Belden

Why Warehouse 4.0 Pilots Fail to Scale

And What to Do About It

EBook

Introduction

The truth is, most pilots don't really fail — they succeed up to a point, then fail to scale. In many situations, that's fine. Maybe the pilot is designed to be single-purpose and successfully resolves the issue it's deployed to address. Or maybe your company simply wants to test a new solution or idea before making a commitment to invest.

But often, you want to expand your Industry 4.0 pilot beyond one use case, machine type or factory — that's when the gap appears: the inability to scale beyond a certain scope or level of success.

We call this situation "scale fail."

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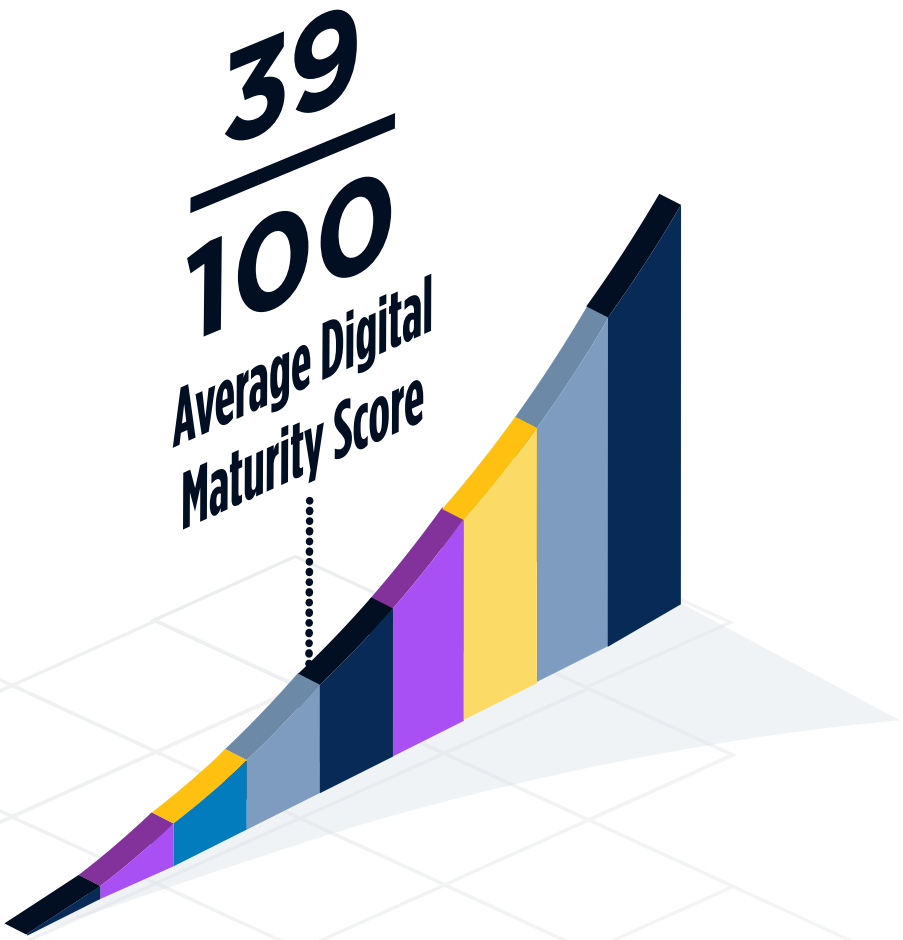


According to an Accenture study* of 600 manufacturing companies, the average digital maturity score is 39/100, indicating most companies are past the proof-of-concept stage and are now rolling out pilots.

