DRIVEN-4

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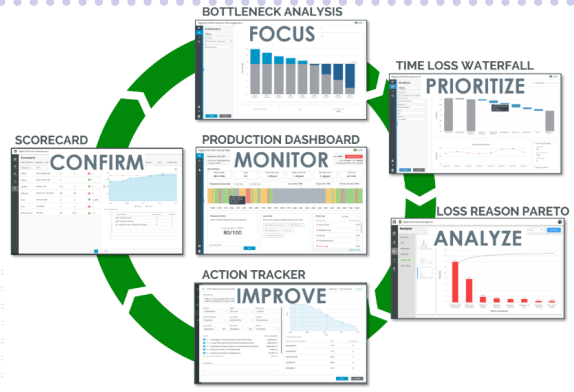
Increase your Shop Floor Visibility and Operational Performance

In today's competitive manufacturing environment, every process and technology that can be utilized to improve an organization's ability to maximize manufacturing output, needs to be reviewed and potentially implemented to achieve operational excellence in production facilities. Advancements in digital and industrial technologies allow companies to implement their version of the Digital/Smart Factory to create and enable nimble solutions while developing their manufacturing 2.0 landscape.



To be able to make these capabilities a reality, an organization needs to build the following foundation to be able to create the needed technological solution:

1. **Communication capabilities with your Machines/Assets** – This liberates the information from the machines/assets on your shop floor and provides the ability to deliver this information to the cloud/ platform for learning, interpretation and proactive problem solving.
2. **Edge Computing within the Manufacturing Environment** - This provides the needed response and reaction timing needed to support real-time decision making as needed in the execution of the manufacturing processes.
3. **Data Acquisition Strategy** – Defining what information is needed to ensure that the proper acquisition, frequency and data strategy is integrated into the manufacturing landscape to be able to readily access and utilize the needed information.
4. **Cloud Platform** -For hosting the acquired data and hosting the system's algorithm and connected manufacturing platform.
5. **Data Visualization and Analytics** - Providing real time data visualization that will make visible the plant's operational quality and performance. This will provide the needed link between the process and part parameters to ensure quality product output. Then incorporating machine learning algorithm technology to create a predictive and preventive capabilities solution suite.
6. **Shop floor Transparency**—The incorporation of production schedules, energy consumption and integrating that with current production operations creates a transparency between the "as-designed" manufacturing operation to the "as-is" manufacturing operations.

Building on this foundation, an organization can now deploy key capabilities such as:

- **Real-time interaction with shop floor equipment**
  - Interacting with this information to understand and predict overall production output and equipment maintenance needs
  - Automate Manufacturing workflows to drive "common/normal" work via automated methods and concentrating key manufacturing personnel on the "anomalies" and/or "errors" that are occurring
- **Provide assisted training and work instructions through:**
  - Augmented Reality (AR) /Virtual Reality (VR) by utilizing the digital twin with today's AR/VR capabilities such as "Expert Capture" where you can capture as a digital twin the method for performing manufacturing operations.
  - Organizations can also utilize "Collaborative In Session" solutions for problem solving, where you can utilize key global personnel and their knowledge to solve local plant challenges.

Manufacturing and Operations is one of greatest potentials for most companies. The digital capability to understand, refine and test before actually putting manufacturing, distribution and extending this into your supply chain in practice is an area of great potential financial return. The concept of minimizing a company's manufacturing footprint and shortening production times, minimizing distribution networks and improving shipping efficiencies are areas of great cost in most companies. However, the challenge to get all the needed assets digitally in this area is the very costly, difficult, time consuming. You will need to have plant, processes and resources (robots and people) digitally defined to create the needed digital environment. The key is to add the organization's internal knowledge for this to become a reality.

From our experience, the focus needs to be on understanding the inter-related use cases and creation of an integrated technology environment to drive business value. Companies need to stop focusing on siloed technology enablement. The need is to deliver connectivity and traceability throughout the manufacturing environment and provide analytic capabilities to power real time decision. This is where the financial returnof the investment grows exponentially.

Next Month: The importance of having an Enterprise PLM System for your organization

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