Who Should Drive Your Industrial Internet of Things Pilot?

A Driver's Manual to Avoiding IIoT Roadblocks and Potholes

ptc

You've explored the use cases, the technology, and the benefits. Your question now isn't should you get started, but how to start—and who should be in the driver's seat to ensure your industrial Internet of Things (IIoT) implementation is a success?

Implementing the IIoT will optimize your workforce, work methods, and workplace at every level. But because of these wide-reaching shop-floor-to-top-floor benefits, the IIoT can't be approached as a standard software implementation.

Traditionally, manufacturers take either an IT- or OT-driven approach. For IT teams, they see the IIoT as a technology implementation and drive the pilot accordingly. OT teams see the IIoT as an operational change—and drive the pilot accordingly. But restricting pilot ownership to a single lane is a sure-fire road to diminishing ROI, non-scalable success, and frustrating roadblocks at best. At worst—an IIoT project that goes off the road into pilot purgatory.

The first step in IIoT success is to ensure IT and OT can work together through your IIoT pilot and beyond. These are the three biggest roadblocks to watch for when driving your pilot, along with expert advice on how to integrate IT-and-OT collaboration, so you can avoid each roadblock before it turns into a dead end.

> The main goal of every pilot is to verify if a certain use case or technology brings the expected added value to the customer. While most of the hard work will go into developing the technology around the pilot, it is of vital importance to know what and why you are building something. In this way, you will avoid surprises in the end of your journey."
>
> —*Takeaways for a Successful IoT Project,* IoT Zone

ROADBLOCK 1:

Siloed Pilot Leads to Missed Opportunities

IT LANE

IT often starts from the technology side of the IIoT, with a focus on security, connectivity, network performance, incident management, and other tech-focused issues. They likely are less aware of how operations will be disrupted or impacted and more focused on the infrastructure back-end.

ROADBLOCK

Missed opportunities for increasing pilot value, operational use cases, and broader operational impact, as the focus is on the nuts-and-bolts of implementation.

OT LANE

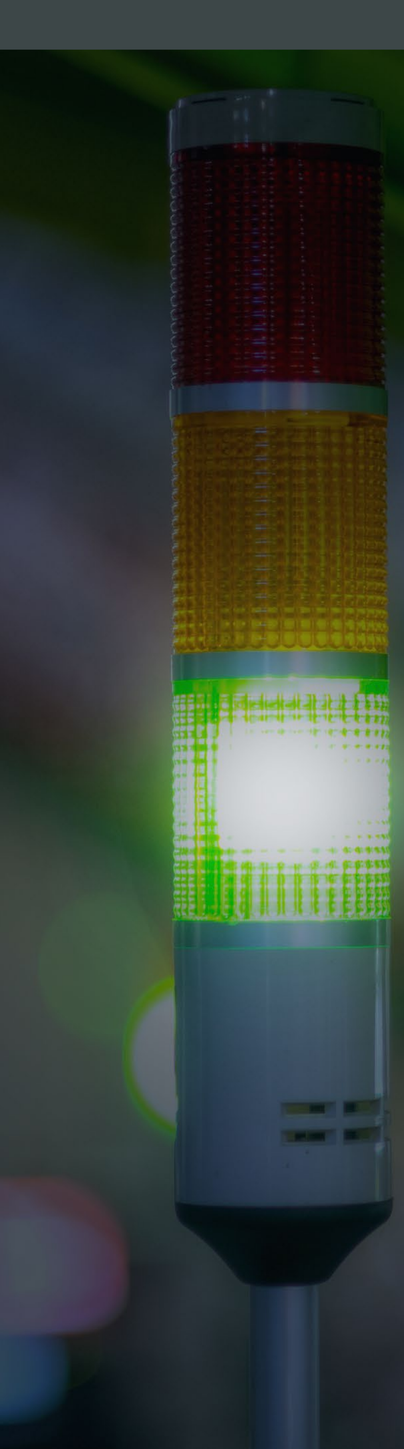
From the operations side, the focus often starts on productivity and making sure an IIoT pilot doesn't cause downtime or disrupt day-to-day processes. While they also evaluate technology, it's likely more on communications protocols and analytics, instead of technology security or network considerations.