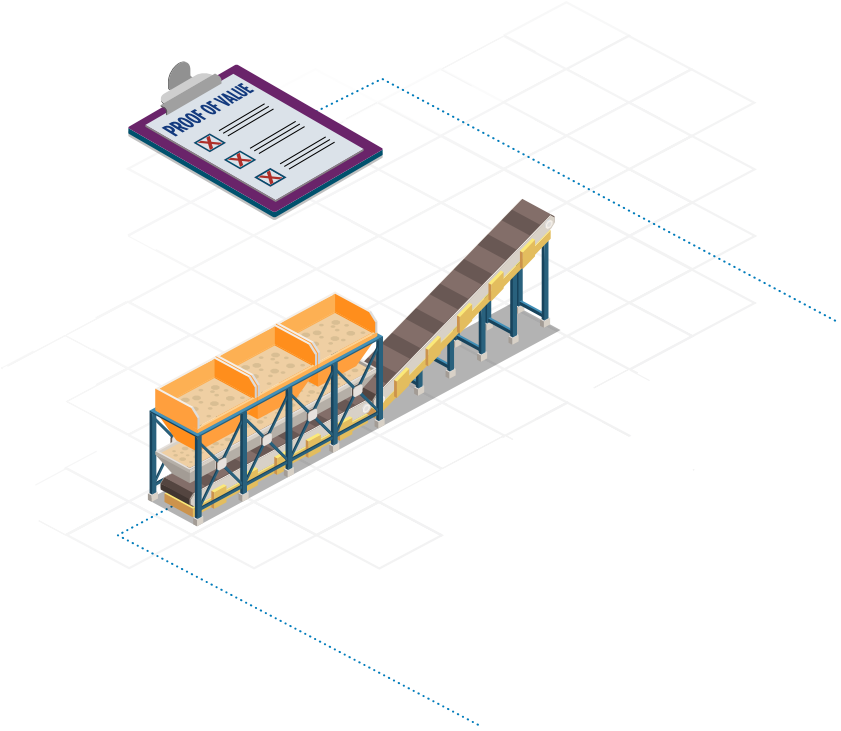
This e-book will:

- Explore why pilots fail
- Identify key components of a scalable pilot
- Outline strategies to take your next pilot from stalled to successfully scaled

Top Reasons for Scale Fail

1. Proof of value missing in action

Many pilots are designed to fix immediate, easy-to-handle problems and **often neglect the root cause of larger issues.** This short sighted approach could stem from a lack of diagnostic tools, funds or knowledge. Like treating a symptom without curing the illness, **implementing a narrowly focused pilot won't effectively address the more significant, underlying problem.** Therefore, a strong and scalable pilot project should always have a solid value case with long-term business outcomes in mind.



2. New adventures of old machines

Manufacturing equipment is often decades old. The older the machinery, the fewer available parts and experts to fix issues that impact production. Many plants "patch-in" various point solutions and software to quickly mitigate issues.

In addition, employees sometimes resort to "shadow IT" — unofficial and unapproved software — to solve immediate problems. These quick fixes result in disconnected, siloed systems that pose significant challenges to pilot programs and heighten cybersecurity risks.

3. Data everywhere (except where it needs to be)

Factory floors are filled with **connected and disconnected machines.** Connected machines produce a vast amount of data, while disconnected ones generate unused information. **This imbalance poses challenges for pilots.** Bulk data is not enough; relevant data in near real time is required for proactive decisions.

4. Too-exclusive pilot party guest list

Engaging employees is vital to every stage of a pilot: design, deployment, optimization and expansion. **Yet many pilots are deployed without involving the people impacted by the pilot.** Key workers lack insight into the pilot's purpose, goals, metrics and other criteria. In fast-paced industries like manufacturing, there's an **inherent resistance** to change. Workers tend to focus on immediate tasks over the potential benefits of digitalization and cloud technology. Encouraging adaptation and viewing change as opportunity is essential for successful scaling.

Consequences of Scale Fail

- Limited OEE improvement, if any
- Lack of ROI or value impact
- No improvement in competitiveness
- Change management challenges

The bottom line

If you can't scale your Industry 4.0 pilots, you can't fully implement smart manufacturing — and you could lose business.

Let's explore key strategies for successfully expanding your pilots and avoiding scale fail.

