MY MITSUBISHI CONNECT mobile application or through the Mitsubishi vehicle owners' portal. Additionally, MITSUBISHI CONNECT can be paired with the Google Assistant on eligible Android phones, iPhones and Google Home™.

Roambee

www.roambee.com



Roambee Corporation(www.roambee.com) is a Silicon Valley IoT company transforming supply chain logistics and asset management inside, outside, and in-transit for global enterprise. The company provides sensor, software, cloud technology, and an open API platform to capture, deliver, report, analyze, and understand data worldwide. With Roambee, customers gain greater end-to-end control and visibility over their goods and assets, with real-time condition monitoring, alerts, and insights to help enterprises mitigate risk, improve and automate operational processes, and be more profitable.

Founded in 2013, Roambee works with hundreds of companies around the world. The team has decades of distribution & and logistics domain experience, including multi-code barcode, RFID, Wi-Fi, Bluetooth, GPS, GSM, enterprise application integration, and cloud application development expertise in international corporations and successful start-ups. Roambee is funded, in part, by Deutsche Telekom and MDI Ventures.

Innovation is at the core of all Roambee development. In addition to our portfolio of award-winning “Bee” solutions, Roambee is pushing the boundaries of real-time IoT sensors monitoring with an array of industry firsts. This includes:

- Asset-tracking and monitoring via NB-IoT in partnership with a leading telecommunications company
- Sonar-based solutions that locate specific containers from among the stacks for a major port management corporation
- Life-saving gas and heat detection safety protocols for high-voltage battery transport with one of the world’s largest automotive manufacturer

We are also in active field testing of our “BeeChain,” Roambee’s private blockchain solution, with a major consumer goods company. BeeChain addresses a wide variety of use scenarios, by turning human-less real-world sensor data into a verifiable secured block of truth frozen in time and shareable with any other recipients as desired. The first use case in which we are implementing BeeChain is a verifiable and transparent condition monitoring ledger for all parties playing in the supply chain. [Contact Roambee](#) to learn more about putting Roambee’s innovations to work for you.

Camgian Microsystems

www.camgian.com



Camgian's Egburt is an end-to-end software application specifically designed to intelligently manage large volumes of complex sensing and processing operations. Specifically, this includes processing requirements where large volumes of multi-source sensor data must be efficiently processed with low-latency. As such, Egburt leverages an edge computing architecture where the first level of multi-sensor processing is performed in-situ on an embedded server appliance.

The embedded server appliance, called the Egburt IQ Server, is cloud managed and configurable. It supports in-situ functions such as high capacity data ingestion, multi-sensor processing, high volume data storage and rich, bi-directional communications. A comprehensive suite of protocols support wired and wireless communications with a host of different in-situ sensor systems including data loggers, gateways and individual sensor devices. The IQ Server utilizes the Linux operating system and leverages hypervisor containers to isolate and execute the system's core and user functions. Additional functions such as message queuing, database storage, network management and secure communication channels are provisioned to run on the device. Remotely programmable software tools such as Python and R enable the development and implementation of locally executed signal processing, computer vision, machine learning, modeling and simulation and analytics capabilities. This distributed computing feature of the Egburt design, otherwise known as "edge computing" or "fog computing", supports complex decision processes and thus alerting from the network's edge, which minimizes communications bandwidth requirements, reduces latency, backend storage and processing costs.

The other major software subsystem is Insight™, Egburt's cloud hosted data acquisition and IQ Server control application. The primary functionality of Insight is to aggregate information from the IQ Servers for real-time alerting, post-event visualization and data analysis. Alerting mechanisms include SMS text messages and email notifications to pre-programmed users. Flexible data visualization tools support graphing of various formats (e.g. trend detections, line and bar charts, etc.) and the implementation of new presentation features as applications evolve according to user needs. The other core function of Insight is to manage the configuration and operation of field deployed IQ Server devices and their associated sensor networks. Insight is a secure, multi-tenant software platform capable of housing multiple users and hosting their custom applications. As such, each user has the capability to manage a hierarchy of sensor nodes specific to their application. Additional Insight functions include an import and export framework that supports automated data exchange with outside applications. The latest release of Insight™ includes separation of functions between the Insight™ Collection Engine (ICE) and the Insight™ Analytics Engine (IAE) enabling dramatic increases in throughput and scalability.