ROADBLOCK

Missed opportunities for seamless interoperability and technology scalability (including security features), as the focus is on keeping the downtime and productivity impact to a minimum.

ROAD TO SUCCESS: APPROACH PILOTS FROM THE BOTTOM-LINE VALUE BACKWARD

In many cases, the best opportunities for IIoT pilots will be found by the folks who are hands-on with processes; those on the shop floor who can see the biggest gaps and opportunities every day. When driving your pilot, keep in mind that while many early IIoT use cases were asset-focused (for example, predictive maintenance) and required connectivity only for specific assets, today's IIoT has evolved to broader operations and processes. The connectivity, communications, and interoperability among systems and assets requires back-end work from IT and the on-the-floor insights from OT in equal measure.



IT and OT Integrate for a Bottom-Line Backwards Approach

Ponder outcome vs. technology. Rather than becoming enamored by technology, ask more nuanced questions around the business model before choosing a pilot:

VALUE PROPOSITION

What is the offering? What user needs does it address? Why is it better? How does it create customer value?

DELIVERY MODEL

What is the go-to-market model? What parts of the value chain and functions must change? Which ecosystem partners must unite to deliver this?

ECONOMIC ELEMENT

It is easier to see the link to value for operational use cases (e.g., smart factory-related) than it is for companies seeking to drive revenue growth through IoT offerings. Our research shows most value created becomes consumer surplus, leaving a portion for a provider ecosystem to capture. Companies must ask: What portion of this value will the customer share? How many people in the value chain will lay claim to this? What portion of this value flows to the bottom line? What are direct and indirect ways to monetize this?

During the pilot stage, testing the business model and the technical viability will improve confidence in delivering value."

- *Avoid Pilot Purgatory in 7 Steps*, McKinsey & Company

ROADBLOCK 2:

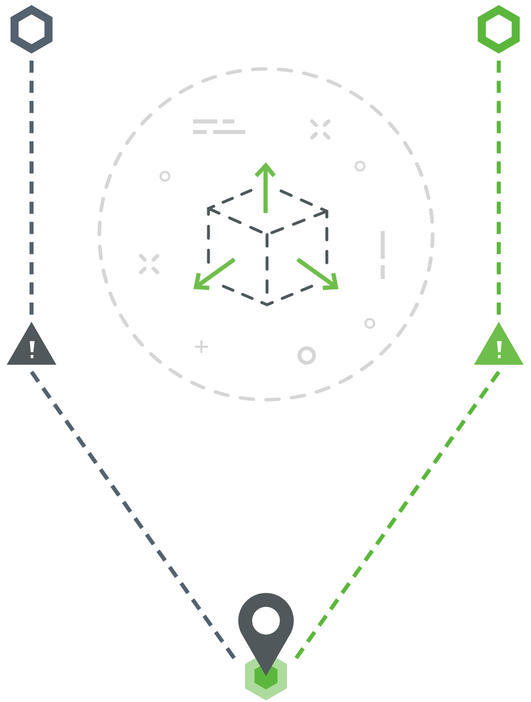
Pilots Created Without Scalability

IT LANE

With pressure to connect and build quickly, IT's goal is often a singular IIoT pilot project with a quick turn-around. It can even seem like a do-it-yourself (DIY) approach is best, with IT building some simple connectivity and data visibility for immediate IIoT testing and proof of concept.

ROADBLOCK

Once IT starts an in-house DIY-approach, it's hard to get off that ownership path—which means that limited IT resources get weighed down by IIoT demands, even as the project grows beyond pilot conception. From implementation to ongoing maintenance, scalability, security, and reliability, a DIY approach requires continuous dedication. And that's assuming IT is able to drive the initial pilot challenges of physical connectivity and data integration.



