

The Road to Digital Transformation

We're still on a mission. Industrial Internet Consortium (IIC) is the world's leading organization transforming business and society by accelerating the Industrial Internet of Things (IIoT).

In 2019, the IIC celebrated its 5th anniversary. In just the span of 5 years, we've witnessed the rise of the Industrial Internet, Industry 4.0, Made in China 2025 and any number of synonymous buzzwords. The IIC quickly grew to become the largest industrial IoT consortium in the world and our members became the recognized leaders in development and adoption of IIoT and enabling technologies. We've learned a lot over the last 5 years. As we've matured, it has come to pass that the initial hype and promises of IIoT have dissipated.

Is the Internet of Things dead?

Hardly! But as the number of connected machines and devices continue to explode, it gets harder and harder to make it all work. The industrial internet continues to be an over-arching principle that makes sense of, and gives direction to, many technologies like Artificial Intelligence (AI), Machine Learning, Time Sensitive Networking, 5G Connectivity, Digital Twin and others that continue to evolve.

Somehow, it seems that the cart has managed to get in front of the horse. We've got collections of emerging technologies and available solutions, yet many organizations across a variety of industries are still struggling to get projects underway. Challenges are compounded with cybersecurity risks and lack of industrial IoT standards. Not surprisingly it has become incredibly difficult to create trustworthy industrial systems which rely on devices of autonomous derivation that can work together.

Slow and Steady

Over time, the IIC has created the [Industrial Internet Reference Architecture \(IIRA\)](#), the [Industrial Internet Security Framework \(IISF\)](#), the [Industrial Internet Vocabulary](#) and more. These have established, in large measure, a shared understanding of what the industrial internet is.

The next step is to apply that understanding. For example, [Endpoint Security Best Practices](#), the [IoT Security Maturity Model: Practitioner's Guide](#) and the [Project Explorer](#). These all apply the principles in the several framework documents on real projects. However, these projects are often technology driven, rather than driven by a burning need of the business.

For the IIC to claim success in accelerating the development of the industrial internet, we need adoption. That is, we should see industrial internet technology in factories, in energy companies, in transportation and so on. To achieve that, we need to help technology users across industries take charge of their technology adoption, demonstrate business value and win support from business leaders in organizations in those vertical industries.

As the IIC moves into 2020 and beyond, evolving as an organization means turning our primary attention toward supporting technology end users across every industry. Through our ecosystem of experts, we are committed to providing valuable digital transformation resources, regardless of the size of the IoT project. It's not a generic do-gooding mission, it's about improving what companies get for their time, money and effort, and most importantly delivering on the IIC mission. We need to help the horses get back in front of their carts.

Digital Transformation across Industries

Digital transformation is a complicated journey requiring companies to address many challenges before they can begin to solve the technical problems. Many organizations struggle to understand how to get started with a project plan and how new Industrial Internet of Things (IIoT) technology will cut costs and improve the safety, efficiency and productivity of operations.

The resources of the Industrial Internet Consortium—developed collaboratively over the years by industry experts from around the globe and across all industries—give organizations the guidance needed to strategically apply digital technologies and achieve digital transformation. We offer [essential resources](#) that bridge the gap between today's challenges and digital transformation. They fall into 4 categories:

Vertical Industry Examples of IIoT Adoption at Work

- Healthcare: where clinicians, patients, treatments, resources and information are coordinated for successful healthcare outcomes
- Transport: where coordination of transport flows for both public and private transportation will ensure the best use of available resources and where to direct investment most effectively
- Logistics: where companies need to trace distribution and delivery of stock and produced goods across highly complex, international supply chains
- Manufacturing: where manufacturers and supply-chain processes must deliver, assemble and process goods and materials efficiently; where a seemingly infinite number of components can be customized right down to a batch size of one, or a network of smart factories internationally can distribute and utilize their shared production capabilities to deliver products to their customers more efficiently
- Energy: where managing bi-directional power flow and optimizing grid capacity might prevent the threat of wildfires, improve delivery of resources to areas in need, increase safety on oil rigs or enable autonomous mining environments where worker safety will not be compromised

1. Accelerator Program
2. Toolbox
3. Foundations
4. Community

The Accelerator Program

The Accelerator Program provides multiple entry points for each vertical industry, or technologists within vertical industries, to apply industrial internet technology. Here are the elements of the program, starting with those more driven by technology users.

- [IoT Challenges](#): An industrial IoT challenge is a competition initiated by a technology user or a group of technology users. They are aimed at solving high-profile, real-world problems and advancing the validation of industrial internet applications and solutions. Each challenge is conducted over several months, culminating in the announcement of winners selected by a jury. They are open to vendors, organizations, teams and individuals worldwide.
- [Test Drives](#): Test drives are short-term (3 to 6 months), rapid-engagement pilots for technology users to adopt IIoT technologies, based on technology users' real problems. They stimulate IIoT adoption across industry through accelerated implementation. The IIC's neutral innovation platform fosters partnering to address leading-edge IIoT use cases.

