

nickleeder

whitepaper

From pilot to playbook

A practical guide for scaling Industry 4.0 in manufacturing.

Written by Nick Leeder
Published 2025

Copyright notice

© Nick Leeder & Co Limited, 2025. All rights reserved. Nick Leeder & Co Limited is a company registered in England and Wales, company number 14066763. You may quote brief extracts with clear credit to Nick Leeder & Co. For any other copying, distribution or commercial use, please ask us first in writing.

Disclaimer

This paper is for general information only. We work hard to keep it accurate and current, but we make no promises or warranties, express or implied, that it is complete, accurate, reliable or suitable for any purpose. Any reliance you place on it is at your own risk. Nothing in it is legal, financial or professional advice. Please take your own advice before making business, legal or financial decisions based on it.

Version 1.0, first published 2025. Rebranded edition, November 2026.

The home of this paper, with a summary and related reading: nickleeder.com/resources/from-pilot-to-playbook-scaling-industry-4-0/

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

Contents

	Foreword	4
	Executive summary	5
01	Why pilots stall and playbooks matter	8
02	Shift from isolated pilots to intentional scaling	11
03	Culture is the operating system	14
04	Build your factory playbook	17
05	Speak the CFO's language	20
06	Change behaviour, not just tools	23
07	Operate like a Lighthouse, at your own scale	26
	From one win to a system that works	28
	Next steps	29
	Sources	29
	Questions this paper answers	30
	About the author	30

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

Foreword



If you're a manufacturing leader, you've probably lived this story.

A digital pilot shows promise: OEE lifts, energy use drops, the team's hopeful. But then the momentum fades. Budgets shift, priorities change, and before you know it, that bright spark of innovation is quietly archived in a PowerPoint deck. Another pilot. Another missed opportunity to scale.

I've seen this pattern play out in plants across the UK, Europe and North America. And it's not because the tech doesn't work. It's because we treat pilots like finish lines, not starting blocks.

This guide was born out of those conversations, in factory offices, control rooms and strategy workshops, where leaders ask me, "How do we move from trying things to transforming the way we work?"

It's a fair question. Most manufacturers don't have the luxury of sprawling transformation teams or endless budget lines. You're running lean, juggling production targets and trying to make change stick in the real world. The truth is, scaling digital in your operations (aka Industry 4.0) isn't about complexity. It's about confidence. And confidence comes from having a system that works, not just once, but everywhere.

What you'll find in this guide is practical. It's built on the habits of organisations that didn't just run pilots: they built playbooks. They turned small wins into repeatable systems. They brought finance into the room early. They made culture visible on the shop floor. And they proved that you don't have to be a global Lighthouse to behave like one.

If that sounds like the kind of transformation you're aiming for, then this guide is written for you.

I hope it helps you shift the conversation from "Why didn't this scale?" to "What's the next site we're ready for?"

Let's get to work.

Nick Leeder

Founder, Nick Leeder & Co Limited

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

Executive summary

Pilots prove it can work. Playbooks prove it can scale.

Pilot purgatory

Pilot purgatory is a cycle where digital tools prove useful in isolation but fail to gain traction across the network, so pilots generate insight but little enduring value.

Digital transformation in manufacturing is no longer about starting: it's about sustaining. Manufacturers are running more pilots than ever, but few translate them into network-wide impact. The leap from concept to scale is where most businesses stall.

According to the Rockwell State of Smart Manufacturing Report 2025, while 86% of manufacturers have launched digital initiatives, only 28% report enterprise-wide adoption. The World Economic Forum Lighthouse Network highlights that fewer than 30% of companies manage to scale transformation beyond isolated use cases, despite proven value at pilot sites.

This guide was created for operations, finance and transformation leaders who are ready to move beyond test sites and turn early wins into enterprise value. Drawing on real-world experience, WEF Lighthouse benchmarks and field-proven habits from mid-sized firms, From Pilot to Playbook offers a structured framework for scaling Industry 4.0 in the real world, where capacity is tight, teams are stretched and outcomes matter.



© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

The scale of the problem

86%

of manufacturers have launched digital initiatives

Rockwell, State of Smart Manufacturing Report 2025

28%

report enterprise-wide adoption

Rockwell, State of Smart Manufacturing Report 2025

<30%

of companies scale transformation beyond isolated use cases

WEF Global Lighthouse Network 2025

You'll discover

- / Why most pilots stall and how to avoid "pilot purgatory"
- / How to build a transformation culture where adoption isn't forced, but owned
- / What a practical, repeatable factory playbook really looks like
- / How to speak in CFO terms to unlock funding and support
- / Why behaviour change, not just deployment, is the real ROI unlock
- / How to apply Lighthouse thinking at your scale, without the budget or brand

The payoffs are real. Lighthouse manufacturers have achieved up to 50% reductions in cost, cycle time and quality loss, with many reporting 2 to 3x ROI in under three years (WEF Lighthouse Operating System 2025). And these are not global giants alone: several case studies in the network come from mid-sized factories with focused teams and disciplined execution.

At every step, you'll find specific challenges, root causes and practical actions you can take immediately, whether you've just finished your first pilot or you're already chasing cross-site consistency.

The takeaway? Scaling doesn't need complexity. It needs structure, belief and action. This guide gives you all three.

If you're ready to move from good intentions to sustained transformation, this is your next step.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

01

Why pilots stall and playbooks matter

Across factories large and small, one trend is clear: digital pilots are everywhere, but scale is rare.

01

Why pilots stall and playbooks matter

Across factories large and small, one trend is clear: digital pilots are everywhere, but scale is rare.

A manufacturer trials predictive maintenance on its most failure-prone line. The results are promising: less downtime, smoother scheduling and even a spark of pride from the team. But when it comes to rolling the solution out across other lines or sites, momentum fades.

This isn't just an isolated story. It's the pattern across the industry.

According to the World Economic Forum, while nearly all manufacturers are experimenting with digital technologies, **only 30% successfully scale transformation beyond a single site** (WEF Global Lighthouse Network 2025, p. 5). Most get stuck in "pilot purgatory", a cycle where tools prove useful in isolation but fail to gain traction across the network.

Why? Because scaling isn't just about replication: it's about systemisation.

Many pilots are designed to prove a point, not power a business system. They work thanks to local champions, extra support or one-off fixes that can't be replicated. They deliver insight, not infrastructure. When those conditions disappear, so does the impact.

At the same time, operations and finance leaders are cautious. They need more than local success: they need visibility of ROI, speed of deployment and confidence in the path to scale. That's why the best manufacturers do things differently.

The Lighthouse Factories, those recognised globally for leading transformation, consistently outperform peers because they treat pilot wins as system prototypes. They standardise what works, document the "how" and design for scale from the start. The result? **2 to 3x higher ROI in three years**, and **4 to 5x ROI within five years**, compared to traditional adopters (WEF, 2025, p. 5).

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.



And the wins aren't marginal

63%

faster speed to market at Schneider Electric's Shanghai site

WEF Global Lighthouse Network 2025

60%

better labour productivity at Valeo in Shenzhen

WEF Global Lighthouse Network 2025

66%

shorter production cycle time at GE Healthcare in Beijing

WEF Global Lighthouse Network 2025

These results aren't out of reach. They're the product of structure, clarity and discipline. And manufacturing firms can adopt the same mindset, by turning pilots into playbooks.

This guide is built for leaders who are ready to make that leap. Whether your first pilot just wrapped, or your third still hasn't spread, now is the time to codify what works and scale it with confidence.

Because digital transformation doesn't stall for lack of technology. It stalls for lack of a system that works everywhere.

This is your system. Let's build it.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

02

Shift from isolated pilots to intentional scaling

A great pilot becomes a blueprint, not just a win.

