

TRIMONTIUM AI | WHITE PAPER

Steps to Digital Transformation

A practical guide for UK manufacturers

Honest, jargon-free advice on how to move from spreadsheets and siloed systems to a genuinely data-enabled manufacturing business, without the usual theatre, cost overruns or culture shock.

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Foreword

I have been working with UK manufacturers for the best part of fifteen years, in research labs, on factory floors and, more recently, in boardrooms where the conversation has shifted decisively toward AI. What I see, almost without exception, is a sector full of people who know their processes inside out, who care deeply about quality and craft, and who are also quietly anxious about the same questions: *Are we falling behind? Where do we actually start? And how do we do this without betting the business?*

This white paper is my attempt to answer those questions honestly. It is not a sales document and it is not a theoretical exercise. It is the ten-step framework we use with our own manufacturing clients, written the way I would explain it to a managing director over a coffee on the shop floor.

There is no magic to digital transformation. There is a sequence. Skip a step and you pay for it later, usually in adoption problems, budget overruns, or technology that sits unused. Follow the sequence and you end up with something quite rare: a business where the data actually helps people make better decisions, and where AI is a tool that the team trusts rather than fears.

I hope you find it useful. If you have questions, challenges or genuine disagreements, we would be very interested to hear them. That is how we all get better at this.

Digital transformation in manufacturing is not a technology problem. It is a decision-making problem that technology helps solve.

— Dr Peter Appleby, Co-Founder & Chief Data Scientist, Trimontium ai

Why this matters now, and why for UK manufacturers specifically

If you are running a UK manufacturing business today, the conditions you are operating in bear very little resemblance to the ones your predecessors faced even five years ago. Input costs move weekly rather than quarterly. Energy prices are structurally higher. Post-Brexit documentation has added friction to almost every export process. The skills gap is widening rather than closing. And on top of all of that, everyone from your customers to your bank is asking what you are doing about AI.

In the conversations we have with managing directors and CFOs across the North West, the Midlands and beyond, the same frustration keeps surfacing. People are not short of data. They are drowning in it. They have an ERP, a CRM, a production planning system, a pile of spreadsheets, a quality module, and an energy dashboard that nobody looks at. What they lack is a way of joining those things up so the information actually tells them something useful, in time to do something about it.

That is what digital transformation is for. Not for its own sake, and certainly not to keep up with whatever LinkedIn is talking about this week, but because the businesses that can see clearly will outcompete the ones that cannot.

A quick definition, in plain English

Digital transformation is the process of changing how your business runs, so that technology and data are woven into the way decisions are made, rather than bolted on afterwards. It is less about buying software and more about redesigning the flow of information so that the right people see the right things at the right time.

For a manufacturer, that usually means four shifts happening together:

- **Data becomes visible in real time** rather than reconstructed after the month end.
- **Decisions become proactive** rather than reactive, because the information arrives before the problem.
- **Skilled people are freed up** from repetitive reporting and reconciliation to do the work only they can do.
- **The organisation becomes AI-ready**, meaning new tools can be adopted safely because the foundations are in place.

None of that requires a forklift replacement of your systems. Most of it starts with joining up what you already have.

The biggest myth in manufacturing AI is that you need to be data-rich to begin. Every manufacturer I meet is already data-rich. They just cannot see it clearly, and nobody has shown them how. — Dr Peter Appleby

The ten-step framework

What follows is the sequence we take our manufacturing clients through. It is not theoretical. Each step has been refined by watching what works on actual shop floors and in actual boardrooms. The steps are deliberately in order. You can run them at different paces, but skipping one tends to cause the project to stall somewhere around month four, when the absence of that earlier work becomes the thing everyone is arguing about.

Step 1. Assess the digital environment you actually have

Every digital transformation starts with an honest look at where you are today. Not where the brochure says you are, and not where the last consultant claimed you would be by now. The actual state of affairs.

In practice, that means walking the business and asking awkward questions. Where does the data for each decision come from? Who owns it? How often is it refreshed? What happens when the person who built that spreadsheet goes on holiday? Which of your systems talk to each other, and which require someone to paste between them on a Monday morning?

This assessment is not about judgement. Nearly every manufacturer we work with has evolved their technology stack organically, one good decision at a time, over many years. The result is almost always a bit of a patchwork, and that is fine. The point is to see the patchwork clearly before you start stitching.

The output of this step is not a glossy report. It is a shared, honest picture, agreed across operations, finance and IT, of what you have and how it hangs together. Everything downstream depends on it.

Step 2. Define the vision, and be honest about the why

Vision statements have a bad reputation in industry, and often deservedly so. But there is a very practical reason to do this step well: if you cannot explain why you are transforming, you will not be able to hold the line when things get difficult, and they will get difficult.