Mobile Awards Highlights



The 2018 Compass Intelligence Mobile Award recipients are listed below:

Mobile & Wireless	Award Recipient
Top B2B Smartphone Device	Apple iPhone 10
Top B2B Wearable Device	Vuzix M300
Top B2B Workplace Device	Samsung Galaxy Tab Active2
B2B Application: Internal Operations	Docusign
B2B Application: Client Facing	Salesforce Mobile
B2B Application: Enterprise Chat/Messaging	Contus Fly
B2B Application: Team Collaboration and Team Building	Google Docs
B2B Application: Augmented Reality	PTC (Thingworx Studio and Creo)
B2B Mobile Application: Workplace Productivity	CSG Workforce Express
Mobile Device Management (MDM, EMM)	MobileIron
Top B2B Cable Operator	Cox Business
Top B2B VoIP Service Provider	Comcast Business
Top B2B Wireless Provider	Verizon Business/Verizon Enterprise
Top B2B Wireline Provider	CenturyLink
Top B2B Robotics Vendor	Rethink Robotics
Top B2B Small and Mid-sized Business Provider	T-Mobile
Mobile Device Tracking & Security Software	Lookout
Top Innovation in Biometrics	NEXT Biometrics

Source: CompassIntel.com

PTC

www.ptc.com

www.ptc.com/en/products/augmented-reality



About PTC (NASDAQ: PTC)

PTC helps companies around the world reinvent the way they design, manufacture, operate, and service products in and for a smart, connected world. In 1986 we revolutionized digital 3D design, and in 1998 were first to market with Internet-based product lifecycle management. Today, our leading industrial innovation platform and field-proven solutions enable you to unlock value at the convergence of the physical and digital worlds. With PTC, manufacturers and an ecosystem of partners and developers can capitalize on the promise of the Internet of Things and augmented reality technology today and drive the future of innovation.

About Vuforia

The Vuforia platform continues to be widely adopted, with over 6,500 customers using Vuforia in industrial settings. In addition, more than 10,000 participants have joined PTC's Vuforia Studio Free Trial program, providing valuable feedback on use case priorities and hardware requirements, and over 500,000 registered developers use Vuforia as their preferred platform to create AR apps. With PTC's augmented reality solutions, you'll connect the digital and physical worlds and seamlessly interact with both. You'll transform more than just products, operations and services. You'll transform your business.

The dedicated PTC augmented reality business unit combines top talent and award-winning technologies, including the Vuforia® platform, the industry's most advanced and widely adopted AR technology platform. PTC has leveraged Vuforia to expand the capabilities of its market-leading ThingWorx® Industrial Innovation Platform, enabling customers to visualize, instruct, guide, and improve interactions with physical things.

PTC's augmented reality portfolio includes:

- Vuforia Engine – enables users to develop powerful cross-platform AR applications
- Vuforia Studio (formerly ThingWorx Studio) – enables users to reuse 3D CAD content, incorporate step-by-step instructions and IoT data, and scale AR authoring and publishing in industrial enterprises
- Vuforia View (formerly ThingWorx View) – with this universal browser, users can consume Vuforia Studio-created content on phones and tablets running iOS, Android, and Windows, as well as digital eyewear like Microsoft HoloLens
- Vuforia Chalk™ – enables technicians to get remote assistance from experts
- Creo® Design Share Solution – enables users to easily share Creo® 3D CAD content in augmented reality with partners and other stakeholders



MobileIron
www.mobileiron.com



MobileIron provides the secure foundation for modern work for companies around the world. MobileIron's mobile device management (MDM) capabilities give the fundamental visibility and IT controls needed to secure, manage, and monitor any corporate- or employee-owned mobile device or desktop that accesses business critical data. Services include simple device enrollment, automated device setup, mobile access control and secure connectivity, device compliance and policy enforcement, and mobile-aware IT infrastructure.

