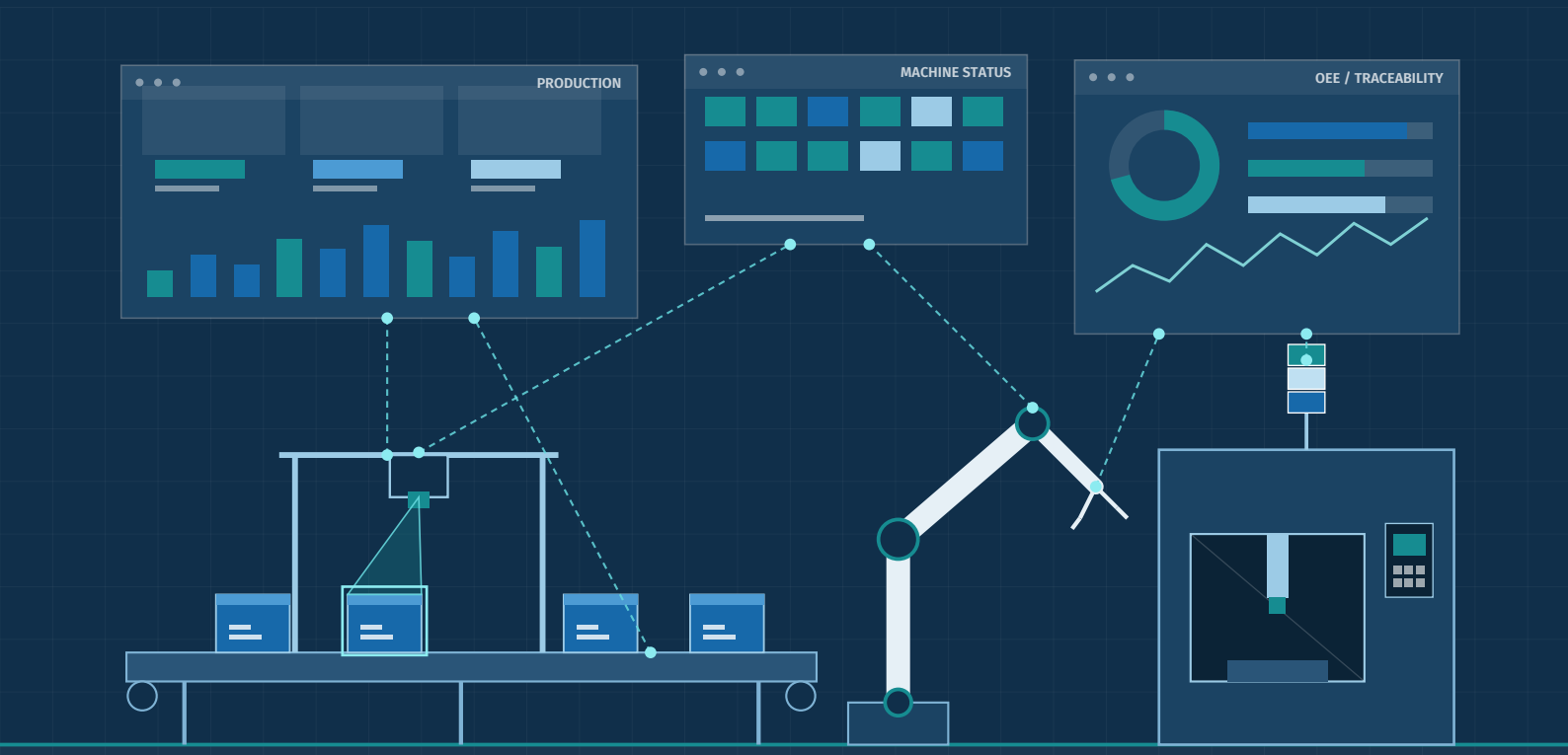
INDUSTRY 4.0 · SMART MANUFACTURING · RESEARCH WHITEPAPER

CONNECTED INDUSTRY OPERATIONS

Integrating manufacturing execution, production visibility, quality, traceability, automation and industrial AI into one connected, more intelligent and more responsive factory.



EDITION
Research edition

DATE
November 2026

FOCUS
Connected manufacturing

softdesigners.co.in

Prepared from public product information and independent reference sources. Cover artwork is a schematic illustration of a connected production line.

OVERVIEW

Executive summary

The opportunity is not to digitise individual forms, but to connect the information and response workflows that govern daily manufacturing operations.