OT LANE

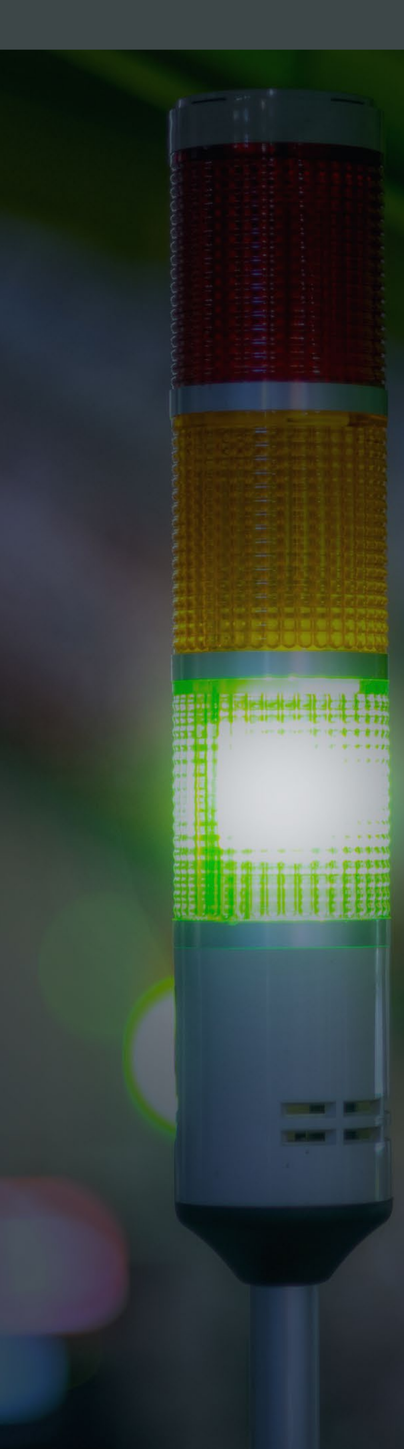
From the operations side, it's tempting to show quick value in one singular use case. It might seem less disruptive in the short-term as a proof-of-value to limit the pilot and worry about other use cases and enterprise-wide implications later.

ROADBLOCK

A singular pilot success is great, but without baked-in scalability specific to your operational model, you won't build beyond that pilot. Full IIoT success requires a vast data ingestion pipeline enabled across your workforce and enterprise. Creating one pilot provides the groundwork, but scaling that beyond that one project, line, factory, and throughout the enterprise is necessary for the insights that ultimately generate true IIoT value.

ROAD TO SUCCESS: START WITH SCALABILITY IN MIND

Scalability is key to harnessing the exponential benefits of your IIoT. Aligning OT needs for high-value use cases and IT needs for security and reliability requires an IIoT platform that seamlessly scales to connected devices, users, applications, analytics capabilities, and legacy machines. Scalability must remain top-of-mind across the pilot due to security, data, and connectivity risks on the IT side and the challenges of creating repeatable data structures and connecting divergent infrastructures and edge environments on the OT side.



IT and OT Integrate for a Scalable IoT Architecture and Enterprise-Wide ROI

Think beyond the cool solution or the trendy app. Manufacturers need to keep the big picture in mind when choosing and deploying digital solutions. Reusability, scalability and enterprise-grade operational capabilities, supported by a platform-based approach is the way forward."

—Digital Transformation in the Manufacturing Industry, CGI Group

View every decision through the lens of scaling. Consider greenfield versus brownfield technology integration, custom coding needs, data collection and processing requirements, data storage, and data security requirements. Plan to scale your technology's network and associated bandwidth appropriately, both in cost and size."

—Steps to avoid IoT pilot purgatory: A time-tested approach for IoT innovation and scaling, Deloitte

ROADBLOCK 3:

Expecting Internal Culture to Adapt to IoT Organically

IT LANE

New technology is often intimidating, especially such cutting-edge technology as the IIoT. It is tempting for IT teams to want to move slowly and focus on the complexities, instead of the opportunities.

ROADBLOCK

Digital skills gaps, insufficient training, and general organizational misalignment can pop up unexpectedly when any transformative tech is being onboarded—and the IIoT is no exception. IT teams working on the IIoT as a siloed-technology project can quickly be overwhelmed with the pace of expected transformation. And without an IIoT expert in-house, or a dedicated culture-focused project management strategy, valuable applications and opportunities can be easily overlooked as your pilot lingers in purgatory.