In addition, to meet the growing demand of consumer devices entering into the workplace, IT requires a unified endpoint management (UEM) platform capable of supporting end-users across multiple operating systems including Android, iOS, macOS and Windows 10. MobileIron secures any modern operating system, including iOS, Android, Windows 10, and macOS. Whether you manage BYOD, corporate-owned, or a mix of devices, MobileIron can secure it all across any modern operating system. MobileIron can also secure any cloud service because the platform is completely standards-based.

NEXT Biometrics
www.nextbiometrics.com



NEXT provides secure easy-to-use fingerprint sensor technology for authentication in the smart card, government ID, access control and notebook markets. The company's patented NEXT Active Thermal™ principle allows the development of large, high quality fingerprint sensors in both rigid and flexible formats. NEXT Biometrics Group ASA (www.nextbiometrics.com) is headquartered in Oslo, with sales, support and development operations in Seattle, Silicon Valley, Taipei, Prague and Shanghai. Products include:

- Flexible Fingerprint Sensor Chipset
- Fingerprint Sensor Modules
- USB Fingerprint Readers
- Development Kits



Bamboo Mobile Awards Highlights



The 2018 Compass Intelligence Bamboo Award recipients are listed below:

Bamboo Mobile	Award Recipient
Consumer Mobile Recycling/Buyback Program (Online)	ecoATM Gazelle
Consumer Mobile Recycling/Buyback Program (In-store)	Apple
Business Mobile Recycling/Buyback Program (Overall)	HYLA Mobile
Recycling/Reclamation Innovation & Support Vendor	Brightstar
Eco/Green Product Design	Apple Daisy Robot
Sustainable Mobile Network Technology	Juniper Networks
Eco/Green Innovator	OnRamp Access
Most Eco-Focused Carrier	Sprint

Source: CompassIntel.com



ecoATM Gazelle

www.ecoatm.com

www.gazelle.com



The pioneer of reCommerce, ecoATM Gazelle offers an easy way for consumers to purchase certified pre-owned electronics as well as the ability to earn money for smartphones, tablets, and computers in two convenient ways: through the Gazelle.com online marketplace or at the over 2,800 ecoATM kiosks in malls and retail locations across the country.

ecoATM is all about instant reward, with no salesperson, no fine-print and no wait – you get paid cash, on the spot, for the devices you no longer use. Consumers simply bring their unused devices to the kiosk of their choice, answer a few questions about the device, confirm their identity, and then receive their payment.

Gazelle offers consumers an online experience where they can enter information about their device and its condition to receive a value. Once a device is submitted and its condition is confirmed by the processing center, consumers are paid for its value in the manner they prefer. Gazelle sends the packaging and pays for shipping, so all consumers have to do is put the box back in the mail. The quote provided is good for 30 days, offering time for consumers to break in a new device and transfer the data from the old one before sending it in.

HYLA Mobile

www.hylamobile.com



Led by a deeply experienced team, HYLA Mobile is a privately held, US-based technology company backed by several well-known and widely respected private equity and venture capital firms. We service the \$17B secondary-use device market by focusing on technology rooted in automation, AI, and analytics – all with an uncompromising approach to quality, velocity, performance, data security and environmental standards. By maximizing device lifecycle and creating economic incentives for all participants in the ecosystem, we play a pivotal role in the development of the global economy and present incremental growth opportunities for carriers and businesses alike.



Compass Intelligence Selected Awards Highlights

2018 CompassIntel Awards



The 2018 Compass Intelligence selected Award recipients are listed below:

Compass Intelligence	Award Recipient
IoT Infrastructure Product of the Year	MultiTech: MultiConnect Dragonfly Nano
Government Cloud Advancement and Leadership of the Year	Cisco CloudLock
5G Infrastructure Company of the Year	Intel
Enterprise Wireless Network Innovation Product of the Year	Sprint: Magic Box
Enterprise Preparedness Product of the Year	DisasterAWARE Enterprise by Kaazing and PDC
New Production Innovation in IoT	Sigfox Connectivity as a Service

Source: CompassIntel.com

Sprint

www.sprint.com

www.sprint.com/magicbox



"Our breakthrough Sprint Magic Box technology continues to be recognized for its innovation, ease of deployment and cost-efficiency in expanding and improving LTE coverage indoors," said John Saw, chief technology officer at Sprint. "Magic Box is another important way that we've made the Sprint Network experience better for our customers."