Strategy 1:
Unlock Insights in Data

Access and understand relevant OT data

Numerous manufacturers struggle with accessing OT data. Overcoming these challenges and ensuring reliable access from machines, devices and workers can empower businesses. Focusing then on cleaning, contextualizing, and security can drive insightful decision-making.

Converge your IT and OT data and create insights

A scalable and functional pilot requires the integration of IT and OT data, enabling you to unite business processes, controls and data in a converged edge to cloud platform. This critical step unlocks insights across your entire manufacturing chain and makes data available as needed from operator to boardroom.

Streamlining Manufacturing by Solving a Messy OT Problem

Challenge: In 2022, Belden's Richmond plant underwent a journey to modernize its decades-old manufacturing operations. Faced with **unplanned downtime,** various **machine vintages** and a **lack of real-time data** about mechanical performance, the facility needed to quickly expand digitization, increase capacity and improve operational efficiency.

Solution: Using a mix of Belden networking products and AWS cloud and edge computing services, the company implemented a solution that enabled real-time OEE visualization and improved predictive maintenance.

Results: These improvements delivered an **18 percent increase in OEE and an $833,000 reduction in costs** annually.

18% increase in OEE

$833K reduction in costs/year

Strategy 2: Take a Comprehensive Approach to Use Case Selection

Understand the underlying problem

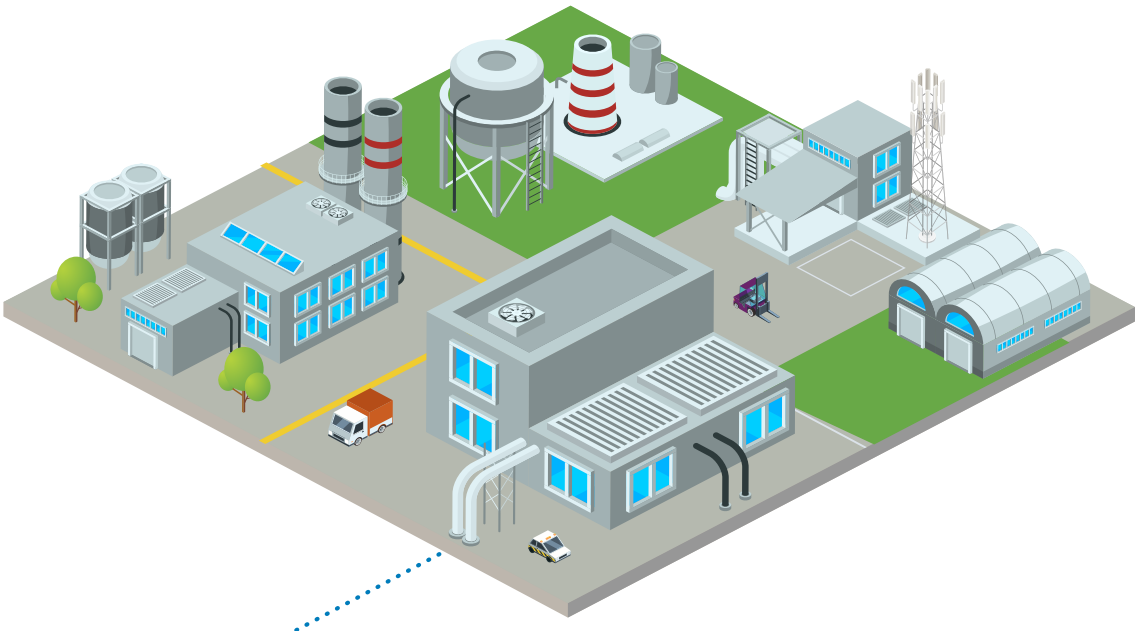
Don't scramble to address an immediate-but-minor pain point. Determining the overarching issue helps you create a pilot that's scoped to scale as need arises.

Plan now to scale later

Narrowly defined proofs of concept (PoCs) yield limited results and can't effectively redeploy in other use cases. Develop your PoC around variability, so it can resolve its use case and be deployed in other locations and situations.

