

2017

COMPASS INTELLIGENCE

DELIVERING METRICS-DRIVEN INTELLIGENCE & INSIGHTS



Executive Summary Reflections and Key Learnings from #IoT6 2017 Austin, TX

www.iot6exchange.com

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Prepared by Compass Intelligence



www.compassintel.com



Table of Contents

INTRODUCTION	2
SPONSOR DETAILS & ATTENDEE DEMOGRAPHICS.....	3
KEY HIGHLIGHTS OF IOT6 2017.....	5
KEY METRICS AND FORECASTS.....	11
FINAL WORD.....	12
IOT6 INFORMATION.....	13
IOT6 ADVISORY BOARD MEMBERS	14

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>

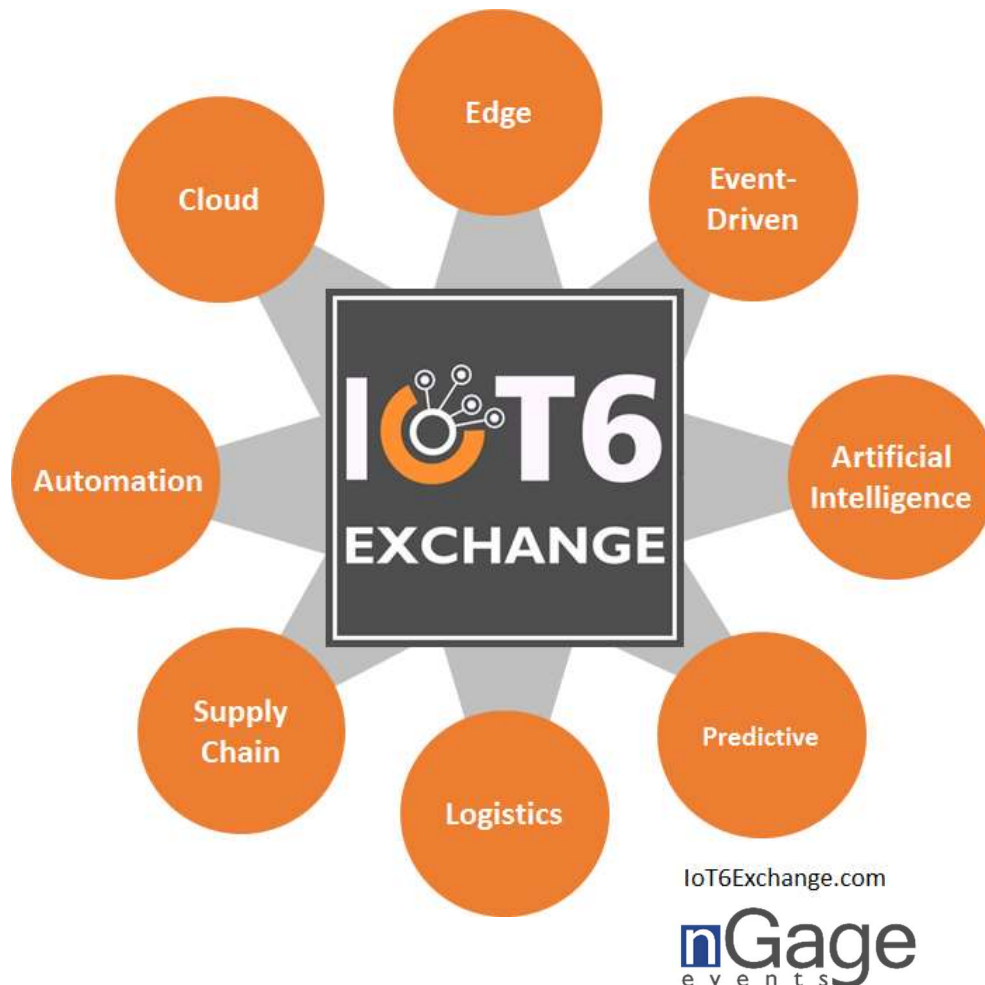


Introduction

The Industrial and manufacturing sector is a highly sophisticated and advanced segment of the economy. As such, its' demands for advanced technology, connected solutions, and operational automation is driving the adoption of IoT (Internet of Things) and IIoT (Industrial Internet of Things) solutions to enhance the delivery of goods and services, streamline logistics, and enhance processes across the supply chain. As Eric Simone, CEO of ClearBlade, stated, "Enterprise IoT is connecting the unconnected, and the convergence of complex IT (information technology) and OT (operational technology) systems." The most active IoT advancements are occurring in this targeted sector, as sensor technology, tracking, monitoring, and automation drive the manufacturing and industrial sectors far beyond other industries.