Sprint Magic Box provides average indoor coverage of up to 30,000 square feet, but its signal also extends data coverage to Sprint customers in nearby businesses. Sprint Magic Box increases download and upload speeds on average by 200 percent, giving customers a better data experience while streaming videos, sharing large files, and using their favorite online apps and services on most Sprint devices. The company recently hit a milestone of more than 200,000 Sprint Magic Boxes distributed to businesses and consumers in more than 200 cities.

Sprint's network has dramatically improved, and with the significant investments the company is making as part of its Next-Gen Network strategy, it's getting better every day. This significant investment is designed to improve coverage, reliability, and speed across its nationwide network and launch of the first mobile 5G network in the United States in the first half of 2019. The next-gen network build out plan includes upgrading virtually all cell sites to triband service using 800MHz, 1.9GHz and 2.5GHz, adding thousands of new cell sites to expand coverage, and densifying the network with more small cells - including Sprint Magic Boxes - to increase capacity and speed, and deploying 5G technology.

Sprint (NYSE: S) is a communications services company that creates more and better ways to connect its customers to the things they care about most. Sprint served 54.6 million connections as of March 31, 2018 and is widely recognized for developing, engineering and deploying innovative technologies, including the first wireless 4G service from a national carrier in the United States; leading no-contract brands including Virgin Mobile USA, Boost Mobile, and Assurance Wireless; instant national and international push-to-talk capabilities; and a global Tier 1 Internet backbone. Today, Sprint's legacy of innovation and service continues with an increased investment to dramatically improve coverage, reliability, and speed across its nationwide network and commitment to launching the first mobile 5G network in the U.S. You can learn more and visit Sprint at www.sprint.com or <http://www.facebook.com/sprint> and <http://www.twitter.com/sprint>.

Kaazing & PDC
www.kaazing.com
www.pdc.org



In today's global economy, disasters constantly threaten the safety of your staff and disrupt your business operations. Storms, floods, earthquakes, wildfires, and other major hazards frequently trigger a domino effect, causing serious, and at times irreparable harm to your employees, suppliers and your company. Is your business prepared? Failing to Prepare is Preparing to Fail.

DisasterAWARE Enterprise™ is a SaaS global Risk Intelligence platform, with situational awareness, early warning, probabilistic modeling and natural disaster impact assessment tools, to help your decision-making and risk mitigation process, ultimately protecting people and business assets.





Awards related press releases:

[Compass Intelligence Press release](https://www.compassintelligence.com/press-releases/winners-announced-for-the-6th-annual-compass-intelligence-awards-in-iot-mobile-and-emerging-tech)

<https://www.compassintelligence.com/press-releases/winners-announced-for-the-6th-annual-compass-intelligence-awards-in-iot-mobile-and-emerging-tech>

[PTC Provides Industrial Companies Clear Path to Value with ...](#)

The Vuforia platform has received accolades from industry experts and analysts, including a recent award from **Compass Intelligence** for top ...

[Sprint Magic Box Continues its Winning Streak; Brings Home Two ...](#)

The 2018 Enterprise Wireless Network Innovation Product of the Year from **Compass Intelligence**. The global consulting and market analytics ...

[Inseego Wins Compass Intelligence Solution Leadership Award for ...](#)

In the "Connected Solution Leadership: Asset Tracking" category, **Compass Intelligence** recognizes leaders as solution providers who are ...

[Aeris Earns 2018 IoT Platform for Enterprises Award from Compass ...](#)

The 2018 **Compass Intelligence** Award recognizes Aeris for offering "a state-of-the-art cloud and micro-services-based IoT platform that ...

