



MANUFACTURING INTELLIGENCE SPECIAL

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TECHNOLOGY INSIGHTS

DENISON CONSULTING GROUP

POWERING THE CONNECTED ENTERPRISE



Dianne Denison,
Founder & CEO

\$15

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DENISON CONSULTING GROUP

Powering the Connected Enterprise

By Karthik Ramakrishnan

With over two decades of experience in leadership roles working for some of the world's largest manufacturers and service providers, Dianne Denison, Founder and CEO of Denison Consulting Group, is no stranger to the evolutionary story of manufacturing. In fact, she likens today's next generation revolution, Industry 4.0 or the Industrial Internet of Things (IIoT) to other periods of broad-scale next generation deployments. She reckons the IIoT is already here, with the explosion of data provided by billions of "smart" sensing devices—revamping the entire product value chain—from design to manufacturing, delivery and sales. For adaptive companies who adopt the IIoT efficiently, with also a focused proactive eye on security, great advantages can result.

In the backdrop of this technology upheaval, there is a rising need for the dynamic synergy between the Operations Technology (OT) and the Information Technology (IT) to unleash the full potential of the IIoT. "The OT world and the IT world are different in the most basic terms—with different protocols, machines, processes and cultures," says Dianne.

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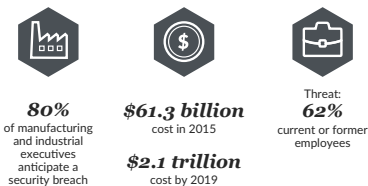
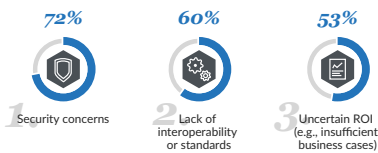
Industrial Internet of Things in numbers



The Problem – Reasons why IoT not being adopted faster

Why companies do not use IoT

The top 3 barriers inhibiting businesses from adopting the industrial Internet, North America



... and your people aren't talking!

But when they do ...

Collaboration among information technology staff and operations technology staff, % of manufacturers



The Early Planning

Recognizing the fundamental differences but clear need of understanding both the operations and information worlds in order to create a path forward for manufacturing to deploy the IIoT, several years ago Dianne contacted Rockwell Automation and the Reynolds Company. She shared her vision

to build an engineering and systems integration firm focused on delivering the IIoT. Denison knew then that solving today's technical challenges requires a close collaboration with customers, technology providers, and industry.

"When Dianne came to us, it was clear her company had solid strategy around extracting value and insights from data and turning information into action. We helped Denison better understand the plant floor space and available solutions and technology to help amplify their efforts," says Dean Bickerton of the Reynolds Company.

The "Secret Sauce"

Denison believes their "secret sauce" is her team—each sharing a singular focus to deliver the IIoT, and creating a path forward for manufacturing to adopt the IIoT. Denison's team offers a unique blend of technical knowledge of embedded and new technologies, business acumen, understanding of plant process and operations, security, teamwork and passion. Hypotheses are often questioned in order to reach recommended solutions. "We constantly question our beliefs and hypotheses, and have people who are willing to take risks to refute assumptions that are generally accepted. This way of thinking innately helps us improve our methodology in solving problems for our customers," says John Berg, one of the company's senior engineers.

Proving the Base Case—Power and Energy Management

Denison has chosen to focus its resources on addressing those "pain point" areas that cause delay in IIoT adoption. Most manufacturing executives cite the three largest reasons delaying deployment: 1) not knowing where to start or how to set priorities, 2) security, and 3) selection and integration of best technologies for the long term. Understanding these challenges, the team created a "path forward" approach—designing and offering engineering solutions from the plant floor to the data center.

Why Power Quality Matters

Poor Quality can result ...



Causes of Poor Power Quality

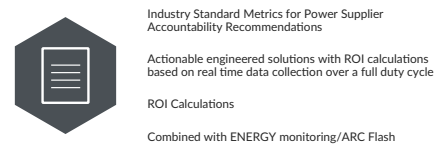


We Measure

Via Real Time Data Collection/Monitoring



Deliverables-Reporting



And don't forget your people aren't talking!

Collaboration among information technology staff and operations technology staff, % of manufacturers



The Customer First Focus

Denison recognizes that most manufacturers are entering the IIoT “on ramp” at various stages of readiness. Some plants have basic wiring needs, others have little or no access to data often orphaned on the plant floor, while others are more advanced in their data acquisition, collection and interpretation. Denison chose to prove the “base case” by focusing first on helping manufacturers monitor and manage power and energy, as key and costly inputs in the production process.