On October 10-12th, attendees participated at [IoT6 Exchange](#), a hosted and invite-only conference focused around, "Transforming Operations, The Supply Chain, and Manufacturing." The uniqueness of IoT6 involves an integrated approach to deliver hard-hitting content, a packed full and lively agenda, actionable use cases, one-on-one engagement, and unique learning experiences like no other IoT conference, and focused on decision-makers and influencers. This year the 2.5-day nGage Events conference was held at the Omni Barton Creek Resort & Spa in Austin, TX.

Key themes this year included the following:





Sponsor Details & Attendee Demographics

This is the 3rd annual IoT6 conference, and we were excited this year to focus in on the Manufacturing and Industrial sectors, as this targeted area around IoT brought a diverse group of decision-makers and influencers including technologists, engineers, data scientists, operations/logistics professionals, and CXOs. Our keynote sponsors included Dell, Intel, and VANTIQ; platinum sponsor included Insight, silver sponsors included ClearBlade, MOBI, DataRPM, Oracle, Smart Dog Services, Telit, and CB Technologies; and bronze sponsors included Alluvium and DMI. Conference partners included Compass Intelligence, BM2MC, The Silent Intelligence, CIO Executive Council, Sepharim Group, and IHS Markit.

Our Sponsors & Partners

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Conference Partners



Attendee Companies

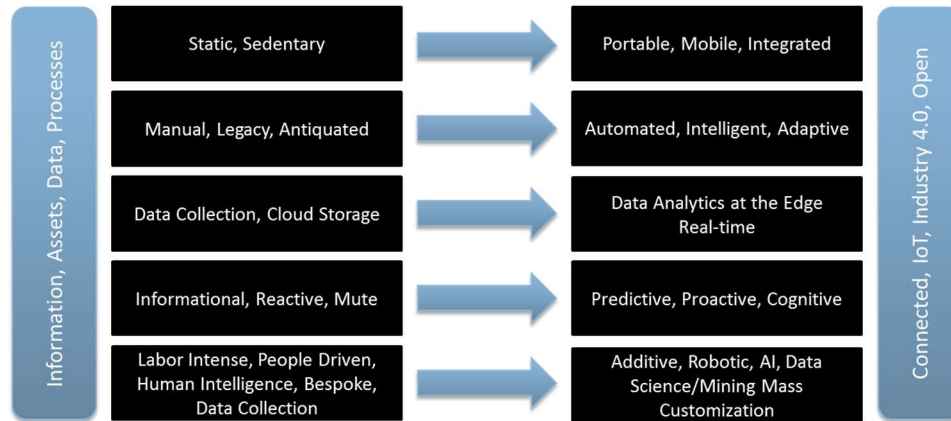




Key Highlights of IoT6 2017

As we evaluate the manufacturing and industrial sectors, Compass Intelligence has identified a transition when it comes to relevant operational information, core assets, data, and key processes. We are moving into a more connected ecosystem leveraged by Internet of Things technology and the adoption of Industry 4.0 that is more open, cognitive, integrated, real-time, and intelligent.

Business Transformation of the Manufacturing & Industrial Sectors, 2017

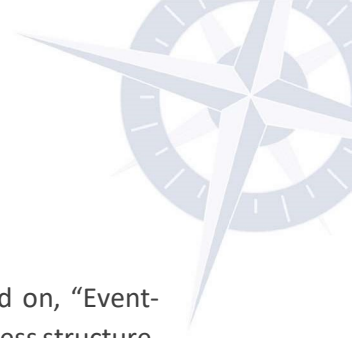


Source: www.compassintel.com

Edge

As a consensus, experts and thought leaders who discuss the state of the market, conveyed an overall need to push analytics to the edge or endpoint device. Also, it is noted that not all processing and analytics is required at the edge, but the most important, vital, and time-sensitive data and information should be processed and analyzed at the edge of the network. Non-vital and less time-sensitive data can be pushed to the cloud for periodic analysis when needed. When also discussing the edge, there was a clear discussion of fog computing. “Fog computing bridges the gap between data residing in the cloud and edge computing and intelligence,” says Kevin Terwilliger, IoT Solutions Director and Keynote Presenter of Dell. Customers may not want to move data back to the cloud. Fog can be mini data center at the base of tower or data center in a closet on manufacturing floor, Fog computing is expected to be a growing space for specific applications.