[Spireon's NSpire IoT Platform Wins New Product of the Year in 2018 ...](#)

IRVINE, Calif., May 3, 2018 /PRNewswire/ -- **Spireon**, the vehicle intelligence company, announced its NSpire 3.0 IoT platform was awarded ...

[Pacific Disaster Center software recognized as Enterprise ...](#)

Compass Intelligence is a leading market acceleration and research firm ... was launched on April 10, 2018, jointly by **Kaazing** and Hawaii.



Top Tech Trends of 2018 and a Look Ahead

1. Businesses Leverage Blockchain for Processes, Operations, and Transactions.

Blockchain allows users to share information and complete anonymous transactions. This technology is gaining hype. Blockchain offers an open, shared, decentralized data layer with data access to all stakeholders. These stakeholders include entities like city governments who use this technology to evaluate traffic patterns, car manufacturers who enhance driving experience, app developers who solve queries in real time, and healthcare providers who deliver personalized services on the basis of demographic profiles and usage patterns.

Enterprise specific blockchain use cases not only become real and in action but may even further accelerate AI and Internet of Things security. As we continue to hear about the possibilities of blockchain for the enterprise, Compass Intelligence believes we will see some major advancements in blockchain to enhance and improve enterprise applications and operations. Blockchain technology may have its skeptics but those are primarily driven around the bitcoin and cryptocurrency. But, what we have learned just as in other technologies, when we begin to evaluate the core architecture behind blockchain, many in the industry believe we will see a flurry of blockchain solutions launched within the next 24 months to support in things such as:

- Contract Management
- Government Bidding
- IT and IoT Security
- Transaction-based tracking and process flow management
- Medical Billing
- Supply Chain Management
- Insurance Process Claims and Filing
- Voting Fraud Management
- Home Mortgage Processing
- And other industries and applications that involve paper-intensive transaction and process flow

Key factors you must understand about blockchain...

Immutability - This refers to the capability of AI to evaluate more data and models and thereby enhance the worth of these models. Deep learning certainly helps in this context; it's the result of finding when and how, if provided a detailed dataset, to begin catch interactions along with latent variables.

Decentralized - With decentralized units, higher amounts of data can be processed and more efficient AI networks can be built. For example, when sharing the data amongst ecosystems or participants in a planet-scale ecosystem, such as the Web. Higher the data amount, the better the models could be.

Transparency - Blockchain protocols provide a tamper resistance worldwide public registry. This results in testing data & models like intellectual property assets with the copyright claim.



2. We move from Business Transformation to The Digital Business.

Businesses who have not embraced automation, cloud computing, wireless, and mobile enablement will not be able to compete or remain relevant in this growing online and eCommerce marketplace. Customer experiences and real-time engagement becomes the norm, and new and disrupting business models will completely replace industries altogether. We will continue to see more companies evolve and ramp up to over a billion in annual revenues and thousands to millions of customers or subscribers with little to no infrastructure or owned assets. Business models as we know today will become less relevant and legacy business education and classes will also need to adjust to meet this new economy.

Think about this...

- The largest taxi service owns NO cars.
- The largest global supplier has NO storefront.
- The largest accommodations provider owns NO hotels.
- The largest book seller is also one of the largest tech companies.
- The largest tech companies evolve to be content providers.

3. Over-hyped Marketing Terms Come Together for Business.

We as a tech industry often see a massive ramp up of tech terms being used in silos, but what is even more impressive is these over-hyped tech terms come together to advance consumer and industrial applications. Take for example artificial intelligence...as we use embedded chipsets with advanced analytics and machine learning at the chip level, these chipsets will be part of a more comprehensive autonomous vehicle architecture and will use things like computer vision, predictive analytics, computing at the edge, and robotics to bring the full AV system together. These AV cars and fleets will work in conjunction with sensors in the roadways, in cities, and in traffic lights to communicate, to select the best routes, to relay information to public safety, transport smart assets, and much more.

