

Digital Transformation in Manufacturing

--- Point of View: Denison's CTO Vishy Narayan covers the current digital revolution possibilities in energy management using a combination of networked sensors, data analytics and computer platforms for enterprises.

Driving energy efficiency in a new era.

The Industrial Revolution of the 19th century brought in never before seen levels of efficiencies in production, value of output, capital invested and increase in employment. Today, industries are seeing unprecedented levels of automation and supply chain efficiencies as industrial control systems connect to the Internet. The Internet of Things (IoT) will bring even greater acceleration of networking connectivity in the production process and supply chain, and throughout all business processes. The advent of smart, connected products, and its rapid adoption is likely to revamp the entire product value chain – from design, to manufacturing, delivery and sales with continuous feedback at each stage.

IoT and Energy Management

Efficient and effective energy management is an area of focus for cost optimization and improved energy usage for customers in every industry segment – from a Fortune 100 company to a small business. IoT provides greater flexibility to accommodate new energy sources, better management of existing and integrating newer assets, operations, greater reliability, enhanced security and new business models and services.

When coupled with an overlay of intelligent sensors, applications that drive these sensor and aggregate continuous data streams and a platform to crunch data and make sense out of this –

we now have an “connected enterprise”. A connected enterprise wherein Operations and IT working in tandem enables collaboration, linking and improving processes from the shop floor to the CIO’s desk. Insights gained can driving real-time activities and agile processes adding significantly to the bottom line.

IoT and Analytics: Data driven Insights

In an interconnected world, large and often complex datasets are collected and analyzed continuously and the infrastructure and application platforms of today are getting better and smarter. Artificial Intelligence tools and advanced machine learning algorithms perform complex tasks and analyses. When advanced analytics is combined with IoT, it provides industries to leap frog the competition in attaining data driven insights to drive business toward greater agility and efficiency levels.

It is important to integrate the energy management in the organizational structure, so that its implementation is easier, responsibilities and the interaction of the decision makers regularized and coordination ensured in the fulfilment of the tasks. A process driven implementation also lessens the frictions that may arise out of operational technology [OT] and information technology [IT] groups collaborating towards a common goal.

Bringing it all together

For an enterprise concerned about energy optimization, a solution based approach around IoT can provide many advantages:

- It drives an overall consolidated energy management system giving a structure that is grounded in existing environment but adaptable to new changes and can make power and supply grids a much smarter through modern meter-based systems.
- Improving asset efficiency by providing overall costing model around sub-optimal performance. This can also identify and address maintenance issues e.g., alerting when a compressor is due for regular maintenance either due to performance issues or as part of a regular operational maintenance cycle or window.
- Energy usage can be thoroughly analyzed, managed and monitored. Leakages can be detected and corrective actions undertaken
- It provides greater insights into consumption patterns with real time reporting, notifications and enhances support mechanisms via alerts and predictive analysis of faults

A long-term energy strategy should be part of the overall strategy and vision of the company with periodic review of both business process and technology utilized to drive the strategy objectives. Finally, the value goes far beyond basic operational enhancements or efficiency, ultimately leading to major change to the business value for the enterprise.