Leverage diagnostic tools

Use diagnostic tools to identify patterns and anomalies in your data, systems and infrastructure operations. This guides you to build a scalable pilot for long-term business value.



Strategy 3:
Make the human connection

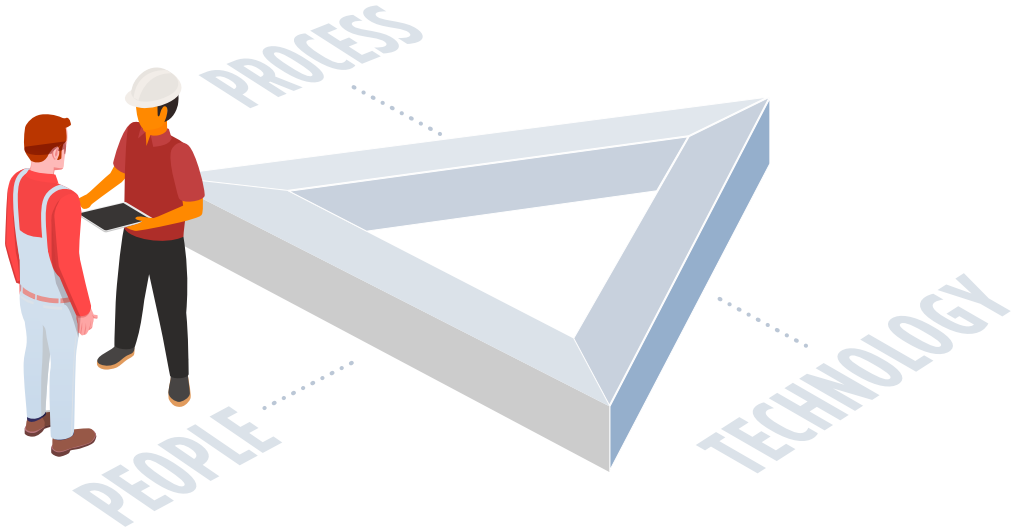
Integrate worker challenges into your pilot parameters

Your pilot will ultimately impact everyone in your company, from factory floor to C-suite. Take the time to understand their needs and challenges and take these into account when designing your pilot.

Proactively engage your entire workforce in the pilot process

The key to a pilot's lasting success is human buy-in and improvement of experience. When people clearly understand a pilot's goals and benefits to their way of working, they're more willing to put in the effort to help ensure the pilot is successful.

The People, Process and Technology framework, or Golden Triangle, advocates for striking the right balance between people, processes and technology when taking steps toward Industry 4.0; however, people are often the least and last element considered. To design a scalable pilot, manufacturers should dedicate as much time to securing human buy-in as they do to implementing new processes and technology.