Blockchain	Cryptocurrency, distributed ledger systems
Artificial Intelligence	Advancing Machine Learning, Cognitive Learning
Virtual Reality/Mixed Reality	Simulation, Situational Awareness, Training, Mechanics
Robotics & Automation	Beyond Operations, Self Serving, Changing Experiences
"Smart" Everything	Embedded Chips and Connectivity, Analytics at Device Level
Quantum, Neural, Cognitive	Building Intelligence in Objects, Systems, Computing
Edge & Analytics	Actions & Performance as Close to the Device as Possible
Platforms	Bringing Pieces together, Management-Security-Moves/Changes/Adds, Visibility

Bringing IoT and emerging technologies together is where the real magic happens, and we will continue to see disparate technologies come together. Today, mobile, cloud, data analytics, and IoT are in many

cases not relevant to business unless working in conjunction with each other. Tomorrow, its machine vision, advance AI, VR and wearables in operations, and a web of connected sensor systems that interact to bring the future of work to the true Industry 4.0.

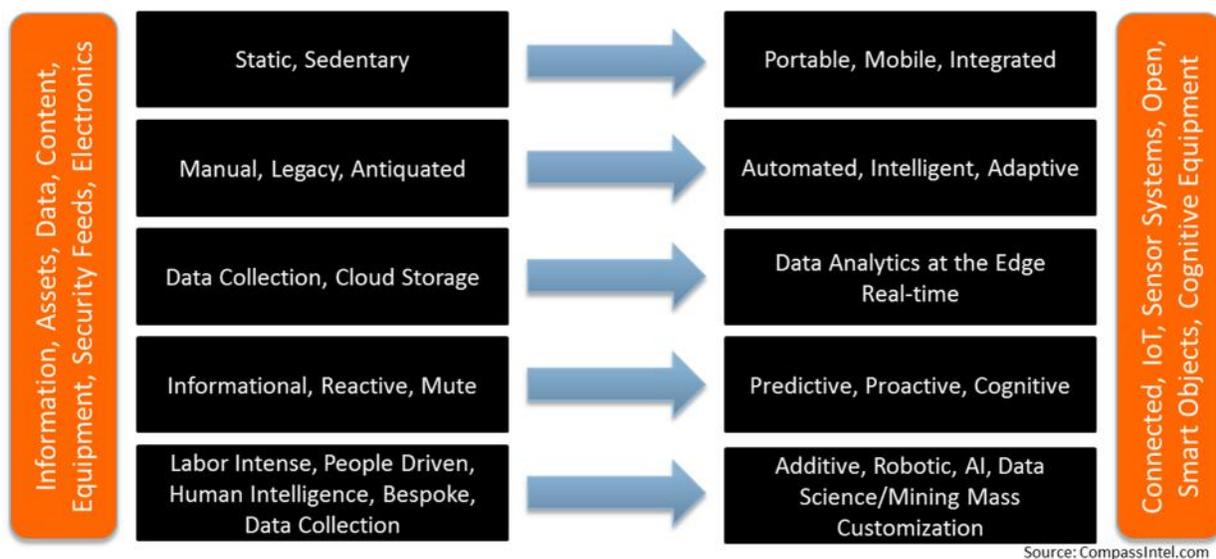
4. The Internet of Things (IoT) Proof of Concept Phase (PoC) is Over.

As shown in the below graphic, businesses of all sizes are moving from the left side of this equation to the right side. That being said and overheard at more than one tech conference this year, Compass Intelligence believes the industry is ready to move beyond the trial, pilot, and PoC stage of IoT. Of course, we will always have trials and pilots as part of the ongoing IoT exploration process, the industry is prime to learn and explore live deployments. There are a host of real and live use cases of successful, deployed and managed IoT solutions in many industries.

The industrial sectors have seen some of the largest volume of scaled IoT solutions including in the areas of:

- Oil & gas,
- Manufacturing,
- Transportation, and
- Automotive

Most of these have been driven around the areas of asset tracking, fleet management, monitoring and control systems, and the connected vehicle. Technology vendors serving both government and enterprise, will need to advance business development and marketing discussions to showcase actionable knowledge bases and tools to get buy in from decision-makers, and in addition will need to work across various departments and teams to scale solutions across a company. Take smart cities for example, money will need to be pooled across departments or will need to get creative to fund smart city investments, and this takes savvy sales and marketing teams that understand the industry and company ecosystem before winning the trust of clients and prospects.





