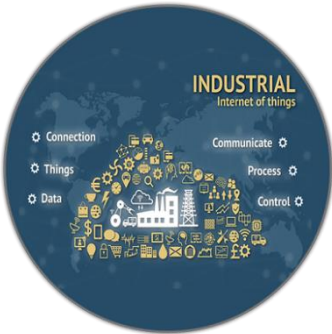


Denison's Top 5 + 1 Predictions for 2018



1. IIoT will see tremendous deployments in 2018.

IIoT elements are now widely available, interoperable and economical. Why? The facts are in our favor. In the last 10 years, the cost of RAM, processing, bandwidth and sensors have decreased so substantially that IIoT deployments can be made economically. Standard-based, interoperable devices allow decisions to be made with higher degrees of confidence and life-cycle cost estimates.



2. US tax reform will open a floodgate of capital for expansion and infrastructure upgrade, job growth and investment in job training for the future.

Tax revenues will slowly repatriate, jobs will return and be filled, and communities rebuilt. Confidence will continue to soar, particularly among the manufacturing and business communities – the dreamers, builders and investors needed to fuel the economy. Manufacturing will provide the multiplier effect in the economy as it has done so well in the past. According to BCG, the average cost to manufacture goods in the US is now only 5% higher than in China and is 10-20% lower than major European economies. More telling, BCG projects that by next year it will be 2-3% lower cheaper to produce in the US than China. Just think of the US competitive advantage, once tax reform is enacted.



3. It's Powerful Baby!

Manufacturers account for nearly 1/3 of the country's energy usage, spending over \$200 billion per year to power their facilities. Over 70% of production line disruptions (often costing millions) are due to poor power quality – manufacturers are now realizing this, and are waking up fast to managing and monitoring their power quality. The business cases to invest are obvious with almost immediate impact, making investment in power quality "one of the hottest IIoT business cases in 2018". Let's think more broadly, from a strategic perspective. The World Economic Forum rates countries with and without access to high quality power – drawing a direct correlation between industrialization rates and rise of a burgeoning

middle class with those countries who have access to high quality power. Mega and multi-national manufacturing firms will increase substantially their focus on maintaining and managing high quality power as a critical, high cost driver in the production process.



4. Data analytics software will be a greater catalyst.

As the IoT will generate mega volumes of unstructured data, the availability of big data ubiquitous platforms that are available and cost effective will be critical catalysts for IIoT deployments. Rockwell Automation's Project Scio sounds very exciting. Santa Baby – put a sandbox under the tree, for us!



5. Security will be top of mind – both physical and cyber – for individuals, corporations and nation states.

Threats will increase in frequency and intensity demanding an overall increased awareness, proactive risk mitigation strategy and overall commitment to a deeper security-focused framework and process. Why? Unfortunately, evil exists. But good also exists – and there are lots of good people in this world – so let's stay vigilant and safe.



6. What is old is new again.

Companies will use a combination of re-engineering processes to take advantage of the IIoT and combination of TQM principles to apply an optimal mix of both to their situation. My 13-year-old daughter, Camille, just learned about Frederick Taylor and Scientific Management, and the Hawthorne Studies conducted at Ford Motor Company that together formed her impression of what was happening during the Industrial Revolution. Fifteen years ago, we tested "collaborative visualization" with super-computer centers, OEM partners and users who needed to "get all brains into the same room" sharing real-time data to make better and faster decisions. Sounds a lot like what the IIoT is about to bring us all – in hyper-speed – allowing us to collaborate, solve problems, and apply what's both old and new!



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