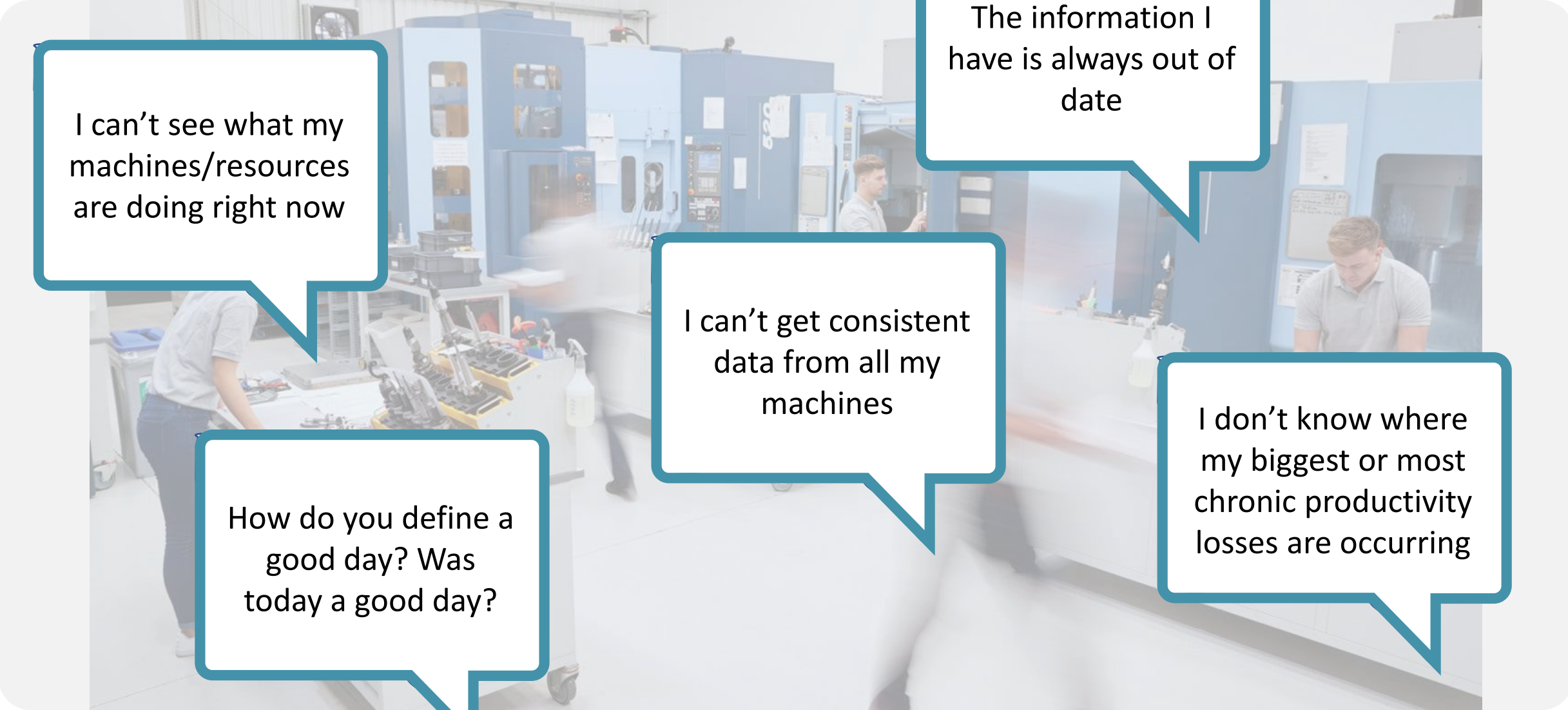


Machine Status Monitoring

Why the Matrix Matters

Common challenges



I can't see what my machines/resources are doing right now

The information I have is always out of date

I can't get consistent data from all my machines

How do you define a good day? Was today a good day?