Manufacturers rarely have a single operational problem. Production losses, quality escapes, material shortages, inconsistent work execution and fragmented records interact. A machine stoppage can become a missed dispatch; a work-instruction deviation can become a defect. Connecting the signals behind those events matters more than digitising any one of them.

Soft Designers presents an Industry 4.0 portfolio under its Efficio 360 manufacturing operations suite. Published solution areas include MES, digital work instructions, traceability and genealogy, Andon, E-Kanban, SPC and quality control, production monitoring, digital twin, ECN, preventive maintenance and asset and facility applications. Its AI offerings include wheel inspection and document analysis.

The strongest operating model is a connected loop: capture reliable signals; attach product, asset, location, shift and operator context; route an accountable response; verify closure; and use the resulting history to improve the process. The software only creates value when data definitions, ownership, integration, frontline adoption and governance are designed alongside the technology.

KEY CONCLUSIONS

- Prioritise one high-cost, measurable workflow rather than launching every module at once.
- Treat MES, production monitoring, Andon, traceability, digital work instructions and quality as complementary layers, not interchangeable labels.
- Use industrial AI as an inspection and analysis aid with human review, validated on site data.
- Define baseline KPIs and data ownership before implementation; publish measured results only after a controlled pilot.

Soft Designers manufacturing technology portfolio

Execution and visibility

- Manufacturing Execution System (MES)
- Production monitoring
- OEE monitoring
- Machine data collection
- Production tracking, work orders
- Dashboards and analytics

Flow and materials

- Digital Andon
- E-Kanban
- WIP and material tracking

Quality and standard work

- Digital work instructions
- SPC and process capability
- Quality control
- Product traceability and genealogy
- Revision approvals

Maintenance and assets

- Preventive maintenance
- Asset management
- Facility management

Advanced Industry 4.0

- Digital twin
- Engineering Change Notification (ECN)
- Wheel inspection (AI)
- Document analysis (AI)

SCOPE AND EVIDENCE NOTE

This paper is desk research based on public Soft Designers webpages and independent references available at the time of preparation. Solution areas are as listed on softdesigners.co.in. Product capabilities are described as published by the company, not independently audited. Customer examples and performance figures shown on the company website are labelled as company-published claims. Where no independently verifiable outcome data was available, scenarios are explicitly illustrative.

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HOW TO READ THIS PAPER

Use Sections 3–6 to evaluate individual solution areas; Sections 7–9 to plan a deployment and build a business case; and Sections 9–11 to assess proof, limitations and diligence questions. The product inventory reflects the website's published navigation and product pages, which may change.

SECTION 1

Industry context: the connected-factory problem

Industrial performance is a system outcome. A plant can have capable machines yet lose output through unplanned downtime, slow escalation, changeover delays, material starvation, quality rework or missing production context. When production, quality and maintenance records sit in separate tools or spreadsheets, teams spend time reconciling events rather than preventing recurrence.

The CII's 2024 publication, *Industry 4.0 adoption and strategic roadmap for Indian manufacturing*, frames digital maturity as a strategic sector issue and highlights the interventions needed to unlock manufacturing potential. This supports a practical message: technology adoption should be linked to operating-model maturity, not treated as a standalone IT purchase. [1]

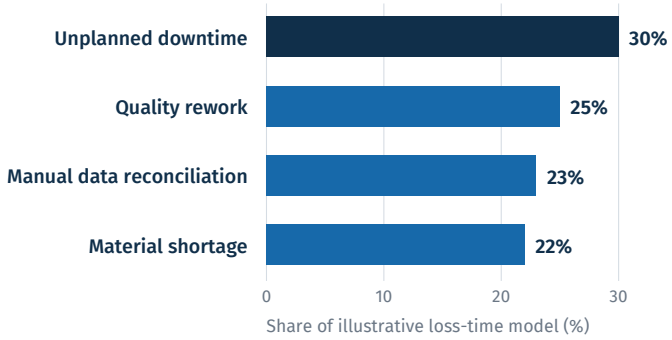
01 Unplanned downtime	02 Production delays	03 Material shortages	04 Quality defects
05 Poor production visibility	06 Manual reporting	07 Disconnected systems	08 Limited operational data

Typical symptoms and root causes

Operational symptom	Likely underlying cause	Digital capability that may help
Downtime is noticed late	Signals are local; no common event log or escalation owner	Machine monitoring, Andon, MES, maintenance workflow
Output differs by shift	Manual counts, inconsistent definitions, delayed reporting	Production monitoring, MES, standard KPI definitions
Reports take hours to reconcile	Production, quality and maintenance records sit in separate tools or spreadsheets	MES, production monitoring, integrated KPI reporting
Defects recur	Inspection results disconnected from product, process and operator context	SPC, digital work instructions, traceability
Material starvation	Replenishment depends on manual calls or periodic checks	E-Kanban, WIP and material visibility
Recall or containment takes too long	Batch and serial genealogy is incomplete or fragmented	Traceability and genealogy

Where a connected factory may lose operating time

ILLUSTRATIVE LOSS MODEL — NOT INDUSTRY BENCHMARK DATA



The chart shows how a plant team might structure a diagnostic workshop before collecting actual site data. Bar values are illustrative.

