MASTERING IIoT SUCCESS

A Guide for Digital Transformation

YOUR DIGITAL TRANSFORMATION

You say you want a transformation...

The past few years have seen an explosion of the Industrial Internet of Things (IIoT) across the globe. Companies of all shapes and sizes have been bringing new, innovative, smart solutions to market at what seem like overnight. But, for many companies in the industrial sectors – challenged by massive factory operations, blind field service dispatches, and legacy machines – the uptick in digital transformation has been a bit slower.

Industrial manufacturers in particular find themselves at the precipice of transformational – and potentially very profitable – shifts in operations and core business models. Under growing market pressure to achieve peak efficiencies in the manufacturing and servicing of products, more industrial enterprises are turning to disruptive, innovative solutions like IoT. Those lagging behind have reached the moment of truth: act now, or be left behind.

In factories and manufacturing plants, operations managers implement IIoT to enable connectivity to industrial equipment and access previously untapped data from legacy machines. This data contains insights needed to optimize machine performance and costs without impacting production schedules or product quality. Machine operators become prescient — able to anticipate problems before they occur, and take proactive measures to prevent costly downtime.

YOUR DIGITAL TRANSFORMATION

At the other end of the spectrum are the customers who purchase their products. Seeking to maximize their own physical investments, they have been calling on manufacturers to provide more extensive service programs for products, focused on providing routine maintenance and preventive service. For manufacturers already undergoing digital transformation, the timing was just right.

The call for enhanced service programs further accelerates digital transformation for both customer and manufacturer. Products, now built IIoT-ready, once deployed are monitored for a real-time view of performance status in the field, or any potential service requirements.

But, digital transformation will bring its challenges for operations that have remained largely analog, and the right time can be difficult to identify for any organization. The process of implementing IIoT in operations and shifting to a connected product strategy will be different for every business. Getting there will be a collaborative technical, tactical, and organizational effort; the organization itself may need a push toward a culture of technology.

When it comes to IIoT, the reasons to act now are compelling, as manufacturers enjoy:

Operational efficiencies that **reduce costs**

New, ongoing **source of revenue**

Enhanced relationships with customers

Accelerate time to market

Competitive advantage vs. products that aren't connected

YOUR DIGITAL TRANSFORMATION

It is not uncommon for organizations – rife with apprehension about the scope of change, costs, or chances of success – to attempt to take on the project of building their own IIoT solution. But, take it from those who have blazed the trail before you – don't.

Many well-intentioned organizations inevitably found that maintaining such infrastructure over-burdened resources, distracted from the core competencies of the business, and were difficult to scale with company growth – offering little to no operational or financial benefit in the end. For some, these realization came quickly; others spent years investing time and resources in such ill-fated endeavors before turning to an IIoT solution provider.

With that in mind, to help guide those still in the decision phase where to go next, we've put together an overview of the basic tenets of change required for digital transformation. We'll provide the tools to master IIoT success, based on best practices gleaned from over a decade of engagements with companies in nearly every industry.

CONNECT

The true value of any industrial IoT (IIoT) implementation rests on the ability to achieve interoperability between the new IIoT platform and devices, systems, and processes throughout the enterprise.

The "things" that make up an industrial enterprise – factory equipment, machines, hardware, tools, assets in the field – represent a rich source of valuable data that has remained largely untapped. IoT solutions enable connectivity to things to access data – and then communicate that data back to the enterprise where it can be used, stored, or integrated into other applications and systems.

But connectivity in an industrial setting is often wrought with challenges. Many operations are teeming with disparate or legacy devices and ad hoc systems; connectivity, communications, and security are found to be unreliable or nonexistent. For most businesses, replacing entire fleets of equipment is not viable. Retrofitting machines for IoT connectivity is the only alternative, but is not always simple or straightforward.

CONNECT

Next, of course, connectivity is established to enterprise systems, some of which may be in the cloud, some on premise, and many of which have different standards for data interoperability. Here is where the human element comes in as well – when configuring the connectivity between devices and systems, it is important to consider how the data and information will be used in order to build the connectivity architecture for the system.

