

Data & Energy:

A Rocket Fuel Mix in a Manufacturing Resurgence

Best Use Case of 2018:

Delivering the IIoT in Energy and Power Quality

We have all heard about the importance of energy. With respect to the production process, manufacturers require high quality sources of energy – delivered consistently, reliably and dependably with few interruptions. In fact, **manufacturers consume more than 30 percent of the nation's energy** (Source: US Energy Information Administration, Annual Energy Outlook 2015).

Energy producers have partnered with software and data firms for decades, often conducting testing at or near super-computer centers needed to process large data sets. Close collaboration has existed with supercomputing centers around the country offering large firms like BP, ExxonMobil and Chevron to work closely with PhDs and computing experts from both university and industry, using supercomputing processing power in Colorado, Texas, California and other places. Lab-born innovations are tested then delivered to industry creating tremendous operational advantage. Sitting in a data visualization center for an adult is like Disney to a child – at least it was for me the first time I was exposed to such technological advances. And the people working in those environments had big brains to go along with the big data they were processing – working collaboratively across functions to solve complex problems.

Twenty five years ago, data was measured in megabytes, while today often individual data sets are measured in petabytes – with volumes growing by a factor of a billion within that same timeframe.

The Industrial Internet of Things (IIoT) integrates a set of complex machinery with networked sensors, intelligent software and people to allow industry to capture, analyze and convert data into meaningful insights to optimize operations. Sounds simple – but it's not.

With the anticipated 50 Billion smart, sensing and interconnected devices deployed in the next several years, the explosion of data becomes almost difficult to fathom on the manufacturing plant floor.

The volume of data in the world is growing at an unprecedented rate. ***The world's information base doubles every 11 hours, and currently there are over 1 trillion devices connected to the Internet, with computing power doubling almost every two years*** (Source: ibm.com).

Big data can be defined with the four Vs in mind – volume (comes in high volumes), variety (comes in various variety), velocity (comes fast), and veracity (not always of the same quality, needs vetting). Raw data often comes in both structured and unstructured formats. I now know how an ant feels when hit with a wave from a firehose.

Data doesn't matter much in its raw state, but when collected and put into some meaningful structure and context this same data becomes our generations' next best natural resource.

We often hear about US energy independence – and the advantages to those countries capable of focusing on energy independence and superiority of energy technology. Why not think of data in the same context – that when extracted, refined, and delivered quickly, reliably and consistently in a format that is understandable (like energy) can be our next “natural resource”, our generation's energy so to speak. Data will fuel the economy, creating wealth and a competitive advantage to those countries and companies understanding of its importance and use. Adam Smith would be proud.

So, what happens when we approach energy and data together and - perhaps considering how we can either reduce energy cost, improve energy quality, or perhaps a combination – using data analysis as the catalyst to deliver these results? Rockwell Automation states that poor power quality is the result of 30-70% of production line disruptions – costing industry often millions in production loss per hour. Solutions in this space to solve this problem exist today.

In fact, it is not uncommon for those manufacturers to realize 10-20 percent savings by focusing on power quality. The ROI benefits are often staggering – and well worth the investment.

As power quality impacts a host of industries – from oil and gas pipelines, automotive, food and beverage, chemical and petrochemical, pulp and paper, and large manufacturing just to name a few – the solutions in this space can easily be applied to other industries, reaching even greater economies of scale and efficiency.

The US is an energy powerhouse – and is rich in natural resources – oil, natural gas, coal and wind. The business climate in the US is built upon a strong legal framework, and supportive of an inventive framework. Entrepreneurism is encouraged, and failure not shunned as with other cultures. Innovations and more importantly leapfrog innovations have been born in the US for

decades – with paths paved and lives changed by the late nights and perseverance of the likes of Tesla, Westinghouse, Edison and others – transforming industries and lives – inspiring future generations to dream, invent and think.

The US Manufacturing Resurgence is here – and it’s now our job to deliver solutions to impact the global competitiveness of our customers.

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