Worth putting on paper, and testing with the leadership team:

- What is the objective? More margin, faster decision-making, better customer service, reduced rework, AI readiness, succession planning — it is almost certainly several of these, but the relative weighting matters.
- What are you missing by not doing this? The cost of inaction is rarely zero, and it is almost always larger than people expect.
- Which stakeholders need to be on board, and what will each of them need to see to believe?

- How will you roll this out: big bang across the business, or a sequence of deliberate phases? For most mid-sized manufacturers, phased beats big bang every time.
- What resources, financial and human, are you prepared to commit? And what is off the table?

The purpose of this step is to link the digital transformation to the business strategy so tightly that the two become indistinguishable. If the transformation is a side project, it will fail. If it is how you are going to hit your commercial targets, it will not.

Step 3. Identify the gaps

Once the vision is clear, the gaps become easier to see. This is where a structured maturity assessment earns its keep. We use two at Trimontium: a **digital maturity assessment** looking at leadership, people and culture, and technology; and a data and **AI readiness assessment** that adds an explicit lens on how prepared the organisation is to use AI responsibly and effectively.

The value of these assessments is not the score at the end. It is the conversations they force. When leadership, operations and IT sit in the same room and work through the same questions, the gaps that matter tend to reveal themselves: the process that everyone knows is broken but nobody owns; the data set that three departments each maintain a slightly different version of; the technology that was bought for a specific use case five years ago and is now used for something else entirely.

From that exercise you get a short list of processes to review, technology gaps to close and capabilities to build or strengthen. That short list is the backbone of everything that follows.

Step 4. Secure real leadership commitment

This is the step that, in our experience, most often decides whether a transformation succeeds or quietly collapses eighteen months in. Without genuine senior buy-in, not just approval but active championing, the programme lacks the authority to make the hard calls, and the investment will be pulled at the first budget squeeze.

A few things that tend to help:

- Find at least one digital champion in the leadership team, someone who will carry the case when you are not in the room.
- Name the resistance. Every organisation has it, and it is almost always healthier to talk about it openly than to pretend it does not exist. Who is worried? What are they worried about? What would reassure them?
- Frame the transformation in the language of the business, not the language of technology. Margin, risk, capacity, customer retention, succession. Not stacks, pipelines and platforms.

- Bring evidence. Not generic case studies from other continents, but practical examples of what similar businesses have done and what they got for it.

Leadership commitment is not a one-off event. It needs to be refreshed at every major milestone. Plan for that from the start.

The projects that fail tend not to fail because the technology was wrong. They fail because, at some quiet moment, the leadership team stopped believing. Your job is to make sure that moment never arrives.

— Dr Peter Appleby

Step 5. Plan and prioritise what needs to change

At this point you have a long list of things that could be improved. Now you need to decide what to actually do, and in what order. The three lenses that matter are people, process and technology, and every real initiative will touch at least two of them.

We typically group related items into work packages and then prioritise those packages on three axes: business impact, implementation complexity, and organisational readiness. The sweet spot for a first wave is work that delivers visible value quickly, is achievable with current capability, and builds the foundations needed for more ambitious things later.

A word on early wins. Pick something that the team will feel the benefit of, not just something that looks impressive in a steering committee slide. If your most experienced quality manager gets a weekly Sunday-night dread because of a report she has to compile by Monday morning, and you can take that off her plate with a simple data pipeline, that is the kind of win that earns you the right to do the bigger things next.

Step 6. Build the roadmap

With priorities agreed, the roadmap is mostly a sequencing exercise. What has to be done before what? Where are the dependencies, including the ones nobody likes to discuss, like the fact that the MRP upgrade scheduled for Q3 will make any data work before it partially redundant?

A good manufacturing roadmap does four things well:

- It is honest about resourcing. You will not do everything you want to do in the time you have, and an ambitious-but-undeliverable plan will do more damage than a modest-but-achievable one.

- It names the skills you need at each phase. Some you will hire, some you will develop internally, and some you will bring in via partners. All three are legitimate; pretending you have capability you do not is not.
 - It builds in risk mitigation. Technology timelines slip. Vendor selections take longer than expected. Key people leave. A roadmap with no slack is a roadmap that will break.
 - It is a living document. Commit to reviewing it quarterly. The world changes, and the plan should too.
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Step 7. Secure the investment, and choose technology well

Digital transformation costs money. There is no version of this that is free, and pretending otherwise is how programmes end up underpowered and disappointing. What you can control is how efficiently the money is spent, and that is largely a function of how well you choose what to buy.

When evaluating technology and partners for a UK manufacturer, four tests are worth applying:

- Scalability. Can this grow with you, or will it need replacing the moment you double in size?
- Partnership mindset. Will the vendor still be actively supporting you in three years, or is your custom just another line on their pipeline?
- Integration. Can it talk to what you already run? In manufacturing, the cost of forcing systems to integrate badly almost always exceeds the license fee.
- Fit. Does it actually solve a problem you have, in the way your team needs it solved? Generic solutions are rarely a good fit for the realities of a specific factory.

