HOW TO:

Leverage IIoT with Modern ERP

abas ERP

WELCOME TO THE INDUSTRIAL INTERNET OF THINGS

The Industrial Internet of Things (IIoT) is poised to have a transformative impact on the manufacturing model of the future, drastically improving the accuracy of KPI tracking and business intelligence as well as increasing safety for human workers. How can businesses reap the benefits of this new trend, and how will ERP make it a reality?

WHAT IS THE IIOT?

The term IIoT refers to the addition of sensors or network connections to products, machines and devices that typically haven't had any kind of connectivity—from factory machines and forklifts to shipping pallets and delivery trucks. Connecting these devices to wired or wireless networks gives them the ability to communicate and share intelligence with each other, the external environment and with people.

According to a recent study[1], the number of connected devices worldwide is expected to jump 12 percent on average annually, from nearly 27 billion in 2017 to 125 billion in 2030. All of these devices can be expected to throw off a significant amount of data. At a time when organizations are looking to take advantage of new data sources, the IIoT offers more opportunities to fine tune operations with better intelligence and tighter process integration.

Sending instructions to machines is not new, but the IIoT offers the potential to control more devices more effectively (and more affordably) than ever before. **The greatest business value will come to those who focus on improving their data integration and automation capabilities—not to those who simply connect the most devices to the network.** For most IIoT use cases, data must be captured and integrated before it can be processed and analyzed. The unparalleled quantity and variety of data, along with managing the inevitable complexities of connecting to a seemingly unlimited list of devices, make data integration a bigger hurdle than ever before.

[1]The Internet of Things: a movement, not a market, HIS Markit, Oct. 2017, http://news.ihsmarkit.com/press-release/number-connected-iot-devices-will-surge-125-billion-2030-ihs-markit-says

The next level of IIoT technology is expected to go far beyond real-time monitoring to include highly connected information systems that employ advanced analytics to deliver superior, more reliable products.

THE IMPORTANCE OF A MODERN ERP PLATFORM TO IIOT

WHAT IS ERP'S ROLE IN THE IIOT?

To take advantage of the opportunities presented by the IIoT, manufacturers need an ERP architecture that is up to the task. Monolithic mega suites will be replaced by agile, adaptable application infrastructures; focus will shift to the flexible integration of new systems and technologies. Particularly critical are integrated ERP capabilities that can connect devices and process data across all areas. Only by collecting comprehensive knowledge can performance be improved and processes optimized.

Once connected to IIoT devices, ERP systems can begin to command and control those devices for information gathering. Rather than data residing in organizational silos, a modern ERP platform provides visibility of key performance metrics across the enterprise. Likewise, digitally tracking the movement of products provides a detailed view of material usage and production timelines, and can give decision makers insight into where to cut costs and how to forecast for future needs.

But data collected from smart devices is of little value without contextual information. Without the appropriate context, it's difficult to translate operational data into the framework needed to make accurate decisions, both at production level and for analysis purposes. Therefore, as manufacturers adapt their equipment to the IIoT world, they should first determine exactly what data is most important to collect, as well as evaluate the effectiveness of the analysis tools that will be used to analyze the data.

NEW SOURCES, NEW OPPORTUNITIES

Meanwhile, as the number of devices and volume of data continues to grow, organizations must consider additional factors, including the physical installation of devices; the best communication standards; how to handle different types of data (e.g. video, geo-location data); and how to effectively integrate IIoT data from other sources, such as third-party data providers, as well as internal historical data stores. In addition, production equipment in the future will require a diverse mix of workers, including engineers who can devise and create IIoT systems, as well as data technicians who can analyze results.

Fortunately, manufacturers today have an array of tools at their fingertips to embrace the IIoT and achieve new levels of efficiency. For example, new cloud-based ERP systems provide a cost-efficient way to connect traditional enterprise-based information systems to both private and public IIoT-enabled devices. Companies can avoid investing in expensive technical hardware and increase liquidity using a software-as-a-service (SaaS) model. Important processes such as data synchronization, software updates, maintenance, and backups are monitored and performed by the provider automatically, helping to optimize resources and reduce workloads.

Hosting in the cloud also makes it easy to open up interfaces into other systems. In situations where a legacy ERP exists and is difficult to replace, a middleware solution can be added to extend the existing ERP and provide connectivity to the Internet, creating a hybrid ERP solution.