02

Shift from isolated pilots to intentional scaling

A great pilot becomes a blueprint, not just a win.

The challenge

Many manufacturers fall into the trap of “pilot purgatory”, running promising digital experiments that generate insight but little enduring value. These pilots often solve for isolated problems in one facility, without a clear plan to adapt, replicate or evolve elsewhere.

Research from the Rockwell 2025 State of Smart Manufacturing report shows that while 86% of manufacturers have launched pilots, only 28% report enterprise-wide adoption of smart manufacturing initiatives.

Why it happens

- No roadmap exists beyond the test site.
- Site-specific workarounds limit transferability.
- ROI is unclear or unproven, making investment in wider rollout hard to justify.
- Functional silos block collaboration and ownership.



What to do instead

Treat scale as the goal from day one. That means designing pilots not just to work, but to be repeatable, what the Lighthouse Network calls “assetisation”: turning solutions into modular, reusable and standardised components.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

A great pilot becomes a blueprint, not just a win.

Practical tips

- **Define what success means before launch:** include both operational and strategic KPIs (for example, cycle time, OEE and team adoption).
- **Design with variation in mind:** test pilots in the most complex or variable environment you can. It'll surface the gaps early.
- **Document playbooks as you go:** treat knowledge transfer as a first-class output, not an afterthought.
- **Build with the next site in mind:** standardise data models, interfaces and integrations wherever possible.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

03

Culture is the operating system

Culture eats dashboards for breakfast.

03

Culture is the operating system

Culture eats dashboards for breakfast.

The challenge

Many digital transformations stall not because the technology fails, but because people don't change how they work. Culture eats dashboards for breakfast. Even a well-designed system won't scale if teams don't trust it, own it or see its relevance in daily routines.

In the Siemens 2025 presentation and WEF research, cultural alignment is cited as a major determinant of success across Lighthouse factories. Yet in most businesses, day-to-day execution pressures leave little space for behaviour change. Leaders often assume "adoption" means "deployment", when in reality, it means reshaping habits.

Why it happens

- New systems are introduced with little context or co-creation.
- Teams don't see their input reflected in how tools are configured.
- Recognition focuses on outcomes, not learning or usage.
- Middle managers are unsure whether to prioritise new processes or stick with what's known to work.



What to do instead

Treat culture as an input, not a side effect. In successful transformations, people are brought in early to shape the tools, not just asked to use them later. Visibility leads to curiosity.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

Curiosity builds ownership.
Ownership drives sustained change.



Practical tips

- **Make the system visible in the flow of work:** include live dashboards in shift briefings or huddles.
- **Show real outcomes quickly:** for example, downtime avoided, energy saved, waste reduced, tracked per line or per shift.
- **Reward behaviour, not just results:** recognise technicians who trial changes, not only the biggest gains.
- **Use peer storytelling:** one team showing another how they used the tool makes belief contagious.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

04

Build your factory playbook

Too many pilots live and die in slides.

04

Build your factory playbook

Too many pilots live and die in slides.

The challenge

Too many pilots live and die in slides. Even when results are good, they rarely come with a manual for others to follow. And when the next site tries to implement something similar, they either reinvent the wheel or give up.

Without a playbook, every deployment becomes a one-off project instead of a repeatable system.

Why it happens

- / Documentation is deprioritised during fast-moving pilots.
- / Local adaptations aren't captured, making scale feel risky.
- / Each site interprets the "why" and "how" differently.
- / Tribal knowledge stays in the pilot team.



What to do instead

Capture what made the pilot work, technically, operationally and behaviourally. Your playbook should be more than an SOP or deployment checklist. It should reflect how people used the tools, how decisions were made and what obstacles were overcome.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

Practical tips

- **Build three layers into every playbook:** tech set-up (data, alerts, logic), operations routines (roles, timing, troubleshooting) and human factors (stories, wins, lessons).
- **Create short videos or walk-throughs:** not just PDFs. Visuals build confidence.
- **Host a "passing the baton" session:** let the pilot team brief the next site in person or via call.
- **Update playbooks quarterly:** treat them as living assets, not static documents.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

05

Speak the CFO’s language

If the CFO doesn’t see a clear return, scaling stalls.