To consider a test drive pilot deployment, a technology user may begin by selecting a test drive proposal from our growing test drive repository. They may review the choices to find a test drive that applies to their needs. An alternative approach begins with a problem statement to determine and better understand the problem of an industry end user.

- [Testbeds](#): Testbeds have been a focus of Industrial Internet Consortium members since the IIC's inception. Our testbeds are where the innovation and opportunities of the industrial internet—new technologies, new applications, new products, new services, new processes—can be initiated, thought through and rigorously tested to ascertain their usefulness and viability before going to market. The [Negotiation Automation Platform Testbed](#) was approved on 2019-08-05, bringing our current total to 27 approved testbeds.

The Toolbox

IIC's toolbox includes the [Resource Hub](#) which delivers essential industry resources developed collaboratively by the IIC via an easy to use, searchable interface. The resources reflect the knowledge and expertise represented in our documents, testbed insights, toolkits, demos and liaison relationships with standards and industry groups around the world.

- [Project Explorer](#): The Project Explorer guides you through a set of questions to help you analyze your own IIoT project. The results will help you better understand the complexity and risks of your project. It will also provide you with actionable guidance by

referring you to different areas in the IIC Resource Hub which are of direct relevance to your project.

- [IIoT Maturity Assessment](#): This tool will enable you to understand your overall organizational readiness for IIoT and highlight areas that may soon need to be enhanced. We will also link to key IIC assets to help with your journey.
- [Security Maturity Model](#): This Practitioner's Guide provides a pragmatic approach, enabling implementation teams to communicate an IIoT system's current state of security through confident discussions with business stakeholders about the desired state of security maturity, where gaps exist and a roadmap for achieving their goal.

Foundations

- [Architecture](#): The IIRA is a standards-based open architecture for IIoT systems. The IIRA maximizes its value by having broad industry applicability to drive interoperability, map applicable technologies and guide technology and standard development. The architecture description and representation are generic and at a high level of abstraction to support the requisite broad industry applicability.
- [Frameworks](#): There are a number of IIoT Frameworks publicly available including a [Business Strategy and Innovation Framework](#), an [Industrial Internet Connectivity Framework](#), an [Industrial IoT Analytics Framework](#) and a [Security Framework](#). Our Vocabulary Technical Report specifies a common set of definitions for effective communication within the industrial internet ecosystem.
- [Best Practices](#): IIC best practices documents and white papers include three new publications: [Data Protection Best Practices](#), [Managing and Assessing Trustworthiness for IIoT in Practice](#) and [The Edge Computing Advantage](#) white papers.

Community

- [Industry Leadership Councils](#): These councils consist of CxO's and strategists in a particular industry. The goal is to understand problems they face so IIC members can address them, as well as to gather feedback from industry for incorporation into our best practices, frameworks and architecture. So far, we have one industry leadership council for manufacturing. An example of the kind of issue that might arise is a request to specialize the IIRA to add a manufacturing viewpoint.
- [Ecosystem](#): Membership in the Industrial Internet Consortium is open to any company. Our members represent large and small industry, entrepreneurs, academics and government organizations with an interest in helping to shape and grow the Industrial Internet. Non-members and technology end-users may participate by hosting Test Drives and Testbeds and through the IoT Challenges Program.
- [Special Interest Groups](#): Closest to the technology are special interest groups (SIGs). These groups focus on technologies across multiple verticals. Over-the-air updates, for example, are especially valuable for automotive, but they are also useful for automating

robots on a factory floor. The SIG gathers requirements from several industries to facilitate delivery of common services.

[Q3 Progress Report](#)

All of this is an overview of the strategic work going on within the Industrial Internet Consortium and our forward look towards 2020 and beyond. You can read more about the IIC [Test Drives](#) announced, a new Testbed, a new Liaison, the [Managing and Assessing Trustworthiness White Paper](#) and the new [Industrial Internet Vocabulary Technical Report](#) in our Industrial Internet Consortium [Quarterly Progress Report for Q3](#). IIC progress reports keep members and interested parties up-to-date on the work being accomplished on a quarterly basis. These updates involve various task and working group deliverables such as publications and case studies, as well as the progress of testbeds. It also includes upcoming Industrial Internet Consortium [events](#).

The Road Ahead

We've set the stage for member company growth and reaching new markets and established IIC as THE place to collaborate on projects that impact industry. We continue to bring together the organizations and technologies necessary to accelerate the growth of the industrial internet. We're changing the way we look at things. We understand the potential, and we're pivoting our programs to support industry users. We hope you join us on the road to digital transformation.

"When you change the way you look at things, the things you look at change." — Max Planck, German quantum theorist and Nobel Prize winner

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