COMPETING IN THIS NEW WORLD

To effectively compete in the digital age, manufacturers need have a solid strategy in place, along with a modern, IIoT-enabled ERP platform that can:

- Integrate data and services across a diverse operating environment
- Support a decentralized production model
- Analyze data for actionable insights and process optimization

REAPING THE BENEFITS OF A CONNECTED ENTERPRISE

When connected to the IIoT, an ERP system can collect, process and analyze data in a highly efficient manner, allowing organizations to:

#1 IMPROVE DECISION MAKING

An IIoT-enabled ERP system can collect, process and analyze data in a highly efficient manner. Smart sensors allow important data to be communicated directly with decision makers, sending alerts whenever products or equipment require assistance.

#2 AUTOMATE PROCESSES

Re-orders and replenishments can be communicated directly to the ERP without any type of human interaction. Dynamic asset reallocation reduces equipment costs and helps minimize human interaction, allowing employees to focus their energy on more important business tasks.

#3 ACCELERATE INSIGHTS

A single machine on the plant floor may now broadcast real-time information about its status from hundreds of sensors simultaneously. The IIoT leverages this highly efficient data gathering to improve the quantity, accuracy, and speed of insights—all while driving down costs.

#4 STREAMLINE LOGISTICS

More cross-functional connections help drive operational efficiency, particularly in the warehouse and supply chain where the ERP system can track product movement, update status, detect errors, and confirm order delivery.

FIRST STEPS TO IMPLEMENTING IIOT IN YOUR ORGANIZATION

OPTIMIZE INVENTORY AND SUPPLY CHAIN MANAGEMENT

Maintaining, tracking and stocking the right inventory at the right time is critical for quality control success. In the IIoT warehouse of the future, every new item that enters receives an RFID tag that is mapped to an entry in the ERP system. When a pallet is moved, the ERP can see where the items are moving and can immediately detect when the items associated with a work order have been placed in the wrong pickup location. Once the correct shipment has been picked up, GPS tracking provides continual updates about the estimated time of delivery. When the shipment is dropped at the destination facility, the tracking continues at the item level.

The IIoT could also have a transformative effect on the extended supply chain. For example, OEMs could see a substantial increase in efficiency in terms of managing frequently changing relationships with an array of global suppliers. With the rise of lean manufacturing, OEMs need to have the perfect amount of inventory on hand at all times. One potential benefit of the IIoT is for inventory systems to automatically alert suppliers when a particular item needs to be replenished, allowing them to prepare and ship the product exactly when the manufacturer needs it.

MITIGATE SECURITY RISKS

As production operations become increasingly more connected, manufacturers must adapt to evolving security threats. Like any IT system, plant floor networks and devices are vulnerable to exploitation and intrusion, with risks ranging from plant safety to exposure of personal information.

The good news is that IIoT security doesn't require a revolutionary approach. The core techniques that have been honed over many years of research and development can be applied to meet these new challenges, extending them as necessary to address the unique requirements of a more connected enterprise. Key security best practices, such as encryption, authentication and authorization, help ensure that sensitive information being exchanged between connected devices and underlying infrastructure is not breached or compromised.

BUILD THE FOUNDATION FOR A CONNECTED FUTURE

In spite of all that's been written and discussed regarding the IIoT, many manufacturers are still trying to figure out how to best integrate it into their operations. The good news is that automation of an existing facility does not need to happen all at once. Integrating just one component, such as RFID tags, into your ERP can generate significant value while allowing the larger system to be rolled out in stages.

At the same time, some ERP suppliers have taken a forward-looking approach to the IIoT by adding a layer of flexible middleware that can provide an interface for Internet-connected devices, equipment and products. This flexible layer allows manufacturers to integrate the IIoT into their operations without having to completely overhaul their ERP platform and infrastructure.

While building an effective IIoT framework is a long-term process, manufacturers cannot afford to hesitate. Strategies are being formulated today, and forward-thinking organizations are already putting their plans into action now to ensure that their ERP systems are able to effectively embrace and support the rapid escalation of connected "things."

About abas

abas ERP is more than just software—it's a complete solution designed to meet your unique manufacturing requirements. Our expert consultants have a wealth of domain experience that makes them an ideal partner for midsize manufacturers and distributors. Not only can we implement software across an entire organization, but we can teach the relevant stakeholders how to make the most of the system to improve your business performance. Whether you have 10 employees or 1000, our aim is to optimize your processes so that you can save time and costs, improve visibility, implement reliable advance planning, and achieve competitive advantage.

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