OT LANE

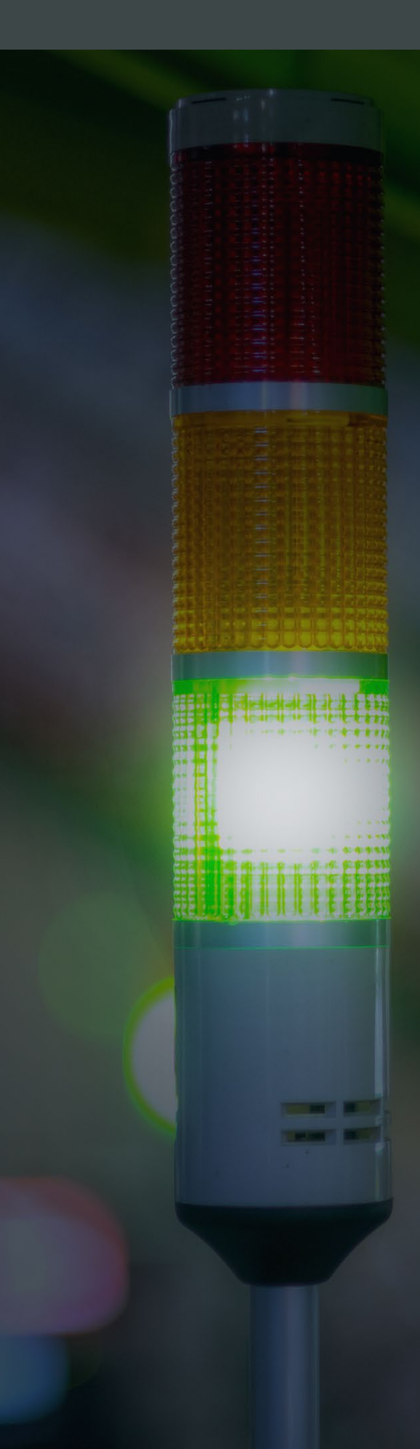
IIoT readiness is typically analyzed from a view of how production processes can handle new technology embedded into devices and machines, legacy complications, and other tools-related concerns.

ROADBLOCK

Even as OT overcomes their production-related IoT concerns, culture-related concerns are dismissed or overlooked. But readiness reaches beyond processes and into the realm of people. An organizational culture that's not ready to evolve can roadblock an IIoT pilot just as quickly as any technology issue.

ROAD TO SUCCESS: APPROACH PILOTS FROM THE BOTTOM-LINE VALUE BACKWARD

IIoT implementation requires an organizational culture change that should be well under way before a pilot. This might involve re-training or supplementing existing IT or DevOps teams or working with a reliable third-party. Just as an IT and OT partnership is crucial to a successful pilot, a similar partnership approach is a powerful solution to the cultural challenge. IT and OT can't drive enterprise-wide cultural change alone, but system integrators and other IIoT experts can provide domain expertise to help them ensure that every level gets the needed insights and applications, without the people-based growing pains of a new technology.