05

Speak the CFO's language

If the CFO doesn't see a clear return, scaling stalls.

The challenge

Operations may love the solution. IT may support it. But if the CFO doesn't see a clear return, scaling stalls. Many digital projects fail to move forward because they are framed in technical or functional language, not commercial impact.

According to Deloitte's 2025 Manufacturing Outlook, executive confidence in scaling technologies increases significantly when the financial case aligns with strategic goals such as resilience, margin expansion and risk reduction.

Why it happens

- Operational teams focus on performance metrics, not financial conversion.
- Costs are clear, but savings are vague or buried in assumptions.
- Business cases are framed as "investment asks", not "value unlocks".
- Finance is brought in too late to shape the model.



What to do instead

Build your business case with finance from the start. Align it to measurable, monetised outcomes like downtime cost avoidance, deferred capex and improved cost per unit. Speak in scenarios, not features.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.



Practical tips

- **Convert technical wins into money:** for example, "18% uptime gain = £54k extra throughput per month."
- **Break ROI into stages:** show 6-month, 12-month and 24-month impact.
- **Tie your case to board-level themes:** like energy volatility, margin pressure and ESG.
- **Co-create models with finance:** involve a commercial analyst or controller during early design.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

06

Change behaviour, not just tools

Technology can be installed, but people have to change how they work.

06

Change behaviour, not just tools

Technology can be installed, but people have to change how they work.

The challenge

Even well-funded rollouts fail when no one changes how they work. Technology can be installed, but if people don't adopt new routines or decision-making processes, the system will gather digital dust.

In the WEF Lighthouse research, the most scalable factories embedded daily, visible behaviours that reinforced change, from frontline routines to leadership rituals.

Why it happens

- Systems feel disconnected from daily work or too complex to act on.
- Roles are unclear: "Who's supposed to check this?"
- There's little feedback loop or recognition for using the tool.
- Middle managers are overwhelmed with competing priorities.



What to do instead

Operationalise the new way of working. That means embedding systems into shift structures, KPIs and review cycles, and building confidence through recognition, peer learning and clarity.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

Practical tips

- **Define “what good looks like”** for adoption at each level, for example technician, supervisor, operations manager.
- **Integrate new tools into existing meetings:** don’t create new ones.
- **Track behaviour, not just outputs:** for example, how many alerts are acted on, how often shift leads use dashboards.
- **Shout out the early adopters:** recognition builds momentum.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

07

Operate like a Lighthouse, at your own scale

The principles that made the Lighthouses work can be applied in a leaner, right-sized way.

07

Operate like a Lighthouse, at your own scale

The principles that made the Lighthouses work can be applied in a leaner, right-sized way.

The challenge

Most manufacturers see the WEF Lighthouse factories as too distant, too large, too global, too well funded. But the principles that made them work can absolutely be applied in a leaner, right-sized way.

Lighthouses didn't start with advanced AI. They started with clarity, capability and repeatability. Those same habits unlock performance regardless of company size.

Why it happens

- Companies assume they need more digital maturity to start.
- Focus stays local, with little cross-site sharing.
- Transformation is treated as a set of projects, not an operating model.



What to do instead

Adopt the mindset of a Lighthouse: build from real pain points, test fast, learn visibly and standardise smart. Make transformation a rhythm, not a revolution.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

Practical tips

- **Start with one repeatable problem** across your sites, not one-off pilots.
- **Codify wins in playbooks** and share across teams: systemise learning.
- **Set up light governance** to monitor adoption and value. Don't leave it to chance.
- **Tell the story every time something works:** change spreads through people.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

From one win to a system that works

You've run a pilot. It showed potential. Now comes the bigger decision: do you leave it there, or build something scalable?

