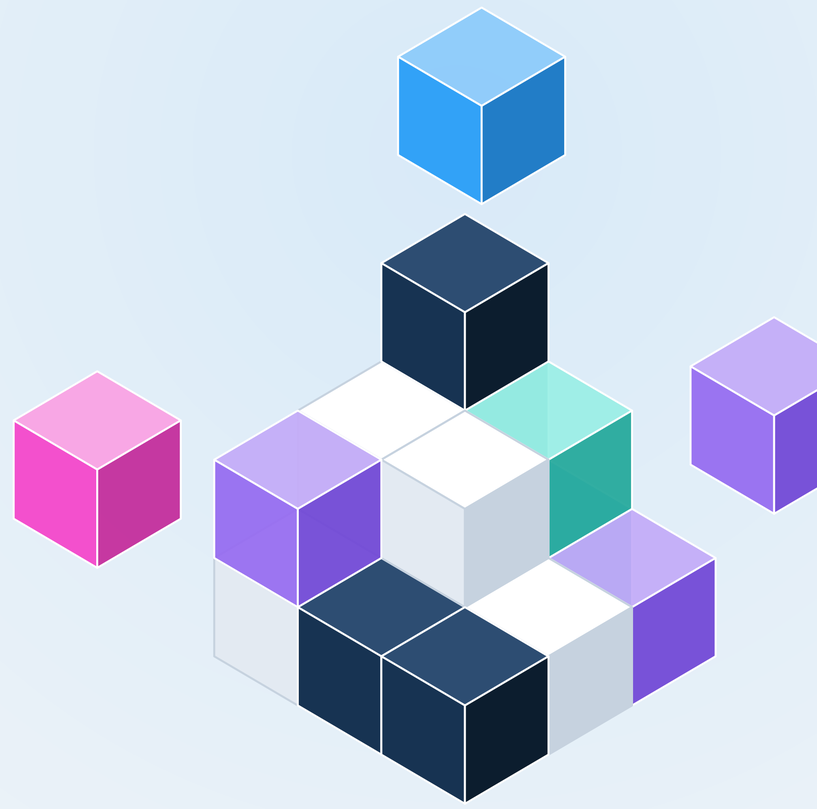
DIGITAL OPERATIONS

AI Use Cases in Manufacturing



AI in manufacturing uses data-driven models to support decisions in inspection, maintenance, planning and knowledge work, ideally with people reviewing the outputs that matter.

01 THE CORE MODEL

FOUR USE CASES · DATA IN, DECISION OUT

01 QUALITY

Visual inspection

Data: camera images. Output: defect flags. People confirm borderline cases.

02 MAINTENANCE

Predictive maintenance

Data: vibration, temperature. Output: failure risk. Repair is planned ahead.

03 PLANNING

Demand and scheduling

Data: orders, history. Output: forecast and schedule proposals for the planner.

04 KNOWLEDGE

Assistant for technicians

Data: manuals, reports. Output: answers with sources. The technician acts.

Training data

Labeled examples from your own process; quality matters more than volume.

Human in the loop

People review outputs where errors are costly or cases are unclear.

Model monitoring

Accuracy is tracked over time, because processes and data drift.

02 CHOOSING USE CASES

Start where data exists, the decision is clear and errors are recoverable.

HYPE — VALUE

WEAK STARTING POINTS

- No data, or data nobody owns
- Unclear decision the model supports
- No plan for running it in production

STRONG STARTING POINTS

- Data already collected and labeled
- A clear, frequent decision
- An owner ready to run and maintain it

03 WORKED EXAMPLE

WELD SEAM INSPECTION · FROM PILOT TO PRODUCTION

DATA
Labeled images
from existing cameras

→

MODEL
Defect flags
checked against experts

→

PEOPLE
Operator confirms
borderline cases only

→

MONITOR
Accuracy tracked
retrain when it drifts

04 MANAGEMENT TAKEAWAYS

01

Tie each case to a decision

Name who uses the output and what they do differently.

02

Keep people in the loop

Start with assistance; automate only once accuracy is proven.

03

Plan for operations

Budget for monitoring, retraining and data pipelines.

05 COMMON MISTAKE

LIMITATION

Starting with the technology

Choosing an AI tool before the problem leads to pilots that solve nothing important.