“Breaches are not what is shocking, but the time to detection..100 days or months. Advanced analytics is coming to market to solve it. Getting data sets and models to really understand that and get fingerprint for potential breaches. Most IoT have OS’s so they are targets for hackers. Just sitting there and so many they are vulnerable – so we need advanced analytics to keep an eye on what no human can do.” –Curt Cornum, VP-Chief Architect of Insight Enterprises



Event-Driven

Marty Sprinzen, CEO of VANTIQ, was one of our keynote presentations and he presented on, “Event-Driven Systems as a Vehicle for IoT and Digital Transformation.” As we move to a digital business structure, we are seeking applications and software running in real-time. Event-driven applications can be very challenging, as some data is even harder to analyze, and the distributed nature of systems, sensors, and computing devices present further complications. According to VANTIQ, abstractions are needed in events, distribution, collaboration, and we need low code. With that, requirements include speed, scale, resiliency, ability to analyze streams, reactive systems, and a services oriented architecture. And as mentioned in the EDGE section, data and analysis will reside in the cloud, on premise, as well as at the edge or endpoint device. The portability and mobile nature of connected assets, machines, and operations will require varying options for storage and analysis, as well as deployment architectures. Marty mentions the human element to this equation by sharing what was mentioned at the Gartner Symposium in October 2017, “The secret to digital is analog. And - by analog - we mean people.” Human-machine collaboration will be vital to the success of transformed, digital manufacturing or industrial companies.

Artificial Intelligence

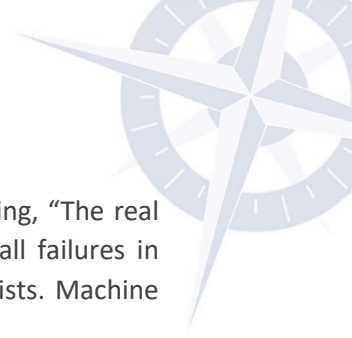
“Virtualization is probably number one (when asked about key trends) – tech companies realize that whatever they are providing isn’t really working. Also, analytics – moving the decision-making from the cloud and closer to the asset and where decisions are to be made. Knowing which decisions need to be made at the edge versus the cloud. A lot will happen in few years...” ---Daniel Obodovski, CEO of The Silent Intelligence

AI and machine learning together bring the future of automating operations, and moving from a predictive stage to automated event-driven actions. As we move towards understanding risks of the business and knowledge of risks and opportunities, software will change how we understand that business. “That may be the key ROI of IoT and machine learning – increasing that cognitive margin for customers, says Drew Conway, CEO of Alluvium. AI is playing a more integrated role with machine learning and data analytics, and combined with robotics the continuous learning and intelligent nature of today’s operational systems will benefit. While machine learning is the foundation of IoT, artificial intelligence takes that learning

to the next level by implementing computing, robotics, and systems to respond, react, or perform an action in real-time and even identify anomalies that may have never been captured with today’s technology.

Predictive Data & Analytics

As Drew Conway, CEO of Alluvium, mentioned, with predictive analytics, “the goal is to reduce the dimensionality of a problem.” As many businesses are now becoming data or application businesses, the use of data to predict issues, instances, activities, problems, etc. can enable cost savings, reduce customer issues, increase customer loyalty, and speed time to repair or respond. In addition to the prediction aspect, businesses are exploring what else they do with the data, and how they can price it and even sell it. Data is becoming central to organizational activities – extending that to a model where data becomes



federated among marketplaces. Stuart Finn, VP of Sales at DataRPM, contributed by saying, “The real issue is, as long as businesses have challenges there are opportunities. 80 percent of all failures in industrial are random and unplanned – which is unacceptable considering all the data that exists. Machine learning can automate and solve for unplanned and seemingly random issues.”