Scaling Industry 4.0 in manufacturing isn't about having a five-year digital roadmap and a global transformation office. It's about making success repeatable, understandable and valuable across teams.

This guide isn't theory. It's a practical, field-tested framework built from the habits of companies, big and small, that turned digital experiments into enterprise results.

The next step is not to do everything. It's to do the right next thing, with discipline.

Here's where to start

01

Codify your pilot

Document what worked: the technical, operational and human enablers.

02

Create a shareable playbook

Treat it as a live product that your team can use, not a report that sits on SharePoint.

03

Show the money

Convert results into financial impact. Downtime avoided, energy saved, margin improved.

04

Build belief

Recognise your early adopters and let teams tell the story of how it worked.

05

Pick your next site

Don't over-plan. Just move. Learn. Adjust. Share.

Scaling isn't about getting it perfect from the start. It's about moving from good to better, faster, together.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

Next steps

Ready to turn your pilot into a playbook?

We help manufacturing leaders codify what worked, build the business case with finance and scale with confidence.

Book at meetings.nickleeder.com
hello@nickleeder.com / +44 (0)1275 772 422

Scan to book

Sources

Deloitte (2025). 2025 Manufacturing Industry Outlook.
Rockwell Automation (2025). State of Smart Manufacturing Report.
Siemens (2025). Presentation on cultural alignment in Lighthouse factories.
World Economic Forum (2025). Global Lighthouse Network.
World Economic Forum (2025). Lighthouse Operating System.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

Questions this paper answers

Why do most Industry 4.0 pilots fail to scale?

Pilots are often designed to prove a point, not to power a business system. They rely on local champions and one-off fixes, there is no roadmap beyond the test site, ROI is unclear and functional silos block ownership.

What is a factory playbook?

A living record of what made a pilot work, in three layers: the technical set-up (data, alerts, logic), the operating routines (roles, timing, troubleshooting) and the human factors (stories, wins, lessons), updated quarterly.

How do you build a CFO-ready business case for scaling?

Build it with finance from the start, convert technical wins into money, show impact at 6, 12 and 24 months, and tie the case to board-level themes such as energy volatility, margin pressure and ESG.

Can mid-sized manufacturers operate like a WEF Lighthouse?

Yes. Lighthouses started with clarity, capability and repeatability rather than advanced AI. Start with one repeatable problem across sites, codify wins in playbooks, set up light governance and tell the story every time something works.

About the author



Nick Leeder is the founder of Nick Leeder & Co. An engineer by background, he has led, and been accountable for, transformation programmes in senior management roles at Dyson, SKF and Philips, across Europe, North America and Asia. He is certified in the Smart Industry Readiness Index (SIRI) and its CoSIRI framework, and is recognised by organisations including the World Economic Forum. Nick Leeder & Co is a multi-award-winning advisory and coaching business that helps manufacturing leaders turn enabling technology into measurable operational results.

© Nick Leeder & Co Limited 2025. Registered in England and Wales no. 14066763. Registered office: 37 Great Pulteney Street, Bath BA2 4DA.

nickleeder

Complexity delivers nothing.

At Nick Leeder & Co, we exist to restore clarity, confidence and control for manufacturing leaders navigating digital transformation.

Our mission is to help industrial businesses unlock the real value of enabling technologies, not through hype, but through practical action that improves productivity, profitability and sustainability.

We have seen too many businesses fall into the pilot trap. Too many strategies built on buzzwords instead of business outcomes. We believe manufacturers deserve better. So we help leaders cut through the noise, uncover what really matters and build a transformation path they can trust, so they get results that stick.

Follow us on LinkedIn
nickleeder.com/linkedin

Subscribe to Beyond the Buzzwords
nickleeder.com/beyond-the-buzzwords

Nick Leeder & Co, 37 Great Pulteney Street, Bath BA2 4DA, United Kingdom
hello@nickleeder.com / +44 (0)1275 772 422 / nickleeder.com