DIAGNOSTIC PRINCIPLE

Replace assumed loss shares with measured downtime codes, scrap and rework records, shortage events, and time spent reconciling reports. A white paper or vendor proposal should never present an illustrative split as an industry statistic.

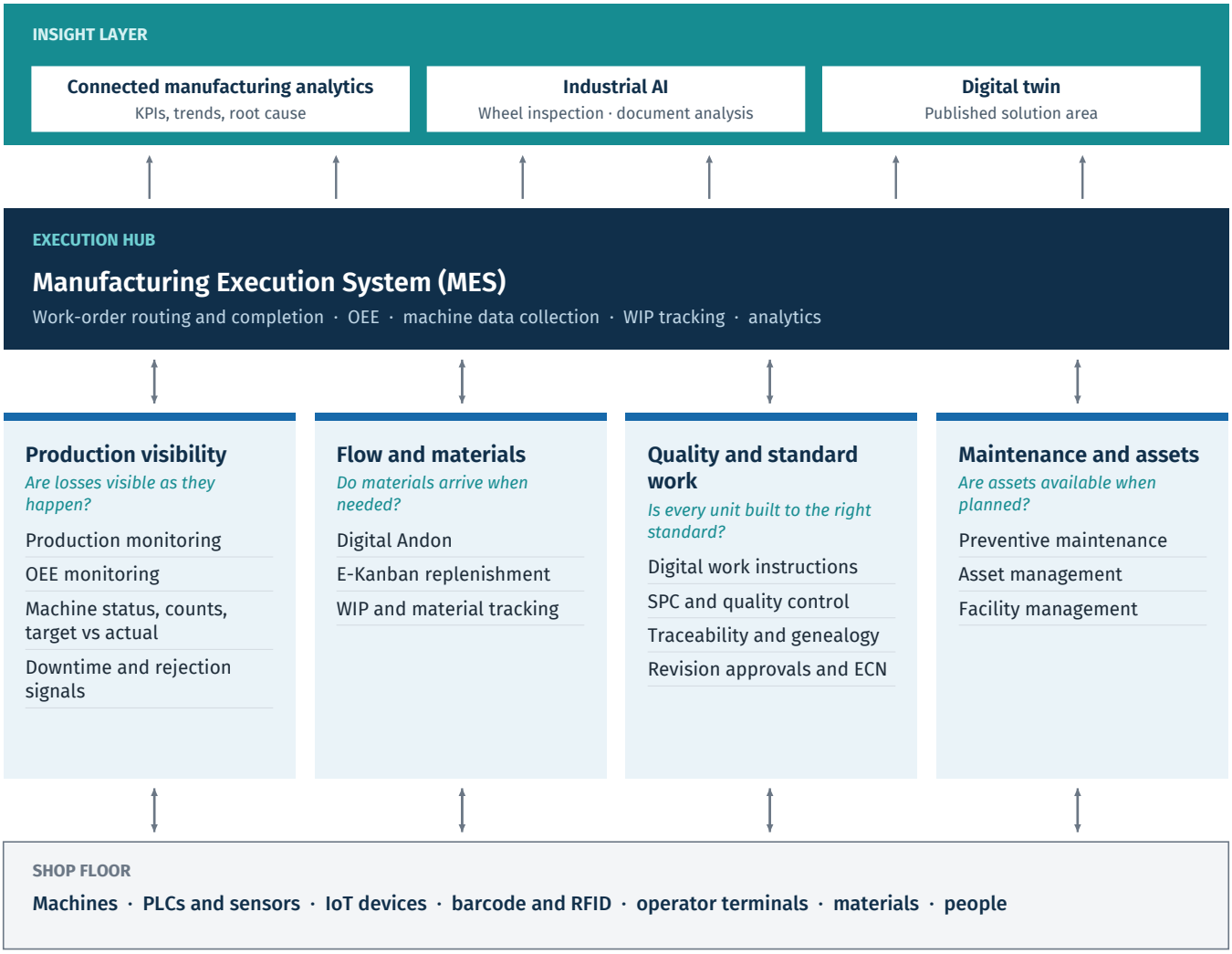
SECTION 2

Soft Designers Industry 4.0 portfolio

The company website positions Efficio 360 as a manufacturing operations suite. This section groups the published solution areas by the operating question each one answers, so a reader can see at a glance how execution, visibility, flow, quality, maintenance and industrial AI relate. [2]