I don't know where my biggest or most chronic productivity losses are occurring

Why is it a “quick win”

As soon as your resources are connected, you can start to gather and use **effective** utilisation data



Immediately

Actual machine uptime.
Critical Alarms as they
happen (live visibility)



Within 24 hours

Downtime causes
Unknown Stoppages



Within 1-4 weeks

Causes of any
significant productivity
losses



Over 1-3 months

Causes of previously
hidden or unaccounted
for productivity losses

Our approach

3Cs

CONNECT

All your production resources
with JobPack AIR

COLLECT

Live, accurate
manufacturing data

CONTINUOUSLY Improve

By using timely, relevant
and insightful information

Connect all your production resources



Automatically collect machine data

Hardware or Software
Connection

Software Connection

Running

Feed Hold/
Optional Stop

Rapid Feed
Override (%)

Actual Feed
Override (%)

Spindle Speed
Override (%)

Alarm

Alarm Message

Alarm Number

Power On

Part Count

NOTE: There may be a charge from your machine tool vendor for the supply of appropriate license options, e.g. MTConnect or Siemens AccessMyMachine

Software Connection methods:

- FANUC FOCAS
- Mazak Cyber Monitor
- MTConnect
- DNC Opt #18
- OPC



Examples of machines & controllers we've connected to

ABB ROBOT
AGIE CHARMILLES
ANCA
ASA
BRIDGEPORT
CHURCHILL
CINCINATTI
CITIZEN
DAEWOO
DECO
DMG
DMG MORI
DOOSAN
DUGARD
EGW
FANUC
FEELER
GEIGER
GEMINIS
GERLING

GILDEMEISTER
GLEASON
HANWHA
HARDINGE
HELLER
HERMLE
HITACHI SEIKI
HOESCH
HURCO
JONES & SHIPMAN
KESEL
KIMLA
KINGSBURY
KITAMURA
MAKINO
MATSUURA
MAXI
MAZAK
METEX
MIKRON

mitsui seiki
MIYANO
MOLLART
MORI SEIKI
MOULDING MACHINES
MUTATEC
NAKAMURA
NTRX
OKUMA
OTEC
P&S MASCHINENAU
PIN POWER
POREBA 4
QUASAR
REINECKER
RIVER
ROLLOMATIC
SAFOP1
SAMSUNG
SCHULER

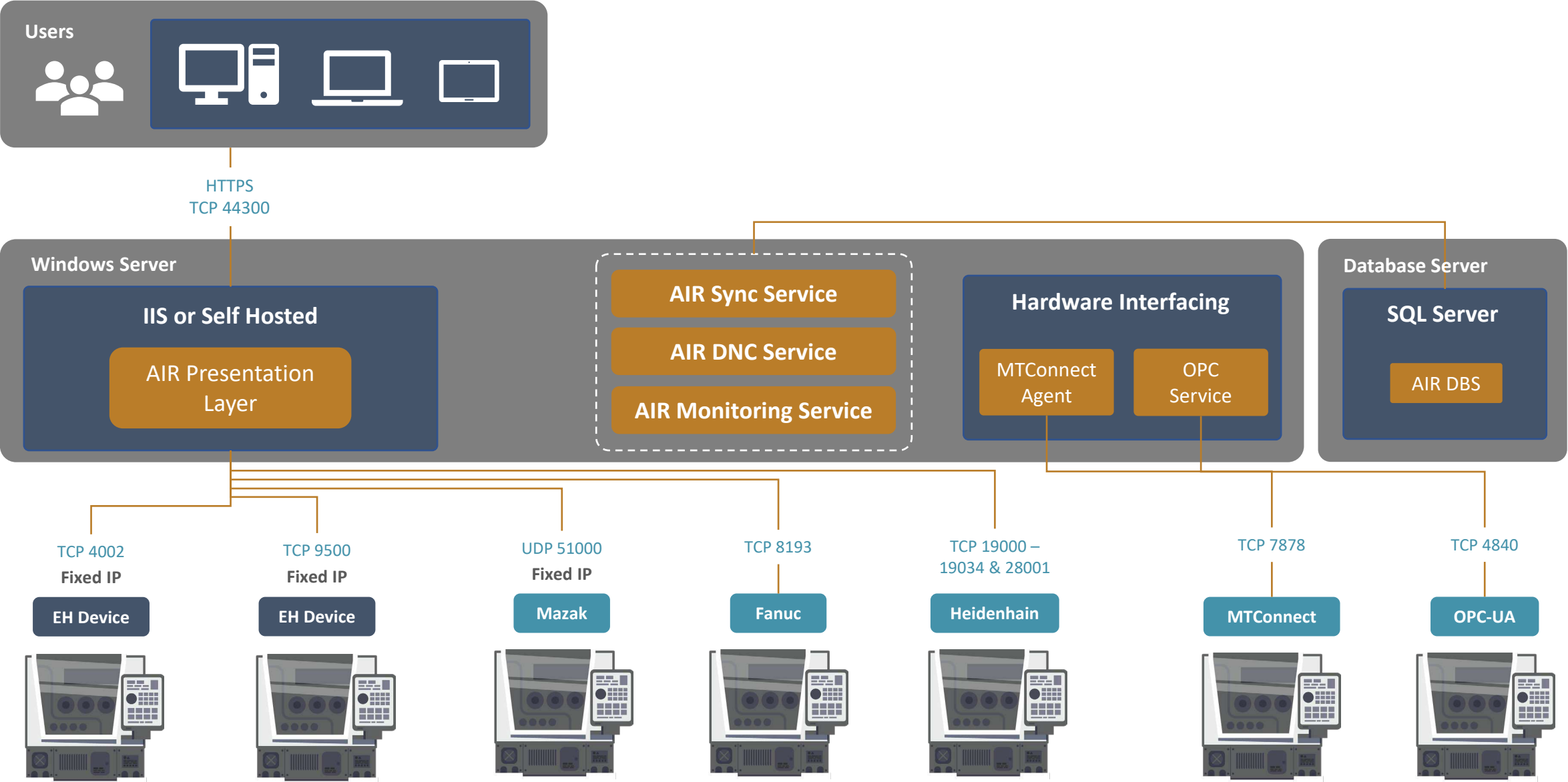
SMTCL
SODICK
STUDER
TORNOS
TRU-TECH
WALDRICH SIEGEN
WALTER MACHINES
WINMERDEUTSCHLAND
WYSSBROD
FANUC
HEIDENHAIN
MITSUBISHI
CELLOS
MAKINO
SIEMENS
OKUMA
MAZAK
HURCO
JONES SHIPMAN
AGIE CHARMILLES