Strategy 4:
Try a platform approach

Build a flexible, foundational platform

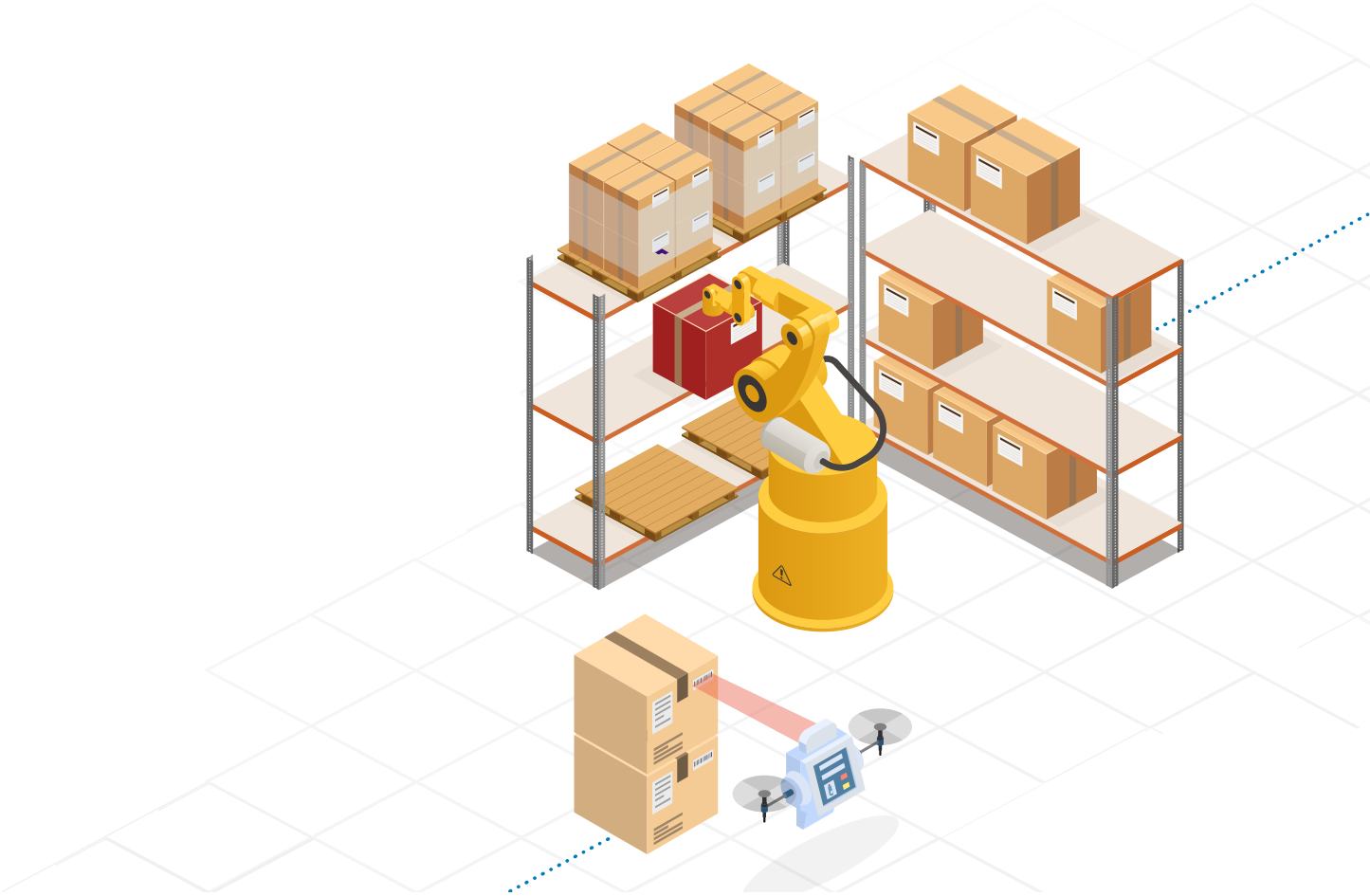
Avoid considering digital manufacturing pilots as unrelated. Strive for a flexible foundational platform that can handle multiple use cases for better standardization and easier deployment.

“Stack” capabilities

First establish a core business platform of foundational functions, then add on capabilities in a modular manner as needed.