An IIoT platform will enable the connectivity between disparate devices, applications, and cloud sources, and serve as a single point of entry to simplify connectivity between systems and establish one source of truth.

CONNECTIVITY CONSIDERATIONS

HARDWARE AND SOFTWARE

Industrial enterprises are likely to have a lot of variation in devices and applications with different protocols for sharing data. Connectivity architecture should be modular, so targeted changes can be made without encountering a domino effect of required changes throughout the entire system.

NETWORK CONNECTIVITY

Each connected device adds vulnerability to a network as a potential point of entry. It is important to develop a distinct, targeted security plan for IIoT, addressing considerations for various network protocols, including WiFi, LoRa, and cellular.

EDGE COMPUTING

Consider how data will be collected from devices. If there are areas which may be suitable for Edge connectivity – where decisions must be made as close to the point of data collection as possible – this will reduce network bandwidth, but also adds another component to a traditional cloud-based system.

DATA MANAGEMENT AND STORAGE

Data that requires complex processing, but not immediate access, can be stored in data centers, adding another point of connectivity.

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IMPLEMENT

Successful implementation of an IIoT strategy requires significant collaboration—between multiple business functions; between the organization and external partners; between physical devices and network applications; between data and enterprise systems.

IIoT system infrastructure must be compatible with multiple systems and environments to be able to integrate IoT data seamlessly to and from any number of disparate sources. Usability is also a crucial factor to consider during implementation, especially for those new to IIoT. Users across business functions must be able to manage the day-to-day operations with ease and little technological expertise.

An IIoT platform that is robust in infrastructure and interoperability, and provides user-friendly features like dashboards, drag-and-drop tools, and out-of-the-box connectors, will satisfy interests of both IT and operations.

IMPLEMENT

When planning implementation, scalability is key. Many organizations choose to ease into implementation by starting with a small deployment – a single facility or a particular division, for instance, or even just a single capability, like remote monitoring. Such an approach allows for more time to learn the solution, get a clearer picture of specific goals and requirements for future expansions, and prove success.

Throughout the integration and implementation processes, it is imperative to continually collaborate with and get buy-in from key stakeholders – part of which is driving home the anticipated impacts and value of the new solution. Consider the varying interests and objectives among business functions and hierarchies – from the day-to-day users who will require substantial education and training to the finance executives who want to ensure return on investment and time-to-market.

Establishing a cross-functional implementation team of primary stakeholders, peripheral functions that may be impacted, as well as IT, will facilitate more effective collaboration and foster a deeper understanding of the strategy and goals for IIoT throughout the organization. Each function will gain a deeper understanding of the dependencies between roles, creating alignment that will enable a faster, more seamless implementation.

WHERE TO START?

THINK BIG

If you were designing your dream IoT setup – an ideal scenario in which interoperability or other technology concerns did not exist– what would it look like? What capabilities? How would it be deployed, where, and to whom? What outcomes are you able to achieve?

PITCH THE BIG IDEA

When meeting with decision-making executives, present the ideal vision for IIoT in the organization and detail the expected positive impacts. Don't give the back-down-on-earth version, already watered down by various limitations. Ensure everyone walks away on board with enthusiasm for the bigger picture.

GET IT TOGETHER

Collaborate with key stakeholders and enablers early – reviewing current operational practices, information technology systems, business processes and organizational structure, and determining how those align with current business objectives.

START NOW

Digital transformation and IIoT are the future. There is still competitive edge to be gained by starting now, as many industrial enterprises are just beginning to explore their options. Moreover, your customers will soon expect digital solutions and compatibility. The time is now

INNOVATE

By digitally transforming assets, people, and processes in the organization, IIoT solutions empower enterprises to be uniquely innovative – to think outside the box, create new solutions, enhance current product offerings, establish new business models, and set and achieve new goals for efficiencies, revenues, service performance, and customer engagement.

But how?

The extent to which any business realizes the positive impacts of digital transformation is largely determined by how effectively IIoT data is captured and translated into meaningful, actionable insight. Enterprises are seeking quality data insights that they might parlay into new business models or product innovations, or use to improve productivity and efficiency in operations.