5. Mobile and Remote Workforces will be Necessary to Access Global Talent.

The overall tech industry is already seeing talent gaps, especially when it comes to data scientists and data engineers. These advanced professionals go above and beyond programming, coding, and running analytic software but maintain strategic experience and expertise to evaluate overall business processes and operations, and know how to use the right tools, collate the most relevant data, elevate data for applications and response, and understand the ability to integrate with common business software and systems. Because we are already in a severe overall talent pool decline, companies will need to embrace the remote and global workforce like never before. This means the tools this new workforce uses will require enterprise chat, collaboration, any and mobile device access to business essentials, video conferencing, remote document management, and much more.

6. Robotics will Not Threaten but Enhance our Jobs.

Technology and automation has long replaced some of the most common business operations that were previously performed by humans, and this is the same case with robots. As heard by renowned SMU professor at last year's Telecommunications Industry Association conference, Dr. Shervani noted that labor will become an increasingly smaller part of our work day as we shift our focus to designing and making tools that enhance labor productivity and efficiency. Perhaps of comfort to many, Dr. Shervani asserted that robotics is not a threat, due to the decreasing overall global population, and that humans will need robots to keep up with production demand.

The industry will use robots to enhance many common and repetitive factory processes, customer service activities, and even onboarding and supply chain services like hotel check-in, order fulfillment, pick and place, parts retrieval, and even call center services. This may mean our workforce may need new skills training and even higher educational programs will grow to include more degrees in data science, robotics, and industrial systems. Traditionally, robotics and robot systems have been seen as something only used in factory or manufacturing settings. Expect to see a number of ways robots will be used in various industries including some of the below examples:

- RETAIL: eCommerce Fulfillment
- HEALTHCARE: Surgical and assisted surgical procedures
- EDUCATION: Education and entertainment applications
- TRANSPORT: Self-driving delivery and shipping solutions
- HOSPITALITY: Interactive and voice-automated Hotel and event ticketing and check-in
- PETROLEUM: Fuel and gas tank fill up on cars and fleets



7. Autonomous Vehicles are on the Horizon.

The Autonomous Vehicle (AV) market has the chance to disrupt industries in the transportation marketplace, as well as disrupt the way goods and services get transported and delivered throughout the world. Before we get too technical, let's focus on what this really means to us as consumers, consumers who drive our vehicles every day to work, school, leisure places, and events.

Below are some real-world scenarios on how AV will impact the consumer, imagine this...

- Scheduling your planned driving at the beginning of the week (work, taking kids to school, taking kids to sports activities, medical appointments, etc.) - knowing your fuel and mileage up front
- Riding alongside your kids on the way to school, working on homework, reviewing projects and activities for the day, and getting one-on-one time with your children and even spouse (if you carpool)
- Becoming productive in vehicles for work, watching the news while drinking your coffee, listening to a podcast or work-related video, getting an early start to your day with work calls or phone meetings or even video conference calls
- Feeling safe and secure, knowing the traffic ahead is something your vehicle is already aware of and is rerouting your normal commute to the school and office in a more efficient and safe route
- Listening to your vehicle provide you options to the closest donut or coffee shop, and verbally telling your vehicle your choice, your vehicle then drives you to that location (Imaging Alexa and Siri combined with your car)
- On a long road trip, your car knows the weather and road conditions on your route, and makes intelligent decisions to route your trip for the optimum safety and safest roads
- Your college kid, after a night on the town (think party and alcohol), is safely driven to his or her home and you can visibly see that he/she safely arrived at his/her college dorm through an alert





These are just basic scenarios, but the power of convenience and time is what AV will do for you as a consumer. Now let's explore business or industry impacts. Imagine this...