Logistics

“In government, you have to go to the end to see where you want to use it. Security has to be balanced with business transformation... Security is a huge problem – understanding the power of what we have and privacy of sensitive data.” ---Eric Fleming, Arizona Public Service

One of the three areas where automation is taking shape today mentioned by Stephanie Atkinson, CEO of Compass Intelligence was the area of logistics. This includes the tracking, monitoring, and routing of goods and services throughout the supply chain, including the areas of shipping, delivery, transportation, cargo, fleet, dispatching, and in-route services. The mass connected device category has revolved around the tracking and monitoring of assets, vehicles, and products. Managing a complete fleet of vehicles that transport goods and services are just a small fraction of this diverse area for connecting systems and assets. In addition, we are evaluating what else we can do with fleet and logistics systems after we connect them. This is an area of opportunity as companies look for new

revenue streams and uncover the value of data already being collected through a previously implemented IoT investment.

Those 3 areas where automation is taking place are highlighted below:

ASSETS

- **Tracking of Assets** – leveraging sensors, RFID, and other chip technology to locate the parts, workforce, equipment, products, and other assets throughout the entire supply chain
- **Monitoring of Assets** – monitoring equipment, parts, end products, people, and other assets throughout the supply chain.

PROCESS

During the R&D and Manufacturing phase, factory process automation to visually track and monitor progress, equipment issues/alerts, production status, analyze data, expedite maintenance and automate work activities

LOGISTICS

Automation of shipping, delivery, transport, cargo, fleet, dispatching, and in-route services.

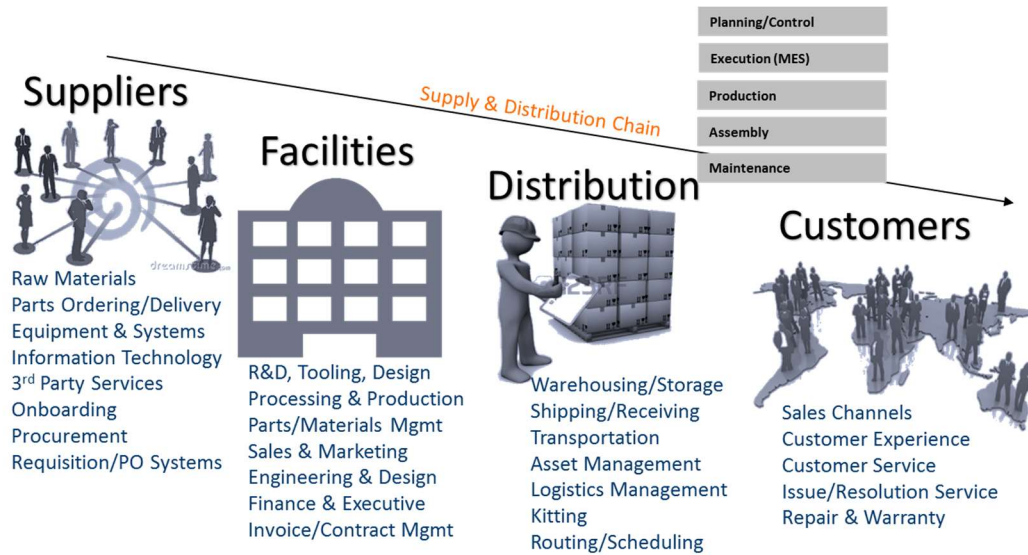




Supply Chain

When thinking about manufacturing and the industrial sector, an evaluation of the entire supply chain is imperative to the enterprise IoT strategic planning. As noted by sponsor Insight, as a service models are destroying typical IT supply chains, and this may also be the case as IoT is more than a hardware application. A snapshot of the typical supply chain is presented below by Compass Intelligence.

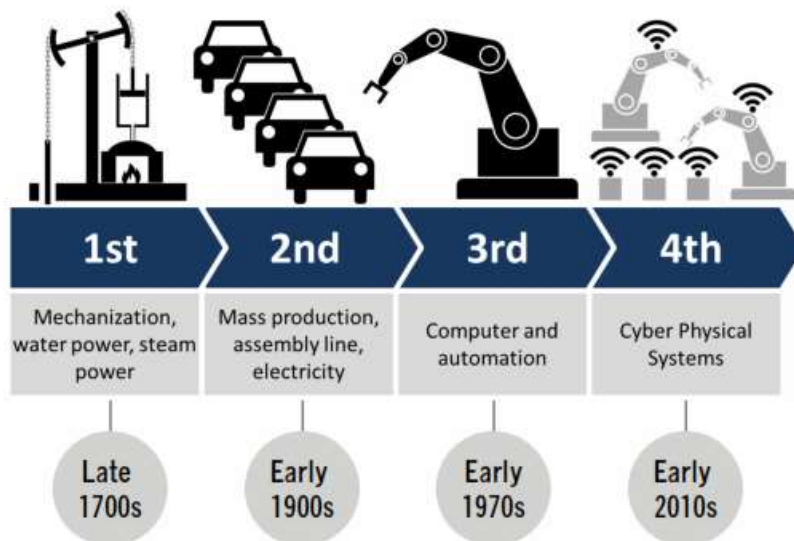
Components of the Supply Chain Ecosystem, 2017



