

CHECKLIST · 37 CHECKS · 7 SURFACES

Production Line Digitization Checklist

What to settle before a line's machines and paper records feed one data backbone, and AI after it.



Read the machines through one gateway, and never write to them



Move the paper checks to the station, reaction plan included



One topic tree, one name per thing, before anything is counted

37

CHECKS

7

SURFACES

1

LINE FIRST, THEN COPY
IT

02 HOW TO USE THIS CHECKLIST

This is for a line that already runs, with machines that measure more than anyone sees and records that still live on paper. It is not about choosing an MES vendor or modelling the whole plant.

Most projects that stall do not stall on the software. They stall on names nobody agreed, a form that lost its reaction plan, or a network nobody separated.

Work through it before the pilot line, and again before you copy the pilot to the next one. The first pass sizes the job; the second tells you whether the pattern is ready to repeat.

37	1	0
Checks across seven surfaces	Gateway in front of the line, read only	Shared logins on the floor

SEVEN SURFACES

The line and its machines A pilot line with an owner, questions before data, today's figures, and every signal read without touching the controller. 10 CHECKS	Paper checks at the station The same form first, limits and reaction plans on screen, a name on every entry, corrections that never erase. 6 CHECKS
The topic tree, OEE and records ISA-95 paths, one name per thing, states agreed, OEE from events, lots traceable, retention set before go-live. 12 CHECKS	Security, and before AI Zones and one conduit, outbound only, managed tablets, then AI that reads the tree and never writes to the line. 9 CHECKS

Agree the states, the ideal rates and the units before the first chart, or the chart will be argued about rather than used.

THE CHECK MOST OFTEN SKIPPED

03 THE LINE, ITS MACHINES, AND ITS PAPER

What has to be true before anything is published. These decide what the project is for and where the data comes from.



1. The line and its questions

- ☐ One pilot line chosen, with a known bottleneck, clear cycle signals and an owner for its stop reasons
- ☐ The questions the data must answer written down first, not "collect everything"
- ☐ Today's output, downtime and scrap recorded, however rough, to judge the project against
- ☐ Every paper form collected, with who fills it in, how often, and who reads it
- ☐ The people who run, maintain and inspect the line have seen the plan; someone on the floor owns it



2. Reading the machines

- ☐ Every controller and instrument listed, with the protocols it already speaks
- ☐ Each signal documented: address, units, scaling, sample rate, and a reason to read it
- ☐ The gateway reads only. No write path into a controller; safety functions untouched
- ☐ Values timestamped where they are read, from a clock synchronised across the line
- ☐ The gateway buffers through a network drop, so an outage leaves a delay, not a gap



3. Moving paper checks to the station

- ☐ The first digital form asks what the paper one asks, in the same order
- ☐ Readings entered against their limits; an out-of-limit value shows its reaction plan and alerts
- ☐ Everyone signs in as themselves. No shared login on any tablet
- ☐ Each entry records who, when, line, station, part, lot and the form's revision
- ☐ A correction is a new entry with a reason; the original stays visible
- ☐ Works with gloves, at arm's length, in the operators' words, and offline

WHAT TO READ FIRST

THE QUESTION	THE SIGNALS IT NEEDS	FROM
Why did the line stop?	Machine state, fault code, stop reason	PLC and tablet
Was this lot within limits?	Process values while the lot was in the station, its checks	Instruments and tablet
How many good parts per shift?	Cycle count, ideal rate, rejects	PLC and checks
Is a process drifting?	Temperatures, speeds, currents, chemistry, over time	Instruments



