

Data & System Integration for manufacturers

What is it?

Data and system integration is about connecting your machines, systems and processes so that information flows across your business in a clear and consistent way.

Instead of data sitting in separate silos, such as spreadsheets, machines or individual systems, integration creates a connected view of your operations.

It's about bringing information together to support better, real-time decisions, not just at month-end. For example, when a machine stops, that information can automatically update production planning, job status and delivery estimates.

It doesn't need to happen all at once. Most businesses start by connecting one key system or process and build from there, step by step.

Why it matters

Many manufacturers struggle with operational challenges they cannot fully see. If this sounds familiar, it may be due to:

- Limited visibility across production — what job is at what stage?
- Data collected inconsistently or not at all
- Inefficiencies hidden within day-to-day processes
- Long lead times caused by small, repeated delays



- Lack of clarity on costs, performance and waste
- Information relying on individuals, creating key person dependency and making the business harder to scale.

In some cases, businesses only see what happens before and after production, not during it. This creates what is often referred to as a "production black hole".

Common warning signs that you may need better integration include:

- Data being re-keyed in multiple places
- Manual reconciliations at week or month-end
- Decisions based on historic reports rather than live information.

What it enables



Cost - Reduce waste and unnecessary spend



Speed - Shorten lead times and improve responsiveness



Performance - Improve productivity and quality



Flexibility - Adapt more quickly to changing demand

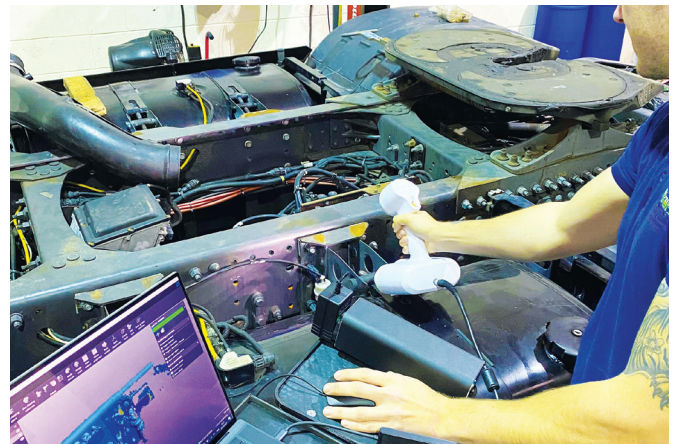


Sustainability - Reduce waste and improve resource efficiency



Risk - Reduce manual errors, improve traceability, and strengthen compliance and audit readiness

For example, before integration, job progress is updated manually at shift end. After integration, job status updates automatically from the shop floor, helping planners and customer-facing teams respond faster.



Where it works

Practical applications to help you see where this could add value in your business.

Understanding true cost

By connecting production and finance systems, you can gain visibility of cost per unit and profit margins, and compare actual production time against estimates or quotes.

Reducing bottlenecks

By integrating machine data across the shop floor, you can identify bottlenecks and reduce lead times.

Eliminating hidden waste

By capturing data across the full production process, you can uncover material waste and reduce costs.

Automating stock control

By introducing tracking for inventory and tools, you can reduce manual checks and improve accuracy.

Improving traceability

By linking quality checks, batch or lot data and production records, you can improve traceability, identify root causes faster, reduce rework or returns.

Reducing unplanned downtime

By connecting machine condition data with maintenance planning, you can move from reactive fixes to planned interventions.



How it works in practice

- ↓ Sensors, scanners or system logs collect data from machines and processes
- ↓ Systems such as ERP/MRP, planning tools, CRM platforms or shop floor equipment bring information together
- ↓ Data is analysed to highlight patterns and issues
- ↓ Teams use this insight to make improvements in real time

You don't need a 'big bang' project. Many manufacturers start with a single line, machine or process. Prove value, then extend integration to the next priority area.

Case study snapshots

"Oversight and control means we can do more with what we've got and respond quickly to opportunities."

Bindatex, a manufacturer of advanced materials, adopted a cloud-based production data capture system, increasing productivity by 20% and increasing capacity to be agile to new business.

"We eliminated inefficiencies and gained control of our stock."

C-TEC, a manufacturer of fire alarm and life safety systems, replaced manual, paper-based inventory processes with a cloud-based system, improving accuracy, increasing productivity by 25% and eliminating errors.

"We could identify and act on quality issues in real time."

Fylde Fresh and Fabulous, a potato processor, replaced a manual, paper-based quality process with a bespoke ERP system, improving traceability, increasing efficiency and reducing product returns worth thousands.

Key considerations

- **Start with your processes** - Digitising inefficient processes can limit the value of any investment. Focus on improving and standardising processes first.
- **Focus on the right data** - More data is not always better. Consistent, reliable and relevant data is what creates value.
- **Connect what you already have** - Many businesses already have useful systems in place. The opportunity often lies in linking existing tools and information.
- **Check your infrastructure** - Legacy systems and manual processes may need adapting before integration can deliver full value.
- **Consider skills and capability** - Successful integration depends on people as well as technology. Building confidence and capability across teams is often part of the journey.
- **Understand the limitations** - Integration works best when processes are clearly defined, data is reliable, and there is a clear objective for improvement.

Common pitfalls to avoid

- Automating processes that are not fully understood or standardised
- Collecting data without clear ownership or agreed definitions
- Creating dashboards with no plan for acting on the insights
- Underestimating change management for supervisors and operators



6 steps to success and how Made Smarter can help

1

Identify the opportunity - Start with a clear business challenge or area for improvement, such as lead time, rework, stock control or accuracy. This helps you choose the right integration starting point.

MADE SMARTER SUPPORT:
Digital Transformation Workshop

2

Align with business goals - Ensure the focus supports wider priorities such as cost, performance or growth.

MADE SMARTER SUPPORT:
Digital roadmap development

3

Explore and test - Assess available options and trial solutions where possible before making larger investments.

MADE SMARTER SUPPORT:
Digital Internship and proof-of-concept support

4

Build skills and confidence - Develop the knowledge and capability needed to adopt new ways of working successfully.

MADE SMARTER SUPPORT:
Leadership and Digital Champions programmes

5

Develop a business case - Understand the potential value, costs and operational impact before investing.

MADE SMARTER SUPPORT:
Roadmap, expert support, Grant funding application

6

Invest and scale - Implement solutions, measure the impact, and expand what works across the business.

MADE SMARTER SUPPORT:
Grant funding

**MADE
SMARTER**

www.madesmarter.uk



**Take the
next step**

Start your digital journey today. Register for support and speak to a Made Smarter advisor to explore how data and system integration could support your business.