Source: www.compassintel.com

As part of the supply chain, it is important to point out the 4th industrial revolution, aka Industry 4.0. Industry 4.0 is also a hot topic at IoT6, playing a key role to moving towards mass customization and as Sam Lucero, Senior Principal Analyst of IoT at IHS Markit states, “taking connectivity, analytics and robotics and putting those together in a way that dramatically increases the efficiency of operations. Industry 4.0 focuses on two areas including building efficiency (saving money) and creating revenue (making money).”

In an industrial context, this is leading to a “Fourth Industrial Revolution”



“Industry 4.0 is taking connectivity, analytics and robotics and putting those together in a way that dramatically increases the efficiency of operations. Goal is to move from mass production to mass customization. So efficient that product of batch level one becomes possible.” ---Sam Lucero, IHS Markit

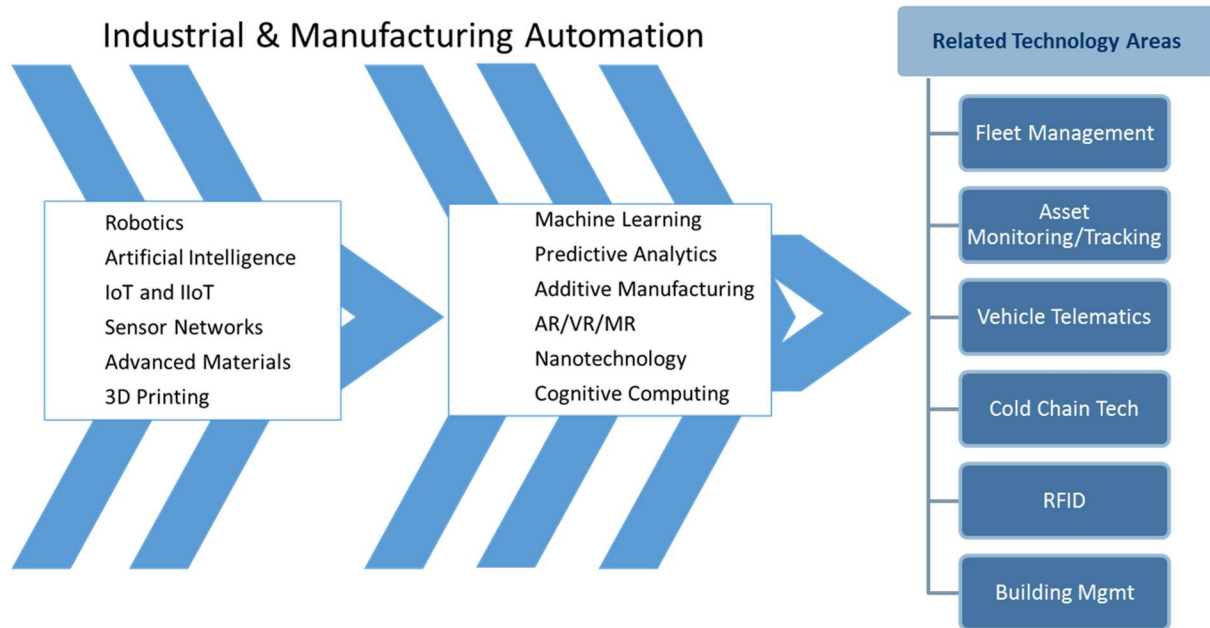


Automation & Mass Customization

As we move towards mass customization, automation continues to advance operations. During the R&D and Manufacturing phase, factory process automation is used to visually track and monitor progress, provide intel on equipment issues/alerts, communicate production status, analyze data, expedite maintenance and automate work activities. After a complete ecosystem review of a given company is performed, the identification of priorities and areas for improvement can be decided. This entails understanding internal stakeholders, external stakeholders, partners, channels, and overall supply chain touchpoints. Automation involves the process of simplifying tasks, operations, processes, and workforce output and technology including IoT, sensor systems, machine learning, and AI will better enable these automation goals.