- Shipping, logistics, and transport becomes fully automated through scheduling, loading, and delivery
- The common man-made errors, mistakes, and risks go away...think driver fatigue, under the influence drivers, texting and driving drivers
- Smart routing is the norm, meaning your goods and services being delivered are routed as smart as can be around traffic and around bad weather
- Your crew of delivery drivers now have time for other important tasks like business meetings, logistics management, data entry or scanning, and much more
- Taxis, Uber-like Services, and ride-share have whole new meaning and the power of concierge and personal services are now even more enhanced because drivers are not "stuck" to the wheel (Think luxury and spa like services for business travelers)
- Commuter services transition as well, commuter-based AV become the norm and again personal and luxe services provide for convenience, personal touch, and catering to the customer

Again, for the business world this definitely changes the way we look at delivery, transportation, and logistics, but it also throws a wrench into traditional commuter and transport services. The industry needs to look at this from an opportunity stand-point and not focus on businesses, jobs, and services that become obsolete. Personal and customized services become the huge opportunity here.

8. [The On-Demand Economy Drives New Mobile Customer Experiences.](#)

The enterprise needs to become more agile where cognitive computing and artificial intelligence enables ongoing learning thus further supporting the "on-demand economy." We are already experiencing this today, as the customer is driving the need to bring LTE/5G to the vehicle and use technology to improve the home experience. Other examples of this "on-demand economy," which we know is always talked about is the Uber example. Making it simple for customers to get what they want in a completely new way that provides for a more seamless and less stressful experience.

Other examples of interesting new business models, that promote the "On-Demand Economy" include the following:

- Amazon Fresh – order groceries same day and get fresh food delivered to your home (City or Urban service)
- Monthly Retail Delivery – packaged and monthly recurring business model, customized to your interests, likes (Blue Apron, StitchFix, BarkBox, Postmates)
- Aggregate Business & Service Platforms – Travelocity, Mopp, AirBnB
- Healthcare Anywhere – DoctorOnDemand, GoToNurse, and new monthly health concierge services

As we think about varying industries and how they will evolve, remember to think about the customer first. How will your end-users' experiences be enhanced whether they are suppliers, consumers, or business partners by implementing IoT or automation at any level? What will drive scale and why? Will the new customer experiences DISRUPT current business models? Now don't get scared of this term,



“disrupt”...it may give off a negative connotation as it means disorderly or unruly. BUT, we are approaching a need to introduce this disorder to introduce new customer experiences that drive the on-demand economy and differentiate companies. The industry will continue to implement mobile, cloud, real-time platforms, and make use of the IoT to push the market to the peak.

In addition to these 8 Compass Intelligence trends, a few others to mention and we will be discussing more over the coming months in upcoming research include the following:

→ **Vehicles and fleets become network aware and multi-network reliant.**

- New A-List in Fleet Tracking/Management Index research coming in late June!

→ **Disparate ecosystems become IoT Ecosystems that Integrate with each Other.**

- Building an Ecosystem of Ecosystems
- Also heard at a recent Sprint IoT meeting in New York

→ **Green tech and sustainability initiatives will drive smart city projects.**

- Creative funding to spark smart city projects may come in different forms

→ **The secondary and used device market becomes even more relevant to the global economy.**

- Smartphone growth has flattened in terms of new subscribers, market penetration may have peaked.
- New opportunities may mean new demographics and new emerging countries.

→ **Software, Applications, and Developer activity becomes vital to the enterprise and IoT.**

- Content is king, but software is the fuel and platforms are the steering wheel.
- Connectivity is not as relevant, but priority and security of services will be vital.



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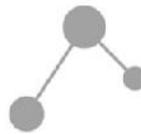


Research Areas



Mobile & Wireless

Wireless Devices, Recycling, Smartphones, Tablets, B2B, Enterprise, Competitive Modeling, Market Share, 5G, Mobile Edge Computing, Wireless Broadband



Internet of Things

Machine Learning, Deep Learning, Industrial Automation, Industry 4.0, Sensor Technologies, Data Analytics, Internet of Things, Connected Devices



Emerging Tech

Robotics, Artificial Intelligence, Blockchain, Augmented Reality, Wearables, Cognitive Learning, Autonomous Vehicles, Immersive Experiences

Attract & Engage [#B2B](#) and [#IoT](#) Customers With Researched and Actionable Content