Step One

Often important data is orphaned on the plant floor, confined within specific machines. Without the ability to monitor, measure and collect in real time, and interpret this data to the appropriate user need in a recognizable format, this important data is not “monetized” for the organization. Denison’s team currently offers an IEEE standards-based Comprehensive Energy and Power Quality Assessment to assist manufacturers reduce cost and prevent even costlier shutdown due to poor power quality. Typically the approach taken by Denison’s team is offered to serve the needs of power generation firms, not necessarily large users of power, creating a great opportunity to assist manufacturers. With the increasing use of electronics, source and management of high quality power is critical in production.

An illustrative example was when Denison worked collaboratively with a large manufacturer and OEM to address unexplained and costly production line shutdowns. Working together, the Denison team worked to identify root causes of poor power quality such as harmonics, voltage sags, surges and other distortions that reduce operations’ efficiencies, and worse, cause costly, often unexplained production shutdowns. Depending on the industry and product produced, production line shutdowns can cost millions.

By design, The Comprehensive Assessment approach assists manufacturers identify priority projects (the first reason for IIoT adoption delay cited by manufacturing executives).

Step Two

Real-time data from the plant floor is collected, analyzed and interpreted to make specific engineered recommendations. Certainly, Denison believes without the collection of relevant data, analyzed appropriately, proactive and then preventive decision-making is not possible. So, assessment recommendations often lead to technology selection recommendations, platform configuration and working with data users to ensure that most relevant data is formatted in a recognizable scheme.

Denison recommended to large industrial distributor to “think outside of the box” and implement a securely managed, cloud-based service to manage and monitor their customer’s core industrial assets. Their strategy would change from being a distributor of low-margin products to a higher-margin service provider, capable of offering proactive solutions to their customers

Why Hire Security Experts



Cyber Risks
one of Top 10
global Risks



\$3 Trillion
in Global loss by
2020



\$12.7 Million
cost per corporate
incident in 2014



Threat targets and
tactics growing
exponentially

16 Critical Infrastructure Industries at Risk



Agriculture
and Food



Dams



Information
Technology



Banking and
Financial
Services



Defense
Industrial
Base



Nuclear Reactors,
Materials, and
Waste



Chemical



Emergency
Services



Transportation
Systems



Commercial
Facilities



Energy



Water and
Wastewater
Systems



Communications



Government
Facilities



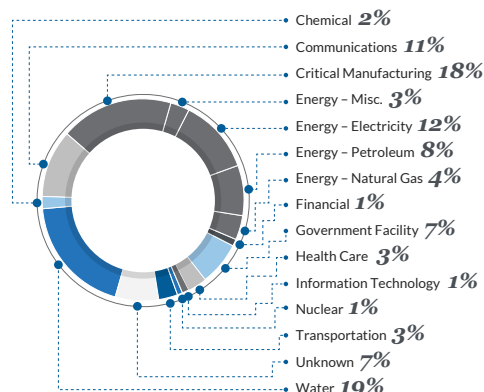
Critical
Manufacturing



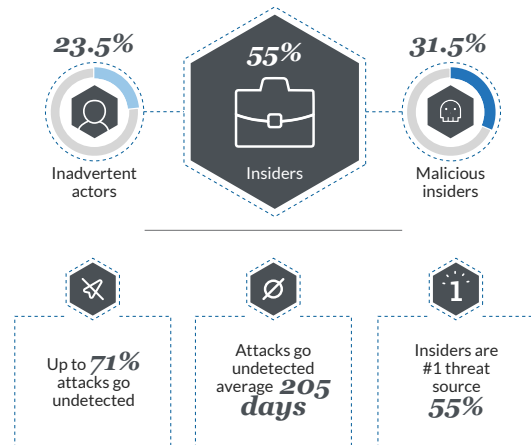
Health Care
and Public
Health

Reported Incidents by sector: Energy, Water, Core Manufacturing, Staggering – and Growing

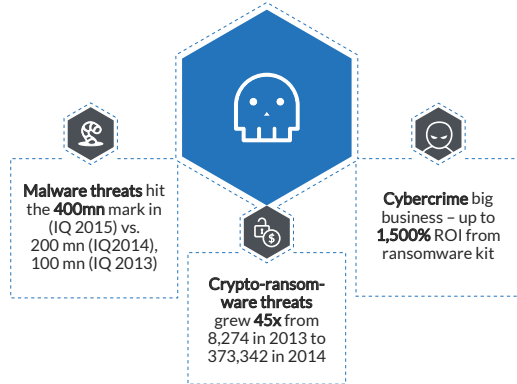
FY-15 mid-year critical Infrastructure incidents by sector



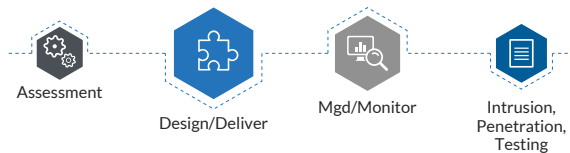
Where are threats coming from



And how



Denison Security



and deepening their supplier relationship. Denison brought forward both strategy and technology.