Think long term to solve short-term challenges

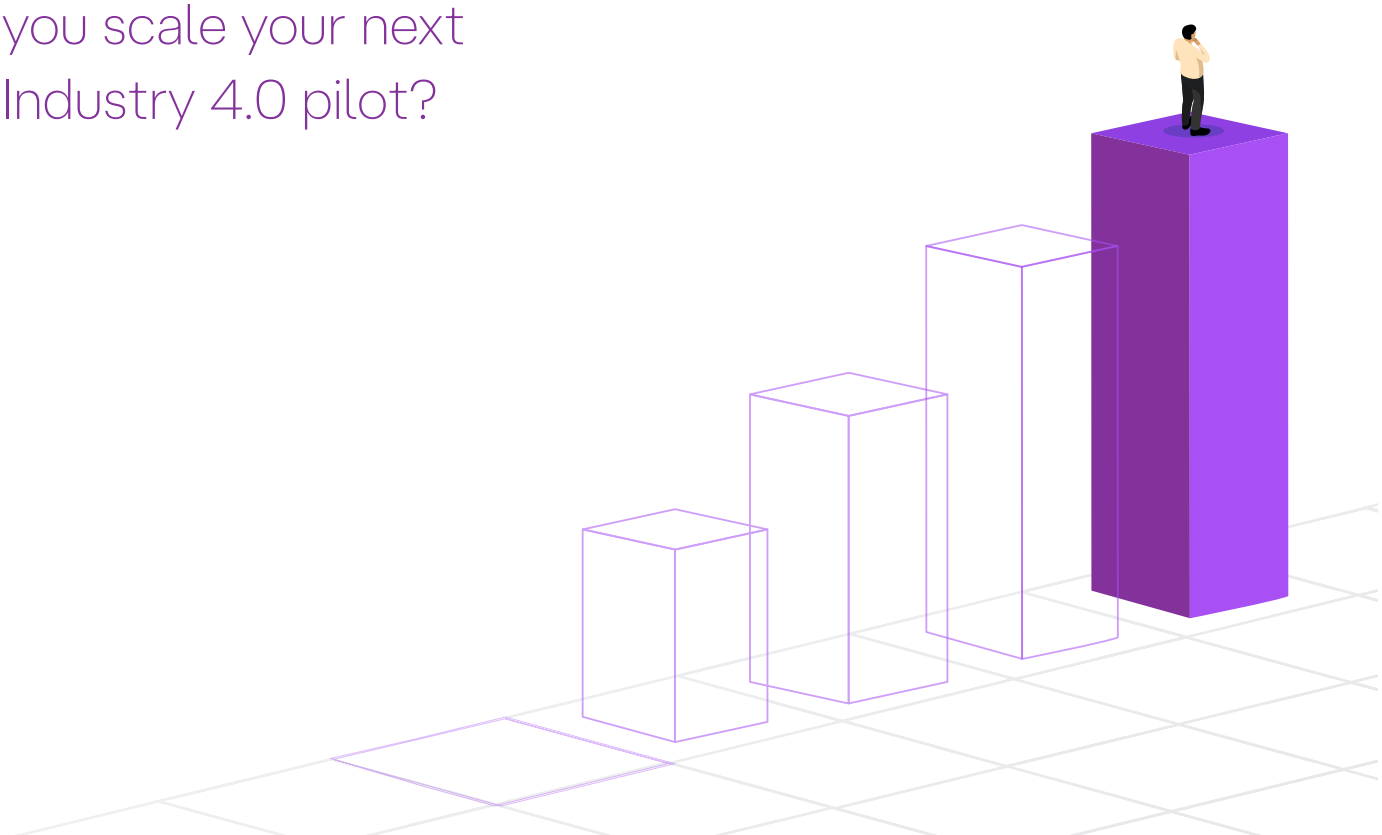
This strategic planning approach means that even as your pilots initially solve lower-value use cases, they’ll still be applicable, scalable and valuable to your business in the long run.



Final thoughts

Building a scalable Industry 4.0 pilot isn't easy. It requires a value-driven approach, the right technology, contextualized data and human buy-in. But the time you spend up front on planning will pay off in the end, providing you with a pilot that generates ROI, improves operational efficiency and scales alongside your company.

Ready to discover how Belden can help you scale your next Industry 4.0 pilot?



Learn more

Connect to what's possible.

EBook

About Belden

Belden Inc. delivers the infrastructure that makes the digital journey simpler, smarter and secure. We're moving beyond connectivity, from what we make to what we make possible through a performance-driven portfolio, forward-thinking expertise and purpose-built solutions. With a legacy of quality and reliability spanning 120-plus years, we have a strong foundation to continue building the future. We are headquartered in St. Louis and have manufacturing capabilities in North America, Europe, Asia, and Africa.

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