# Build vs. Buy for Industrial IoT Solutions

A Guide for Business Decision Makers

## Manufacturers are recognizing the industrial Internet of Things (IIoT) as an essential component of digital transformation.

With 91% of the 2,000 largest manufacturers relying on digital platforms as the foundation for their industrial ecosystems[1], leading enterprises have already capitalized on IIoT-enabling technologies to generate an average of $100 million in additional operating income each year.

The IIoT is an increasingly necessary investment for industrial firms to claim their position as a future leader. And gaining competitive advantage sooner rather than later is mission-critical for most manufacturers, with 88% of adopters stating that IIoT is essential to the success of their company.[2]

1. Digital Factories 2020: Shaping the Future of Manufacturing. PWC; 2017.
2. IoT Signals: Summary of Research Learnings 2019. Microsoft; 2019.

# IIoT Implementation: The Build vs. Buy Dilemma

Manufacturers are seeking the most scalable, timely, and cost-effective IIoT implementation path—while avoiding the same fate as 80% of IIoT implementations that "squander their transformational opportunities."[3] This search raises many issues, including deciding whether to build an IIoT solution in-house or buy from a third-party.

## Choosing the Best IIoT Approach

Can third-party IIoT solutions solve your unique problems or integrate with your existing systems and applications? Does it make more sense to build solutions in-house to comply with existing budgets? What is the best way to manage and protect IIoT data and intellectual property?

As a complex and multidisciplinary endeavor, your IIoT approach is not a decision made lightly. The chosen direction depends on your enterprise-wide needs—both today, and into the future. And with either option comes an enduring impact on operations, customers, and overall business strategy. To make the best determination, manufacturers must understand the pros and cons of both options.

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3. 80% of Companies Will Fail to Monetize IoT Data, According to Gartner. Gooddata.com; 2016
4. IoT Platforms: The central backbone for the Internet of Things. IoT Analytics; 2015.

# The Pros and Cons of **Internally Building Your IIoT**

## PROS

**CUSTOMIZATION** Building in-house often allows for more control in creating an ideal IIoT solution. Companies can build a solution or combine their own chosen portfolio of solutions that meets their specific needs, without conceding to the pre-built offerings of a platform or solution provider.

**UP-FRONT COSTS** Building internally often means lower up-front costs, as solutions can be purpose-built to align with budget constraints. If third-party pricing is an economic barrier to entry, a build option is often a cost-effective choice in the short-term.

**ALIGNMENT IN-HOUSE** It's sometimes easier to decide on building internally, using agreed upon resources, than finding a consensus on a vendor. For manufacturers that haven't found a suitable third-party platform but have in-house engineering resources, building in-house is a straightforward option. Using internal resources can also mean enhanced prioritization and installation, as in-house experts know the issues and can pinpoint immediate ways to address them.

**TECHNOLOGY** An in-house build can leverage existing cloud subscriptions and modern architecture. With in-house IIoT implementation, the existing tools and technologies can be integrated to leverage what is already available—meaning you get more ROI out of what you have on-hand.

## CONS

**TIME** Developing an internal solution can easily double time-to-market. Research indicates the process of pre-studying, building the team, developing, and rolling-out an internal IIoT solution takes approximately 2.5 years, whereas the project timeline for using a third-party vendor is estimated to take half the time.[4]

**LONG-TERM COSTS** As an in-house build project matures, investments in home-grown solutions often end up costlier than vendor solutions, with the total cost of build ownership being almost four times greater when compared to third-party adoption.[5] And an internally built solution will likely be unable to keep pace with the functionality provided by a third-party vendor (where the solution development is their sole focus).

**LACK OF EXPERIENCE** Even at their most elementary, IIoT builds are complex and labor-intensive, especially if technology is not part of the manufacturer's core competencies. A successful build calls for deep knowledge of sensors, security, software development, data science, cloud architecture, edge computing, and more. It's rare for a manufacturer to have in-house expertise that covers all the challenges of IIoT technology development.

**SCALABILITY** When an IIoT solution's value becomes fully apparent—regardless of the implementation strategy—stakeholders across the enterprise will get excited about new and innovative use cases. An in-house built solution will always need to be enhanced and upgraded—necessitating constant support from IT experts. In-house experts may have the skills for implementation, but may not as readily be able to support, maintain, and scale beyond initial goals.

5. Enterprises evaluate the costs of building versus buying an IoT platform. Network World; 2018
6. Cisco Survey Reveals Close to Three-Fourths of IoT Projects Are Failing. Cisco; 2017.

# The Pros and Cons of **Buying a Third-Party IIoT Solution**

## PROS

**PROVEN EXPERTISE** To position themselves for long-term success, manufacturers must move their IIoT solutions beyond the proof of concept stage. Working with solution providers that have a successful track record within your industry helps develop scalable uses cases with real-world applications. Doing so reveals opportunities to quickly realize returns on investment while establishing the foundations needed for longer-term growth potential. In addition, relying on third-party expertise means your internal teams can focus on their core tasks, instead of getting buried in managing the security, infrastructure, and other complexities of IIoT solutions.

**TIME-TO-VALUE** Third-party solutions come with out-of-the-box features that provide value within weeks in the short-term and seamless scalability in the long-term. Because third-party IIoT solutions are built specifically for industrial organizations, there is typically minimal development time needed internally and immediate ROI for multiple use cases.

**SECURITY REQUIREMENTS** Given the ever-evolving threat of cyberattacks, IT and data security should be top concerns for any IIoT implementation. Any best-in-breed vendor's protocols for system security ensure the authentication and authorization of all people, systems, and things on the network, while keeping data secure from technology threats and fully backed up in the event of a system failure.