SODDICK
CITIZEN
DMG MORI
SCHULER
SEICOS
MORI SEIKI
ANCA MOTION
EDM
NUM
SB-ELEKTRONIK
ELMO MOTION CONTROL
SEW
ETF
YAKISAWA
ANDRON
ACOPOS
ARUMATIK-Mi
HSM CONTROL
BOSCH
NON-CNC

Machine Connection Architecture

Hardware Connection

Software Connection



Collect downtime reasons

Why the matrix matters

The screenshot displays the SeikiAIR interface with a modal window titled "Enter the current status of MATSUURA-1". The modal contains a table with status categories and their corresponding options.

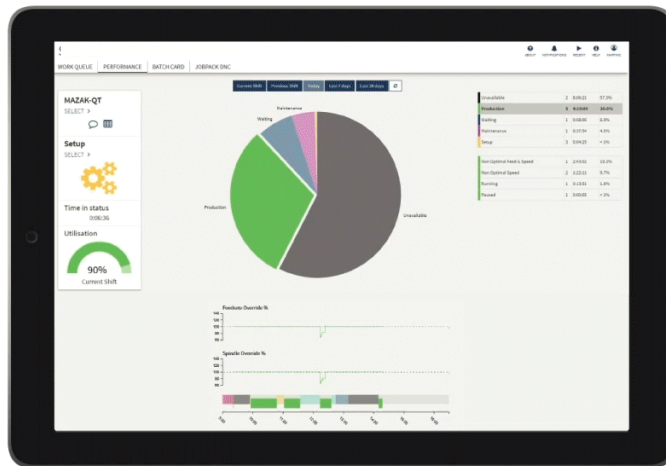
Status Category	Status
Production	Running, Running Unmanned, Rework
Setup	Setup, Dryrun, Prove Out
Inspection	First Off, In Process, Self Inspect
Maintenance	Planned, Breakdown, Coolant, Breakdown - Electrical, Breakdown - Mechanical, Tool Damage
Unavailable	Warmup, PED Work, Off Shift, Clean Down, Operator Holiday, Break, Shutdown
Waiting	No Work, No Material, No Operator, Maintenance, PED Assistance, No Program, Tooling, No Setter, Multi Manning, Programming Assistance, Previous Op, Crane
Error	Machine Alarm
Other	Action Complete
Organisation	Staff Meeting, Systems Maintenance, Shift Handover, Staff Training, Test

Involve your **shopfloor team** to help improve buy in and to make sure you have the right downtime code options

How you define your states will impact the **insights** your Analytics can provide

Share your definitions with all stakeholders and agree their roles in capturing and reporting data - **clarity** and **transparency** are the keys to success