4. The topic tree

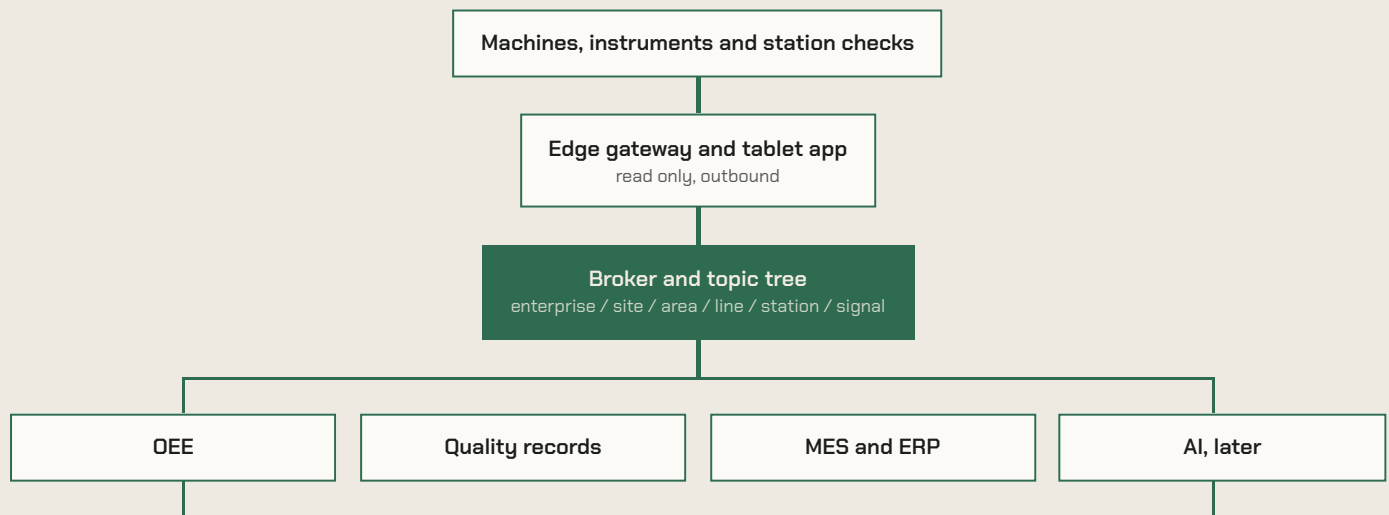
- ☐ Laid out by ISA-95 levels: enterprise, site, area, line, cell or station, signal
- ☐ Every asset has exactly one path; no two systems name it differently
- ☐ Units and scaling applied once, at the gateway, not in each dashboard
- ☐ States (running, idle, starved, blocked, faulted, planned stop) defined and agreed in writing
- ☐ The order, part and lot on the line published too, so values carry their context
- ☐ The payload written down: Sparkplug B where many devices meet, or MQTT with a schema



5. OEE and quality records

- ☐ Planned downtime and each part's ideal rate agreed before the first OEE figure
- ☐ Availability, performance and quality counted from events, not typed at shift end
- ☐ Long stops ask for a reason from a short list, reviewed after the first month
- ☐ A lot traceable through every station, with its process values and checks
- ☐ Retention set from the quality system and each customer's requirements, before go-live
- ☐ Paper and tablet side by side until quality has checked the records and signed off

THE SHAPE IT CHECKS



Everything that produces data publishes it once. Everything that needs data subscribes. Nothing but the gateway talks to a PLC.



6. Security

- ☐ The line's network separate from the office's; the gateway the one conduit between (IEC 62443 zones)
- ☐ Data leaves outbound and encrypted; nothing outside can open a connection in
- ☐ Each gateway and tablet has its own credentials and publishes only to its own branch
- ☐ Tablets in device management, on their own wireless network, locked to the app
- ☐ Remote support through one logged, approved path, off when not in use



7. Before AI

- ☐ Months of history in the tree, with stop reasons, rejects and maintenance attached
- ☐ The first AI use changes nothing on the line, such as answering from procedures and records
- ☐ Models read from the tree, never write to a controller; a person makes each decision
- ☐ Each use measured against the line's own figures from before it went in

AI USES, ROUGHLY IN THE ORDER THEY PAY

USE	IT NEEDS FIRST	TOUCHES THE LINE
Answering from procedures, shift notes and records	Searchable digital records	No
Flagging drift across several process values	Months of timestamped values with context	No, it alerts a person
Predictive maintenance	A recorded failure history on the asset	No, it plans work
Vision inspection	Labelled good and bad parts	Only through a person or a reviewed reject path

WHERE THIS USUALLY GOES WRONG



The dashboard comes before the definitions

A screen appears early, and soon three people have three explanations of why its number differs from theirs.



The form is digitized but the reaction is lost

The tablet records an out-of-limit reading and nobody is told. Then the paper version was safer.



The whole plant is modelled first

A site-wide twin takes a year before the floor sees a result. One line, done properly and copied, gets further.

06 WHEN YOU NEED OUTSIDE HELP

Most plants can work through this list with their own maintenance, quality and IT people, and should. It is worth bringing in help when:



Nobody can say where the values are

The controllers are old or undocumented, and nobody on site can say which registers hold the values the questions need.



The records are audited

Customers audit the records, so the digital version has to be right, traceable and accepted before the paper one can go.



Controls and IT have never met

The line's data has to reach an MES, an ERP or a cloud system securely, and the controls and IT sides of the plant have never had to work together.



If any of those describe where you are, this is work we do.

Write to contact@mnpsystems.ca. We will tell you quickly if we can help, and what a sensible next step looks like.