“Security has always been an afterthought. You can’t always go back and attach security and it is tough to retrofit and should be planned into the design.” ---Nadine Manjaro, CEO of Beyond Machine to Machine Communications

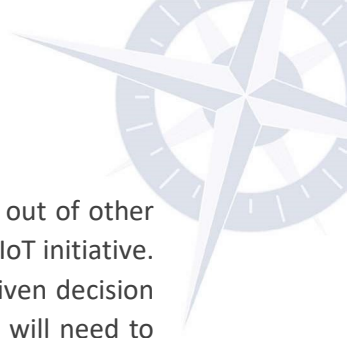
Automation Areas within Industrial & Manufacturing Sectors, 2017



Source: www.compassintel.com

Small vs. Large

There are varying needs when comparing large versus small companies. Small companies need financing options, while larger companies must deal with legacy and integration issues. In government this may also be the case, as bureaucracy may push projects to 20 to 3 years versus 1 year or less for companies. There may also be longer acquisition cycles and paperwork intensive processes and requirements. From a data



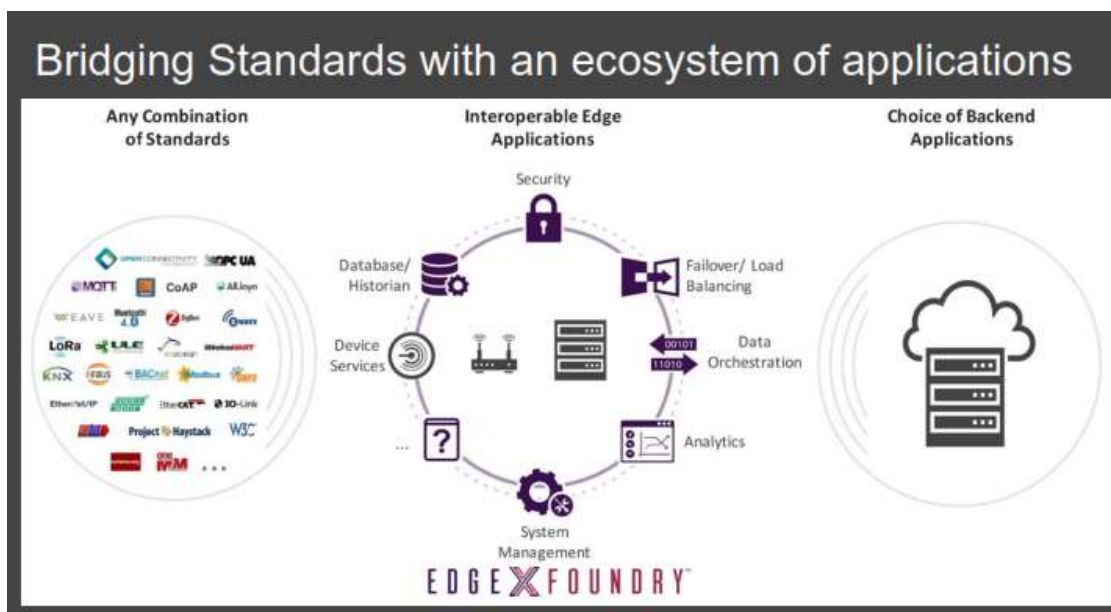
perspective, there may also be challenges in government entities in terms of getting data out of other department or agencies that may be required or used by the department implementing an IoT initiative. Whether small or large and commercial or government, we are moving into a business-driven decision making and priority realm as opposed to IT-driven. Business-driven IoT project evaluation will need to consider both least cost and value approaches. Finally, many companies will need to become software companies.