We are deliberately provider-agnostic at Trimontium, and we recommend clients hold the same stance. The best solution is the one that fits your context, not the one with the loudest marketing.

Step 8. Create a culture that can actually absorb the change

This is the step that most technology-led programmes under-invest in, and it is almost always the difference between adoption and abandonment. Digital transformation is, fundamentally, a change to how people work. If the people do not come with you, nothing else matters.

At the heart of a digitally mature organisation is not the technology but the team. Resistance is normal, and often it carries valuable information: people who have seen a dozen systems come and go are right to be sceptical of the next one, and their scepticism is a resource you can use if you treat it with respect.

A few practical things that work:

- Identify champions in every function, not just in leadership. A foreman, a shift supervisor or a senior technician who believes in the change is worth more than any consultant.

- Pick projects that visibly make working life better. Faster reports. Fewer spreadsheets. Less duplicated data entry. These build goodwill that you can spend on harder changes later.
 - Invest in upskilling, genuinely. A half-day workshop is not upskilling. Embedded, applied, role-specific learning is.
 - Foster a culture where data is a shared asset, not a departmental weapon. This is a slow one, but it is the one that pays back longest.
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Step 9. Measure, review, and be willing to course-correct

The technology landscape is changing faster than any single organisation can track. Your transformation will need to evolve, and the only way to evolve intelligently is to measure honestly.

Before you start, agree what good looks like. Not in vague terms, but in specific, testable indicators. For manufacturers, useful metrics often include some combination of:

- Margin visibility: how long after the end of a week or month can leadership see a reliable margin picture?
- Decision cycle time: how long does it take to move from noticing a problem to deciding on a response?
- Skilled time released: how many hours a week of your most experienced people are no longer spent on repetitive reporting?
- Forecast accuracy: how close do your rolling forecasts get to actuals, and is that closing over time?
- Adoption: are people actually using the new tools, or reverting to the old spreadsheets? Be honest about this one.

The point of measurement is not to prove the programme was a success. It is to learn, quickly, what is working and what is not, and to adjust. Any programme that looks identical at month eighteen to the way it did at month one has almost certainly stopped learning.

Step 10. Scale, and keep transforming

Digital transformation is not a project with a defined end. It is a shift in how the organisation operates, and that shift continues as the world continues to change.

Scaling what works tends to mean three things. First, moving from rigid functional silos to structures organised around value streams, where the right information and the right people can come together quickly. Second, embedding an agile mindset not as a buzzword but as a discipline: plan, deliver, review, adapt, repeat. Third, taking the lessons from the first wave of transformation and using them to run the second wave faster, cheaper and with more confidence.

The manufacturers who get this right tend to describe the outcome in surprisingly modest language. They do not talk about being disrupted, reinvented or revolutionised. They talk about being calmer, clearer, and more in control. That is what good digital transformation feels like from the inside.

You will know the transformation has worked not when the technology is impressive, but when in the Monday morning meeting everyone already knows what the numbers say and can get straight to decisions.

— Dr Peter Appleby

A closing note

If you have read this far, I suspect you already have a sense of where your own business sits in this framework. Perhaps you are somewhere around Step 2, needing to sharpen the why. Perhaps you are at Step 8, with the technology in place but the culture not quite catching up. Wherever you are, you are almost certainly not starting from zero.

UK manufacturing has been asked to absorb a great deal of change over the past few years, and the people running these businesses have done so with remarkable resilience. Digital transformation, done properly, is not another wave of pressure. It is the thing that makes the next wave easier to absorb.

We do not think there is one right answer, and we are wary of anyone who claims to sell one. What we do believe, based on the work we do every week with manufacturers across the UK, is that the businesses who approach this with discipline, honesty and a bias toward practical action will come out the other side with a durable advantage. Those who wait for perfect conditions will find those conditions never arrive.

If any of this has resonated, or if you disagree with parts of it, we would genuinely like to hear from you. No sales pitch. Just a conversation about where your business sits and what a sensible next step might look like.

About the author

Dr Peter Appleby is Co-Founder and Chief Data Scientist of Trimontium ai. He was named in the **DataIQ 100** list of the most influential people in data and AI in Europe in 2026. Peter brings 25 years of combined research and commercial experience, moving from Research Fellow to Data Scientist to senior Machine Learning and AI leadership roles. He is a recognised AI expert with an extensive body of published scientific work, a frequent conference speaker, and a member of the Manchester Metropolitan University industrial advisory board, where he supervises MSc, PhD and Postdoctoral research in machine learning and AI. He is currently Head of Data Science & Analytics at Autotrader.

About Trimontium ai

Trimontium ai is a people-first, AI and data-enabled growth consultancy based in Manchester. We help mid-sized UK businesses, with particular depth in manufacturing, professional services and e-commerce, turn fragmented data into clear, actionable insight. Our services span Discovery Audits, AI strategy, bespoke AI development, change management and training. We are provider-agnostic, outcome-focused, and grounded in real-world delivery experience.

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