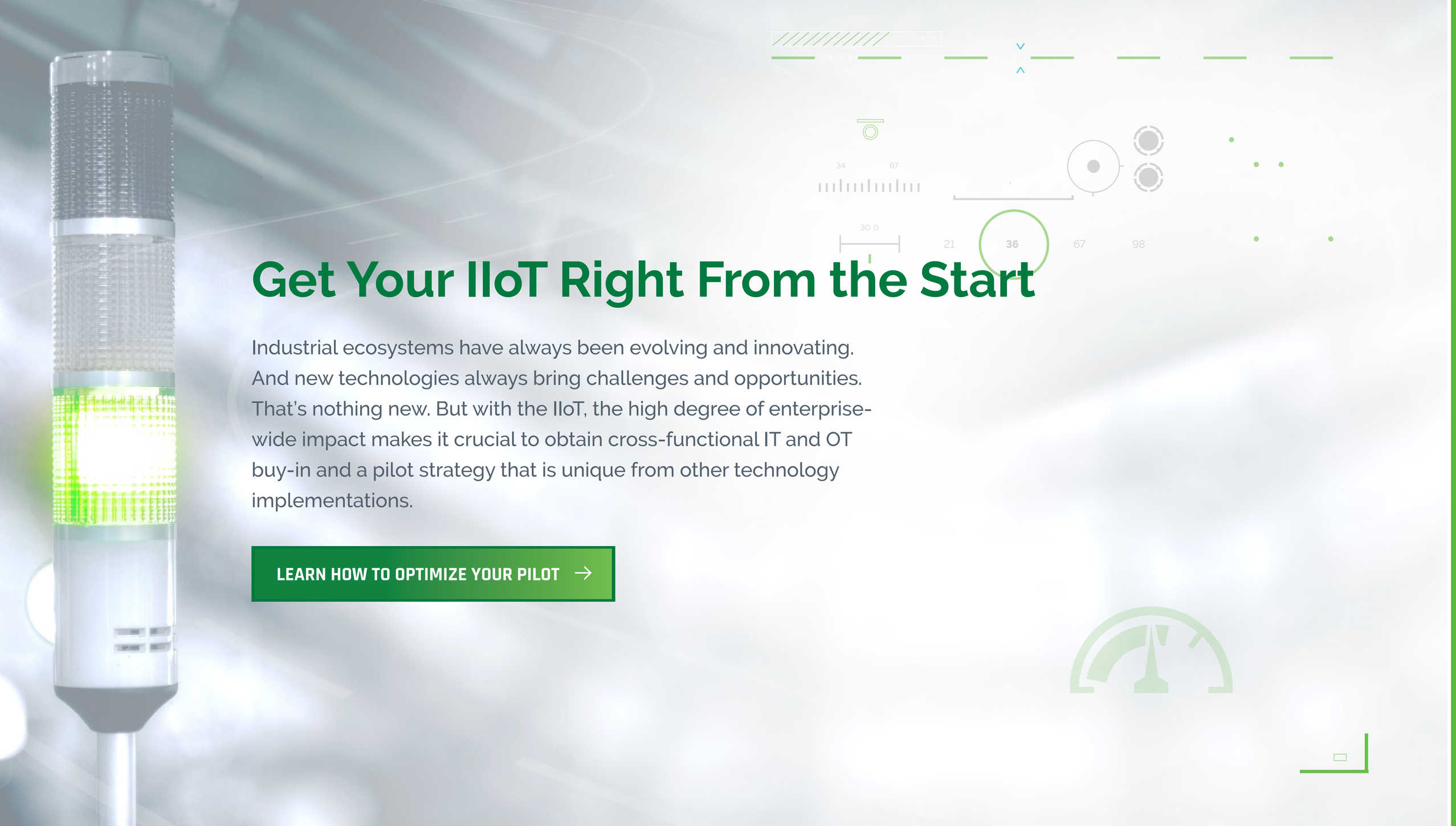
IT and OT Integrate for Supportive and Training-Focused Organizational Culture Support

Organizational culture, whereby there must be a clear customer-centric, agile and hyper-aware goal which is achieved by acquiring core competencies across the board in areas such as digital maturity, leadership, knowledge worker silos and so forth that enables to be more future-proof. Culture also overlaps with processes, business activities, collaboration and the IT-side of digital transformation. In order to bring applications faster to market changes are required. That's the essence of DevOps: development and operations. In order to make IT and OT work together in businesses/processes/activities, change is required too (it's not just the information and operational technologies, it's the processes, culture, collaboration).

—*Digital transformation: online guide to digital business transformation,* i-scoop

By bringing various technological advances together, Industry 4.0 promises production systems to boost in productivity. The transformation of the existing production systems into an Industry 4.0 factory is a strategic and long-term undertaking which needs . . . training of personnel and change of the environment and the culture in almost all of the functions of the value chain . . . Leaders need to be capable of instilling a corporate culture where digital systems can further flourish, accompanied by a company vision derived from solid knowledge about technology and how it is disrupting their businesses.

—*Industry 4.0: Managing the Digital Transformation,* Springer Series in Advanced *Manufacturing*



Get Your IIoT Right From the Start

Industrial ecosystems have always been evolving and innovating. And new technologies always bring challenges and opportunities. That's nothing new. But with the IIoT, the high degree of enterprise-wide impact makes it crucial to obtain cross-functional IT and OT buy-in and a pilot strategy that is unique from other technology implementations.

LEARN HOW TO OPTIMIZE YOUR PILOT →