**PARTNER ECOSYSTEM** As transformation ushers in new ways of doing things, business structures are departing from a one-company-does-it-all stance and moving towards partnerships that solve business problems together. After all, at its core, IIoT is about creating connections. Through this partnership approach, manufacturers are capitalizing on best-in-class and complementary technologies, resources, and capabilities from industry-leading providers to accelerate solution development and advance their goals.

## CONS

**VENDOR LOCK-IN** When you choose a vendor, you are locked into their pace of innovation and their prioritized roadmap. In most cases, vendors focus on a pace of innovation that anticipates market needs (after all, that's how they stay competitive). Although you can trust that a vendor will want to meet the most prevalent market challenges in order to stay competitive, they won't necessarily be able to address niche priorities or use cases. And in today's world of start-ups, what happens if the vendor doesn't have business longevity?

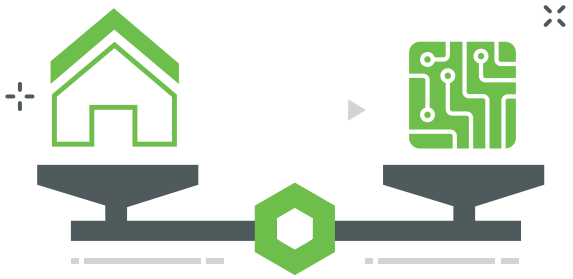
**INITIAL COSTS** Many manufacturers focus on the initial costs of IIoT implementation—without realizing the total cost of ownership is typically lower long-term. Building IIoT solutions is a new venture for manufacturers and presents many unknown variables that established, mature vendors have already addressed and corrected over years—and the price of implementation reflects those lessons learned and expertise. However, if IIoT is expected to bring just a small ROI—perhaps it will just have one singular, specific use case, for example—the immediate vendor cost may not seem as reasonable, even factoring in the long-term benefits.

# Which Solution Works Best for Your Business Needs?

Three out of four in-house IoT builds are reported as failures[6] that lead to compounding organizational challenges. An inexperienced team can end up costing both time and money. And a successful implementation is just the start—ROI isn't realized by simply building IIoT solutions. Any in-house build must focus on available resources needed to ensure the solutions don't fall behind industry-wide advancements offered by vendors (and used by competitors).

Stakeholders must examine their current and future business needs before making a decision that feels right for now—but might cause multiple problems in the future.

Whichever IIoT approach you choose, it's critical to consider the holistic solution scalability beyond implementation, as well as alignment across the needs of your business, technology, and people.



Manufacturers deciding on building or buying must also weigh specific vendors against their in-house abilities, as not all third-party solutions provide the same support.

# Ask the Experts: How to Drive Innovation with Your IIoT

Together, PTC ThingWorx® and Microsoft Azure are uniquely positioned to help manufacturers implement an IIoT solution focused on value, speed, and scale. With combined strengths, complementary strategies and technologies, and joint customers, PTC and Microsoft offer the most scalable IIoT solutions to help drive successful digital transformation and achieve growth opportunities.

thingworx®

## WITH PTC, MANUFACTURERS CAN:

- Bring digital transformation to every aspect of business with holistic industrial solutions for engineering, manufacturing, sales, and service
- Accelerate time to value
- Avoid having to develop custom-built solutions, whether coded in-house or the result of several point solutions

Microsoft Azure

## WITH MICROSOFT, MANUFACTURERS CAN:

- Be future-ready and enable continuous innovation to support your product vision today and tomorrow
- Operate seamlessly with tools and services designed for on-prem, in the cloud, hybrid, and at the edge
- Trust your cloud with best in class enterprise security, privacy, and compliance
- Incorporate intelligence through AI, ML, and Mixed Reality to further enhance systems and operations

# Ask the Experts: How to Drive Innovation with Your IIoT

The joint IIoT solution from PTC and Microsoft provides manufacturers with the ability to:

- **Effectively scale** initial success across the global enterprise while providing ongoing maintenance, support, and upgrades by eliminating data silos
- **Immediately access** the hundreds of Azure innovations made available through the partnership, ensuring the PTC + Azure stack is always up to date for customers
- **Leverage** an established foundation of professionals from PTC and Microsoft, experienced in designing, updating, maintaining, and supporting solutions that offer scalability, security, a broad global footprint, and unparalleled intelligence
- **Realize faster time to value** and faster time to market, within weeks or months, from ready-to-configure IIoT applications and solutions that reduce complexity, maintain an innovative roadmap aligned with industry needs, and accelerate ROI
- **Gain advantage** and keep up with the pace of innovation while focusing on core competencies and customers while keeping up with the pace of innovation PTC and Microsoft focus on the long- and short-term strategy of the IIoT platform
- **Rely on decades of expertise** from two industry leaders with proven innovation and the ability to support customer use cases and provide a partnership ecosystem for the best solutions support available
- **Maximize investments** in existing IT and OT infrastructure, while accommodating business needs and preventing vendor lock-in today and into the future
- **Lower total cost of IIoT ownership** through an out-of-the-box solution that enables manufacturers to focus on their core business, without distractions or time sucks due to developing and maintaining an internal IIoT infrastructure

Ready to take on the best IIoT implementation for your business? IIoT experts at PTC can help talk you through the build vs. buy decision, so you have a realistic look at the best option for your needs.

**Learn more about PTC and Microsoft IIoT solutions**

# The Industry's leading IIoT Solutions

Together, Microsoft and PTC are bringing together the world's computer (Azure) with the world's leading Industrial IoT solutions (ThingWorx) to accelerate digital transformation across the enterprise. From manufacturing and supply chain and sales and marketing to customer service and engineering, our seamless, secure pre-built intelligent IoT solutions decrease time to value from months to minutes and unlock new growth opportunities for industrial organizations.

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