Cloud

“The industry is still fragmented and needs a solution that will scale and is global, and that is a challenge for some of the vendors.” ---Kirti Pujara, Principal Infrastructure Architect of American Airlines

The cloud continues to play an important role in data analytics and overall enterprise IoT. Performing activities such as data filtering, streaming, creating business logic/rules, messaging/alerting, and much more is part of what makes the cloud necessary for IoT platform enablement. In addition, security, scale, and integration is part of this on-premise or cloud Enterprise IoT Software equation as shared by Eric Simone, CEO of ClearBlade. Kevin Terwilliger, IoT Solutions Director and keynote presenter of Dell, also mentioned cloud as a pillar to digitally enable businesses. Kevin states, “Enterprise IoT requires a flexible IT infrastructure,” that includes Edge/Field, Fog, and Cloud technologies. He also stated that, “Deep Learning occurs in the Cloud, while machine learning occurs at the edge.” Dell leverages the complexities of distributed computing, diversity of connectivity needs, and harsh environments by bridging an ecosystem of partners and applications through its EdgeX Foundry to deliver options, scale, and flexibility to enterprise clients.

EdgeX Foundry Ecosystem of 60+ Partners presented by Dell



Source: Dell



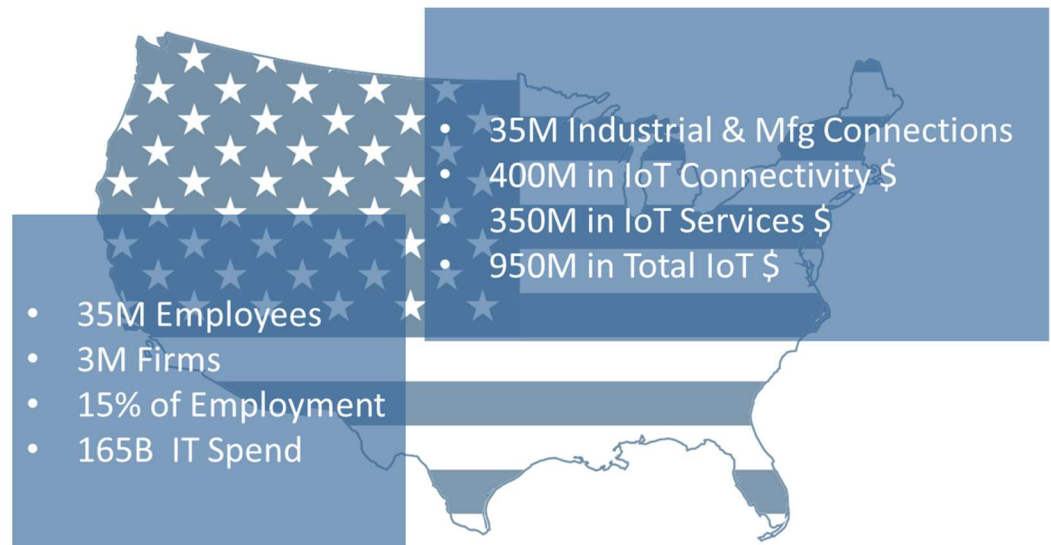
Key Metrics and Forecasts

The manufacturing and industrial sector is a vast market and one of the most active in terms of IoT implementation with legacy solutions in SCADA, operations, tracking assets/fleets, monitoring of operations, and other areas. This combined sector today has an estimated 35M connected devices in the U.S. alone, representing around \$950M in total market value in 2017. With over 35M employees and 3M firms or companies, representing around 15% of total U.S. employment, the manufacturing and industrial sectors will reach \$165B in total IT spend in 2017.

Snapshot of the U.S. Manufacturing & Industrial Market Landscape, 2017

Includes:

Construction Mining
Energy/Oil
Manufacturing
Transportation
Distribution
Wholesale
Industrial Machinery
Heavy Equipment
Commercial Buildings
Farming/Agriculture



Source: www.compassintel.com

Major Press Highlights by Sponsors: ClearBlade and Dell

The week prior to IoT6, silver sponsor ClearBlade announced IoT scalability benchmarks leveraging Oracle cloud infrastructure high performance servers, connecting 1 million Edge platform connections on its IoT cloud platform. Read More: <https://www.clearblade.com/press/clearblade-shatters-iot-scalability>

The same week of IoT6, keynote sponsor Dell announced a new IoT Division, partner program, and commitment to \$1B in IoT projects over the next three years. Read More: <https://www.delltechnologies.com/en-us/press/iqt-presskit.htm>

Final Word



First Compartmentalize Then Plan Across

Work with your vendors and technology partners to develop a full assessment of your existing IT and IT systems, architecture, and technology landscape. Also, perform a full evaluation of your existing supply chain and evaluate areas to make money or save money. You will then need to prioritize projects; small wins will be big wins for your board and executives. Once you decide on your near-term and long-term goals and priorities, you can then start the vendor selection and project phase.