INNOVATE

IIoT data used in planning and decision-making must be accessible, accurate, and consistent; presented in context alongside other related enterprise data; and formatted for the intended recipients from a variety of options such as interactive UIs and dashboards, data visualizations, or augmented reality (AR) experiences. It is important to consider the contexts and formats used so that it will be most meaningful to the various user personas and other IIoT stakeholders who consume it.

If an IIoT system is only as good as the insight it delivers, then it is essential for businesses to get the right information to the right people at the right time.

IIOT INSIGHTS ACROSS THE ENTERPRISE

PRODUCT DEVELOPMENT

Data from smart, connected products is useful in understanding how customers actually use products. This insight can be used in planning and developing features and functions in future products to optimize customer outcomes.

MANUFACTURING

IIoT data is widely used to provide insight into operational performance to reduce downtime and increase efficiencies, but can also be analyzed to gain insight into demand and improve forecasting and inventory.

MARKETING AND SALES

IIoT data is especially useful in developing strategies for monetizing future offerings or determining whether a capability should be sold as a product or a service.

SERVICE AND SUPPORT

Product usage data provides insights that enable more proactive and preventive service that meets or beats SLAs, as well as a better understanding of customer usage and consumption to enhance service contracts.

THE COMPLETE IIoT PLATFORM

Purpose-built for industrial environments, the award-winning ThingWorx IIoT Solutions platform empowers organizations to transform how they operate and compete in the smart, connected world by rapidly implementing IoT solutions.

ThingWorx empowers industrial business to:

- Connect disparate assets and systems to enable access to multiple sources of OT and IT data

- Build robust, feature-rich industrial IoT applications quickly and easily

- Analyze large volumes of complex IoT data for actionable insights, predictions, & recommendations

- Manage connected devices, systems, and control processes centrally and securely to ensure optimal performance

- Experience contextualized, actionable information via role-based views, applications, and AR tools

- Accelerate time-to-value and return on investment (ROI) of industrial IoT initiatives

THE THINGWORX IIOT SOLUTIONS PLATFORM DELIVERS

PURPOSE-BUILT PLATFORM

Specific functionality designed for industrial IoT, including the connectivity, scalability and security to grow with the business.

RAPID DEVELOPMENT, DEPLOYMENT, AND EXTENSIBILITY

Integrated platform features enable seamless development for quick and easy delivery of industrial IoT applications.

ULTIMATE FLEXIBILITY

Deployment options include cloud, on-premise, or hybrid environments – including optimizations for Microsoft Azure. Integration with external data sources simplifies processes and yields more meaningful results.

ENGAGE AND EXPERIENCE

Drag-and-drop tools are used to build and deploy user interfaces for web and mobile applications or AR experiences.

VIBRANT ECOSYSTEM

Compatibility with a wide range of products and services that simplify, accelerate, and enhance organizational processes and strategies

SUMMARY

IMPACT OF DIGITAL TRANSFORMATION

IN THE FACTORY:

↘ **12%** Reduction in **Operational Costs**

↗ **60%** Increase in **Operator Productivity**

↘ **50%** Reduction in **Scrap**

↘ **15%** Reduction in **Energy Costs**

↗ **30%** Increase in **Factory Output**

FOR SERVICE:

↘ **80%** Reduction in **Time on Site**

↘ **30-50%** Reduction in **Training Time**

↘ **5-10%** Reduction in **Overhead**

☑ **80-90%** First time **Fix Rates**

☑ **70%** Remote **Resolution Rate**

For most industrial manufacturers, it is no longer a question whether they should pursue digital transformation – but when. In this time of incredible advancement and growth of the Industrial Internet of Things, enterprises have access to innovative, state-of-the art technologies, resources, and opportunities, A purpose-built IIoT platform can streamline the digital transformation process for any organization, which would minimize resources needed to implement and shorten time-to-benefits.

The ThingWorx IIoT Solutions platform provides complete capabilities for connecting products, analyzing IIoT data for user and customer benefits, implementing IoT solutions and applications, managing connected devices, and creating new, transformative experiences for users and customers.

↗ **Click here to learn more.**

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