The Biggest Challenge—Security

“While there are many benefits in an all connected world, the “connectedness” also increases exposure to new security threats and issues,” says Denison. The company’s IT team is well-versed in security technologies and threats, and has recently chosen to focus on assisting manufacturers enhance security on the plant floor. It is imperative to not only deploy the right set of base technologies and architect the solution. Many technical

platforms exist needing an architectural and security solutions approach in order to be fully useful. Additionally, without implementation of a security based framework inclusive of policies/procedures, ongoing monitoring and management, and testing, future security breach is inevitable. Without surprise, Denison’s solutions in the area of comprehensive security assessment programs are designed to assist manufacturing address ongoing security needs.

By design, The Comprehensive Security Assessment addresses manufacturers’ second largest stated reason for the delay of IIoT adoption.

Etching a Mark in Manufacturing

Denison’s team has experience working with large OEMs spanning both the OT and IT landscape—including such names as Rockwell Automation/Allen-Bradley, GE, Siemens, Modicon, Cisco, Juniper, Dell, IBM, Bell Laboratories/Lucent Technologies, Hitachi, HP and others. Additionally, the team is driven to understand how some game-changing technical solutions often delivered by innovative firms can be incorporated into the solution mix.

Denison Consulting Group strives to break the notion that the manufacturing world is “deep, dark, dirty, and dangerous,” as one that does not offer exciting and impactful career paths forward. The company is sponsoring a “Manufacturing Day” on October 4 this year with an aim to enlighten and encourage high school and college-aged students to learn about today’s manufacturing, and the multiplier effect manufacturing brings to the economy. “Many of us have benefitted from the mentoring by exceptional leaders. It’s now our time to give back and share our passion, common sense approach, and ethics to deliver to our commitments. We need the next generation to fill in when we all might someday choose to retire,” Dianne signs off.

Denison provides

IT



Cloud



Apps



Security concerns



OT



Comprehensive Assessments



Data Analytics

Sources:
Bank of America Merrill Lynch; Deloitte; IBM; Mandiant; McAfee; McKinsey; Ponemon Institute;
Symantec; Trustwave; US Department of Homeland Security ICS-CERT Monitor



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TOP 10 Manufacturing Intelligence Solution Providers - 2017

Understanding the ongoing processes at the plant level is crucial in a manufacturing organization. When there is visibility into shop-floor operations, the performance of the company's assets across the enterprise becomes effective, resulting in reduced manufacturing costs and satisfied customers. Evidently, manufacturing intelligence solutions have come to fore in improving the efficiency and productivity in the realm of manufacturing.

Amongst the plenty of advances on the horizon, manufacturing intelligence is touted as the biggest driver of the trending Industry 4.0. Technologies like cloud, mobility, and big data are contributing significantly to strengthen the solutions and bring machine intelligence and its capabilities within reach of enterprises. Mobile technologies, in particular, are eliminating the need for on-site displays by allowing shop-floor visibility from any mobile device instead of solely depending on on-site dashboards and displays. This enables users in any job role to access real-time information or receive alerts from any device and any location, improving the response time for adverse

events and facilitating decision-making. SaaS capabilities are also swiftly emerging with promising capabilities like automatic software updates, universal remote-access, and built-in disaster recovery.

Manufacturers are partnering with solution providers to streamline their reporting system, automate operations, reduce implementation time, generate numerous reports, and efficiently solve issues. The expectation continues to soar for enhancements like deployment of current data, improved data handling capabilities, multiple servers support, and customized query handling.

To help CIOs navigate this flourishing landscape, Manufacturing Technology Insights' distinguished panel of selectors, comprising CEOs, CIOs, VCs, industry analysts along with the editorial board, has reviewed several companies that exhibit a proven expertise in assisting manufacturing organizations with their manufacturing intelligence solutions.

We present to you Manufacturing Technology Insights' Top 10 Manufacturing Intelligence Solution Providers - 2017.

Denison Consulting Group

recognized by  magazine as

TOP 10
MANUFACTURING INTELLIGENCE
SOLUTION PROVIDERS - 2017

*An annual listing of 10 companies that are at the forefront
of providing manufacturing intelligence solutions
and impacting the marketplace*

Company:

Denison Consulting Group

Description:

Offers a comprehensive and managed approach to the manufacturing sector to conjoin their IT and OT realms for data-driven decision-making

Key Person:

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