Portfolio architecture: from shop floor to insight

PRIMARY OPERATING QUESTION — ARE PRODUCTION, QUALITY, MATERIALS AND ASSETS VISIBLE AND CONTROLLED?



Conceptual grouping of published solution areas, for diligence. It is not a confirmed Soft Designers deployment diagram or a claim that every module is delivered in one database.

PORTFOLIO LOGIC

An integrated platform can reduce the number of disconnected workflows, but breadth alone does not prove integration depth. Buyers should validate shared master data, identity and role management, APIs, event handling, audit history, offline behaviour, reporting consistency and supported interfaces during technical discovery.

SECTION 3

Manufacturing operations: execution, visibility and flow

Production event workflow

FROM RAW SHOP-FLOOR SIGNAL TO PERFORMANCE IMPROVEMENT

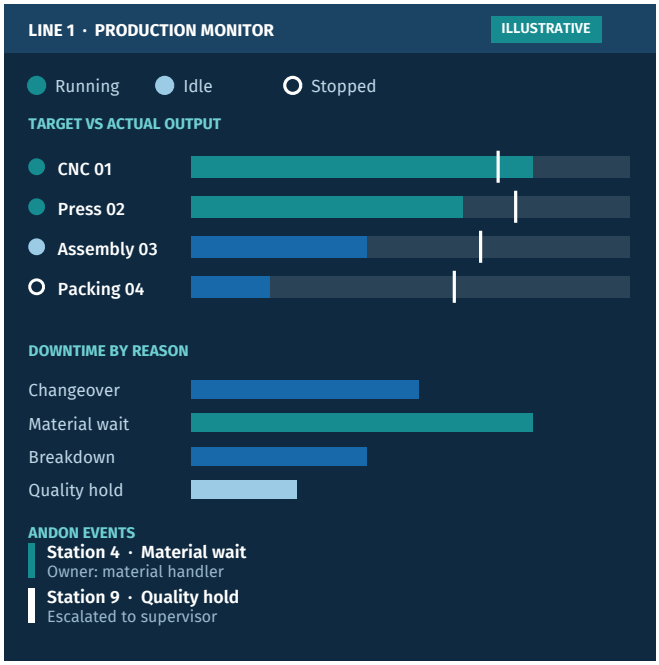
01 Signal capture	02 Production context	03 Alert	04 Action	05 Resolution	06 Performance improvement
Machine status, counts, downtime, and operator or quality inputs	Product, order, asset, location, shift and operator are attached	Priority set by severity and production impact	An accountable owner responds; a late response escalates	Closure with cause and corrective action recorded	Trend and root-cause review feed the next cycle

CONTINUOUS IMPROVEMENT LOOP: LEARNING FEEDS STANDARDS AND CONFIGURATION

MES and production monitoring

A Manufacturing Execution System (MES) coordinates and records production execution between enterprise planning and the shop floor. The Soft Designers MES page describes work-order routing and completion, production monitoring, OEE, machine and shop-floor data collection, quality, traceability, WIP and material tracking, digital instructions, maintenance integration, workforce information and analytics. It describes integrations involving PLCs, sensors, IoT devices, barcode and RFID, operator terminals and enterprise systems. [3]

Production monitoring is the visibility layer: machine status, counts, target-versus-actual output, downtime, rejection and event signals. The company's production monitoring page lists PLC and machine integration, industrial protocols including OPC UA and Modbus, Andon integration, barcode-based traceability and ERP integration. [4]



Interface schematic, illustrative only. Not a product screenshot and contains no real data.

Andon and escalation

Andon makes an abnormal condition visible and actionable. A useful Andon design distinguishes the event (what happened), context (where, when, asset, product, order), priority (severity and production impact), ownership (who responds), escalation (what happens if the response is late) and closure (cause and corrective action). A tower light or dashboard without ownership and closure is only an alarm display.

E-Kanban and material flow

E-Kanban digitises replenishment signals between consumption points, stores and material handlers. It is most useful when container quantity, reorder trigger, location, route, replenishment owner and delivery confirmation are defined. Digital signals can reduce reliance on visual checks and informal calls, but poor master data or inaccurate consumption transactions will simply automate the wrong signal.