How we support accurate & consistent data capture



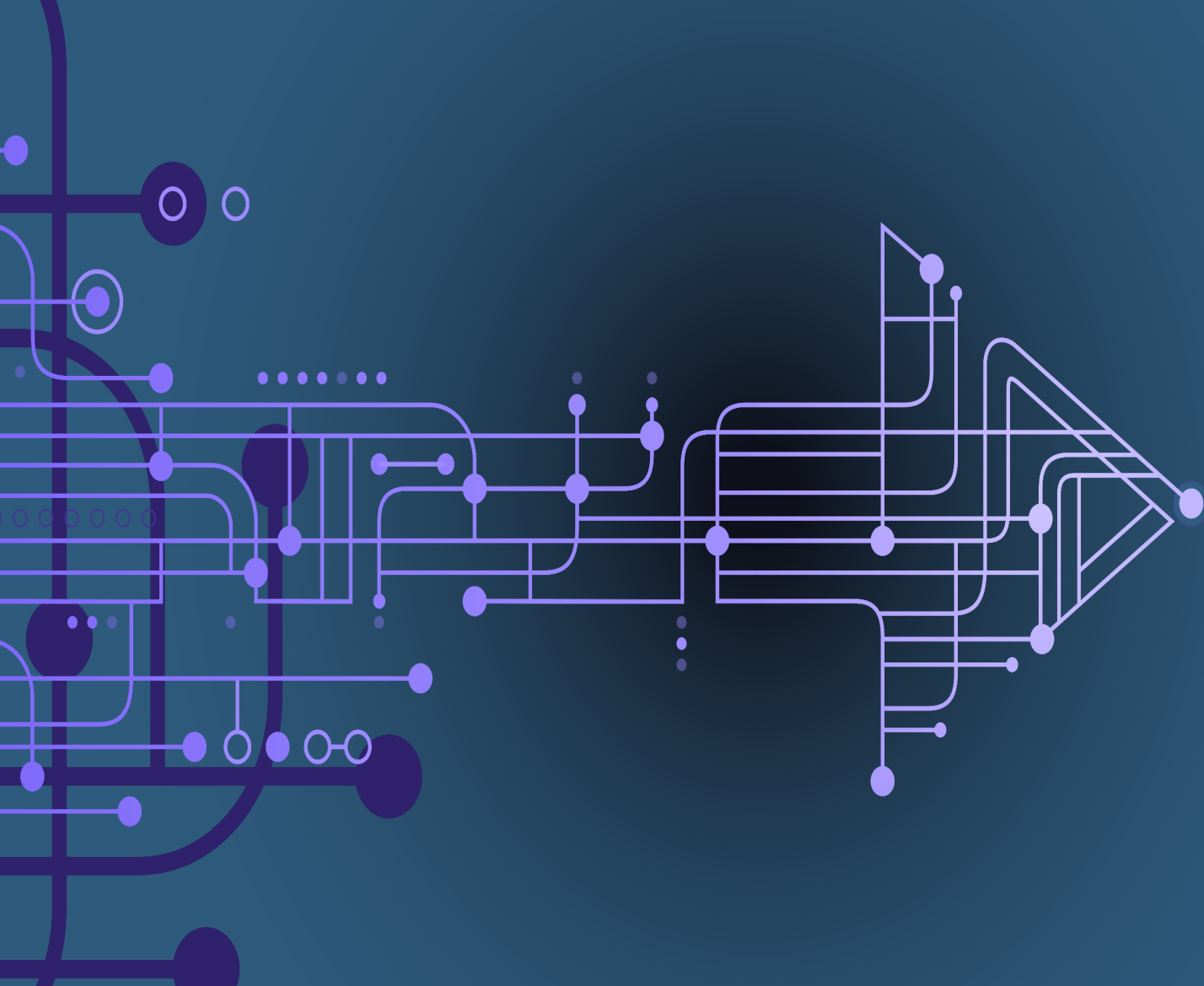
✓ Monitoring logic

✓ User prompts

✓ Real-time, event based user notifications

✓ Extend to manual resources

Data-Driven Manufacturing



Collecting relevant, accurate and timely data and improving your data flow is a good start **but to be successful you need people to use and analyse it**

Continuously Improve

Agree how the information will be used for improvement actions, both at a tactical and strategic level.

Daily



Monitor Live Status & respond to notifications

Weekly



Include in your KPI review meetings
Identify tactical improvement actions

Monthly/Quarterly



Analyse trends, compare resource performance, set and track targets, identify strategic improvement initiatives

Annually



Use the data to inform investment decisions

Regularly



Review your status grid



Supercharge your analytics with OEE

JobPack AIR Monitoring is a prerequisite to OEE

By purchasing and adding OEE license to a Jobpack AIR Monitoring system, you can have:

- ✓ Enriched performance information that allows you to focus on what matters to your business
- ✓ A single solution. Operators only have to know how to use one system and enter the information once
- ✓ Competitive advantage by finding opportunities for improvement and creativity in areas others may have missed

