# A roadmap for Putting Connected Operations in Motion

Lets start by asking—"Do I need connected operations? What are the benefits? Benefits range from capturing real-time data from shop floor assets that allow companies to determine equipment status and health, to measuring process performance to harnessing operational data to start analyzing trends to create usable analytics to drive efficiencies and uptime. Now add to this, the ability for real-time visibility of your operations to measure, manage and control your operations for improved efficiency, employee safety, and employee training and performance.
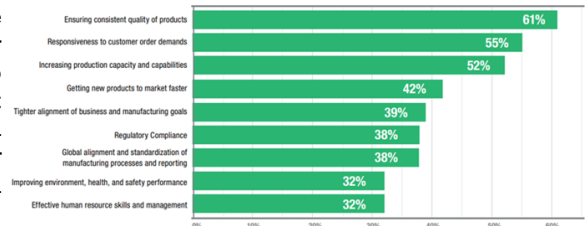


If your answer is "Yes" I need to incorporate these capabilities into my operations, then let's talk about the roadmap to getting these capabilities embedded into your organization. The strategy is to implement the needed essential elements and building blocks of the connected operations (Industrial IIoT) system starting with connected industrial assets (machinery, equipment, etc.) that have either sensors and/or embedded software then collecting and utilizing their data to extract valuable insights.

The roadmap to develop and implement a connected operations are:

1. **Sensor Layer**
2. **Network Layer**
3. **Data Processing and Solution Layer**
4. **Visualization and Interaction Layer**
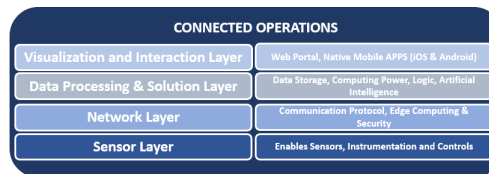


### 1. Sensor Layer

The initial effort is to enable the equipment's embedded software and adding any additional sensors that are required to gain the necessary information that will provide you with the insight you require to answer the operational questions at hand. The concept is to first understand what data you will need from the equipment and process to provide the information needed to provide insight and answer any potential questions. Based on this assessment, the next step is the enhance the operational environment with the sensors needed to close any data gaps that may currently exist.

### 2. Network Layer

The next effort is to establish the communication mechanism that will provide the conduit for the information coming from the equipment and sensors so that the data can be extracted and provided to the connected operations cloud. The communication protocol and potentially the addition of edge computing for answering use cases that require real-time data turn around times creates the conduit of communication back and forth from the equipment and connected cloud. This will provide the interaction and input needed.

### 3. Data Processing and Solution Layer

The data processing and solution layer provide the needed data storage, computing power and logic to respond to any use cases that may be needed to improve operational efficiency and safety. For example, the equipment's sensor provides data that is on the outer limits of the acceptable range. Based on computing this, the logic can recognize the needed correction and deliver a firmware update to resolve the issue.

### 4. Visualization and Interaction Layer

The visualization and interaction layer allows you to interact with the solution by inputting key attributes while also providing control of the equipment and system. It is key to provide this layer in multiple delivery mechanisms. Mechanisms that are best suited for its intended use. This layer will come in multiple forms, web portals, web browsers, shop floor displays and role based user APPs (Android and iOS). The key is to provide it as needed for the best interaction and consumption of information.

We believe it's vital for companies to connect their operations in this hypercompetitive environment we all live in. The approach needs to be taken based on the solution set that fits your needs. It is good to learn and progress in the connected operations journey to ensure you deliver the needed operational return for the investment. We can assist you in this effort—give us a call to discuss!

If you haven't heard, we have started a Kickstarter Project for our Driven-4 Connect IoT Module! Take a look!
https://www.kickstarter.com/projects/1070326166/driven-4-connect-iot-module?ref=project_link

## Next Month: Highlights from our DRIVEN-4 Webinars