Leverage Cross Departmental Budgets for Investments and Scale

We often hear about the high rate of failures for IoT projects. The key is to plan across your organization, as those projects planned and budgeted in silos will most likely not survive. Looking at synergies across departments and areas of your business will also shed light on new ways to leverage existing and future technologies.

Stop looking at what's here and look for what's missing

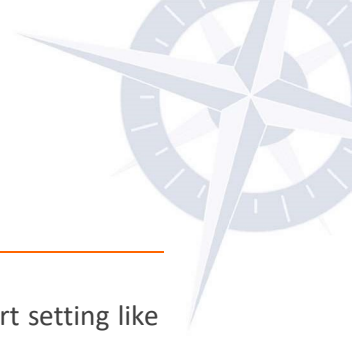
- Challenges
- Concerns
- Employee Feedback
- Client Feedback



Work closely with your technology partners and even non-traditional vendors

Seek expert advice during your evaluation and planning stages, as those most equipped to understand your core operations and business structure will be more likely to support you throughout the execution, ROI, and KPI review stages. This may also mean you will be working with new vendors and partners that may not even be the traditional technology companies you engage with today. Be open and flexible to find partners that can transform your business.

Blaze a New Trail, Automation is the new Competitive Factor to offer Unique Customer Experiences



IoT6 Information

The unique, invitation-only hosted format of IoT6 Exchange, conducted in an upscale resort setting like the Omni Barton Creek Resort & Spa, provides an engaging platform for use case presentations and keynotes, small group discussions, industry specific and vertical-focused topics as well as one-on-one conversations with leading vendors and peers on the latest solutions, strategies and topics around the Internet of Things within the enterprise.

IoT6 Exchange has many avenues for our attendees to gain insight into how these investments will improve their overall digital strategy. Key aspects include:

Keynotes, Fireside Chats, Panels and General Sessions:

IoT6 Exchange keeps things simple by having only one conference track to focus on. Attendees will sit in on a variety of sessions covering the latest topics, industry news and respected insights from leading solution providers, industry experts and end user executives.

Case Study Boardroom Sessions:

These highly interactive sessions presented by solution providers to an intimate group of executives give an inside view of the implementation and strategy of an actual customer use case. These sessions not only provide the vendors with feedback on end user wants/needs, but also promote candid discussions for end users to gain perspective from their peers within various industries.

1:1 Meetings:

Our 1:1 Meeting Zone allows our end user attendees, solution providers, and industry experts the perfect opportunity to connect with one another for 20-minute face-to-face meetings, which makes sourcing solutions painless for our executive attendees and makes connecting with prospective clientele cost-effective for our sponsors. Respected industry analysts and experts will also be present to discuss your needs and to help you move your own digital strategy forward.

Networking Receptions:

Connections can be made at a traditional trade show, but with our unique format, lasting relationships are forged through a multitude of networking opportunities. Attendees can network over 2.5 days and dive more deeply into discussions that cannot be had walking a trade show floor. Regarding the number of end user attendees and solution providers, we believe that quality over quantity adds a higher value to the conversations had, because only the most-qualified attendees are invited to attend and only vendors that can deliver solutions to major enterprises are eligible to sponsor.



IoT6 Advisory Board Members

The unparalleled content and agenda of our IoT6 Exchange summit are the result of the esteemed advisory board comprised of independent analysts and respected research firms whose combined knowledge and decades of experience make these events invaluable. Attendees and Sponsors not only benefit from an expertly designed agenda, but also have the opportunity to sit down face-to-face with these industry experts to discuss strategy and solutions.



Bob Egan
Founder & Chief
Research Officer
The Sepharim Group



Sam Lucero
Sr. Principal Analyst,
M2M & IoT
IHS Markit



Nadine Manjaro
Lead IoT Consultant and
CEO
Beyond Machine to
Machine Communications



Daniel Obodovski
Founder & CEO
The Silent Intelligence



Tim Scannell
Director, Strategic Content
CIO Executive Council at
IDG

Additional Resources

For More Information and information on our spring 2018 event please contact:

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