

CHECKLIST

Make or buy your IoT solution?

You can either build your own industrial Internet of Things (IoT) solution or adopt a ready-made one. While making your own takes much more effort, time and expense, it can be feasible if you are able to dedicate the right resources and onboard the right supporting technology. Whichever path you choose, MindSphere®, a leading industrial IoT as a service solution from Siemens, can meaningfully drive your journey forward.

This checklist will help you evaluate and consider the necessary steps to achieve industrial IoT success.

Make

1. PLAN

Identify use cases

- What will you achieve? For example:
 - Reduced downtime?
 - New business models?
 - Performance transparency?

Define scope and functionality

- What machines need to be monitored?
- How will data be collected?
- What data will be measured?

Identify how to measure success

- How will you establish IT governance to ensure the right stakeholders receive the intended value?

Buy

1. PLAN

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2. ESTABLISH A DEDICATED TEAM

- ❑ **Establish the business team to:**
 - ❑ Drive organizational change
 - ❑ Facilitate data sharing
 - ❑ Internally promote to expected users
 - ❑ Productize/monetize the platform with “as a service” offerings
- ❑ **Establish the technical team to:**
 - ❑ Develop the solution (engineering, IT, operations)
 - ❑ Deploy the solution
 - ❑ Maintain, update and innovate on top of it over time

Expect to need **4x as many resources** on your “Make” team, compared to if you were buying an industrial IoT solution.

3. DEVELOP

Phase 1: Create the foundation

- ❑ **Identify foundational specs**
 - ❑ Determine system size
 - ❑ Identify storage and processing location
- ❑ **Define IT services to provision**
 - ❑ Database
 - ❑ Communication and connectivity
 - ❑ Security
 - ❑ Management tools
- ❑ **Features of core**
 - ❑ You will need to be able to:
 - ❑ Create: allow data to enter the solution
 - ❑ Read: find and interpret data
 - ❑ Update: refresh data to ensure it is current
 - ❑ Delete: remove data from the platform

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3. DEVELOP PLANS & IMPLEMENT

Phase 1: Develop plans

- ❑ **Identify an industrial IoT solution that meets capability needs**
- ❑ **Define adoption roadmap**
 - ❑ Roadmap should account for:
 - ❑ Desired timeline
 - ❑ Your team’s industrial IoT readiness
 - ❑ When/how long you can take assets offline without disrupting production

Phase 2: Implement

- ❑ **Implement industrial IoT solution**
 - ❑ Establish industrial IoT capabilities
 - ❑ Stand up the solution with these actions:
 - ❑ Equip relevant plant assets with proper sensors and devices
 - ❑ Establish connectivity

Phase 2: Identify and prototype design

- ❑ **Create a model/mockup of the system's architecture**
 - ❑ After several rounds of iterations, you should have:
 - ❑ A validated design
 - ❑ Confirmed IT services can interconnect with one another and function on the system – if they don't, identify these gaps and rectify them
 - ❑ Separated prototype concepts from the system you are actually developing

Phase 3: Develop the solution

- ❑ **Build your core**
 - ❑ **Features:** create, read, update, delete (CRUD)
- ❑ **Develop processes to support solution**
 - ❑ Determine how data is:
 - ❑ Transformed
 - ❑ Related to other data
 - ❑ Visualized
 - ❑ Acted on

4. TEST

Phase 1: Satisfy the use case

- ❑ **Meet the goals you originally defined**
 - ❑ **Start building out IIoT capabilities:**
 - ❑ Integration with industrial automation systems
 - ❑ Application lifecycle management
 - ❑ **Convert data into knowledge**
 - ❑ Develop analytics capabilities and use case applications

Tip: Empower non-technical users

If you lack in-house app development skills, leverage a low-code platform, like Mendix.

- ❑ Provision necessary cloud-based IT services: compute, storage, app development

❑ **Adopt industrial IoT applications**

- ❑ Implement ready-made applications, or build low-code apps
 - ❑ **Mendix™ platform:** build low-code or no-code IIoT applications
 - ❑ **Partner:** leverage pre-built applications from MindSphere partners
 - ❑ **In-house:** develop your own applications using preferred development tool

4. TEST

- ❑ **Pilot: MindSphere is already pretested and pre-built, so the pilot phase should go quick**
 - ❑ Test your initial use case in one predetermined site
 - ❑ Provide formal training to potential users
 - ❑ Iterate on the implementation based on feedback
- ❑ **Identify incremental expansion**
 - ❑ After you see success, what plants can you expand industrial IoT to, and what roles can start using the solution?

Phase 2: Pilot your solution

- ❑ You should have a clear understanding of how the following plays into your pilot strategy:
 - ❑ **Role/user:** who will oversee the pilot? What roles will be involved and/or affected?
 - ❑ **Use case:** what initial use case will you experiment with?
 - ❑ **Geography/site:** where will you launch the pilot? What facility can support it?

Tip: Iterate based on initial feedback

Get feedback from a small group of users to fine-tune the execution of your initial use case. If you are building your own solution, use this feedback to rework core features and processes.

5. LAUNCH

Phase 1: Drive enthusiasm for your solution

- ❑ **Rally your team around the IIoT system**
 - ❑ Internally, engage your teammates and promote the benefits of adopting IIoT
- ❑ **Get customers excited**
 - ❑ Externally, sell customers on the use case you're hoping to fulfill (if you are looking to implement as a service offerings)
- ❑ **Start educating your team**
 - ❑ Identify those affected by the implementation and build a curriculum to ramp them quickly

Tip: Get stakeholder buy-in

Don't underestimate the need to influence and "sell" internal stakeholders on your solution. Strong backing will help you overcome shortcomings to drive success.

5. LAUNCH

- ❑ **Move solution to production**
 - ❑ Implement it in all plants that are part of the first wave of adoption
 - ❑ Support the MindSphere implementation by provisioning the appropriate cloud-based IT resources in geographically local areas

Phase 2: Roll out and ramp up

❑ Roll out your solution

- ❑ After you start seeing success, start allowing measured scaling:
 - ❑ Deploy to a new region or site
 - ❑ Allow new users to leverage the solution and/or data
 - ❑ Expand to a new use case

Tip: Work back from the user once in market

Success depends on meeting user needs. Build feedback loops within your implementation— communicate with and get feedback from users often.

6. MAINTAIN

❑ Maintain the solution

- ❑ Uphold security of the system, data, and all connected things
- ❑ Build out SLAs and a long-term support plan
- ❑ Troubleshoot issues that arise; identify and fix bug

❑ Update the solution over time

- ❑ Implement new services as they are rolled out by providers
- ❑ Listen to customer demand and innovate accordingly

6. MAINTAIN

❑ Scale and expand

- ❑ Plan next waves of adoption

❑ Focus on what matters

- ❑ When you leverage MindSphere, Siemens automatically updates it with new capabilities as technology advances. This means you can focus on:
 - ❑ Cutting costs
 - ❑ Improving product quality
 - ❑ Differentiating your offerings

Whether you buy an IoT solution or try your hand at making your own solution – Siemens can provide valuable, industry-tested help.

Explore how you can use MindSphere to solve your use cases, get a free tenant and test it out: mindsphere.io/start/industry

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