Preventive maintenance and asset management

Maintenance workflows should connect asset identity, failure mode, work order, planned interval, parts, downtime and verification. The value is not merely a calendar reminder; it is a reliable history that supports prioritisation and learning. Before buying, confirm how the system handles criticality, meter-based schedules, spares, breakdown codes, maintenance approvals and integration with production downtime events.

SECTION 4

Quality, traceability and standard work

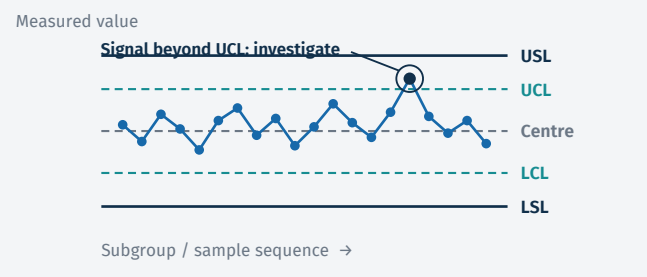
Digital work instructions

The Soft Designers digital work instruction page describes operator guidance using photos, videos and 3D models; barcode sign-in; integrated quality checks; measurement-device integration through RS-232 or Modbus TCP/RTU; barcode scanning for work orders, components and operator IDs; skill verification; revision approvals; audit trails; and offline operation with later synchronisation. It also describes converting PDFs, Word files and images into structured instructions using AI, with supervisor review before publishing. These are company-published feature descriptions and should be validated in a live demonstration. [5]

A strong workflow ties each instruction to product variant, routing, station, revision, operator qualification, required tools, process parameters and quality acceptance criteria. The most important control is version governance: operators must not unknowingly use an obsolete instruction.

SPC and process capability

Statistical Process Control (SPC) uses process data over time to distinguish common-cause variation from signals that may indicate a special cause. Capability indices such as Cp and Cpk compare process spread and centring with specification limits, but they are meaningful only when the process is stable and the measurement system is adequate.



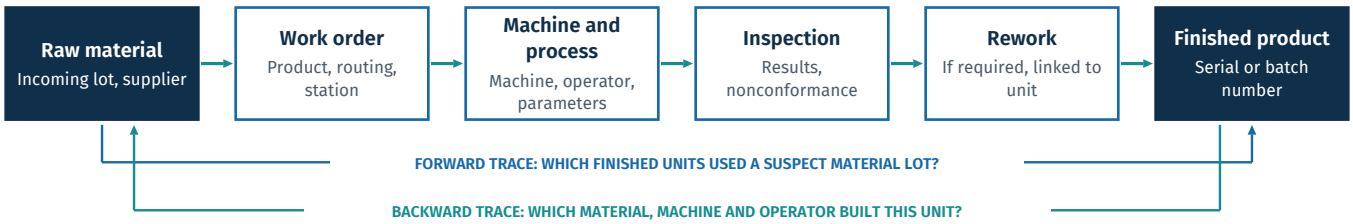
Control limits are not specification limits. Illustrative chart with synthetic points: control limits come from process behaviour; specification limits come from engineering or customer requirements.

Traceability and genealogy

GS1 defines traceability as the ability to identify an item's past or current location and know its history. Its guidance notes that traceability can support the identification and removal of defective products and reduce the economic impact of recalls. [6] For manufacturers, useful genealogy links incoming material or lot, supplier, work order, machine, operator, process parameters, inspection result, rework and finished serial or batch number.

Product genealogy: from raw material to finished product

GENEALOGY RECORD LINKS EACH STEP; TRACE QUERIES RUN FORWARD AND BACKWARD



A QR code or barcode is an identifier, not a traceability system by itself. The value comes from consistent event capture, unique identifiers, data integrity, partner hand-offs, retention rules and the ability to query forward and backward across the chain.

Capability validation: questions to test in a pilot

Capability	Question to test in a pilot	Evidence to retain
Work instructions	Can an operator retrieve the right approved instruction for the exact variant and station?	Revision ID, operator, timestamp, completion and exceptions
Inspection and SPC	Are measurements captured with units, limits, instrument identity and calibration status?	Raw readings, control charts, nonconformance and disposition
Genealogy	Can the plant identify all finished units affected by a suspect material lot?	Forward and backward trace report and retrieval time
ECN and change control	Can a process change be approved and released without obsolete documents remaining in use?	Approval history, effective date and acknowledgement

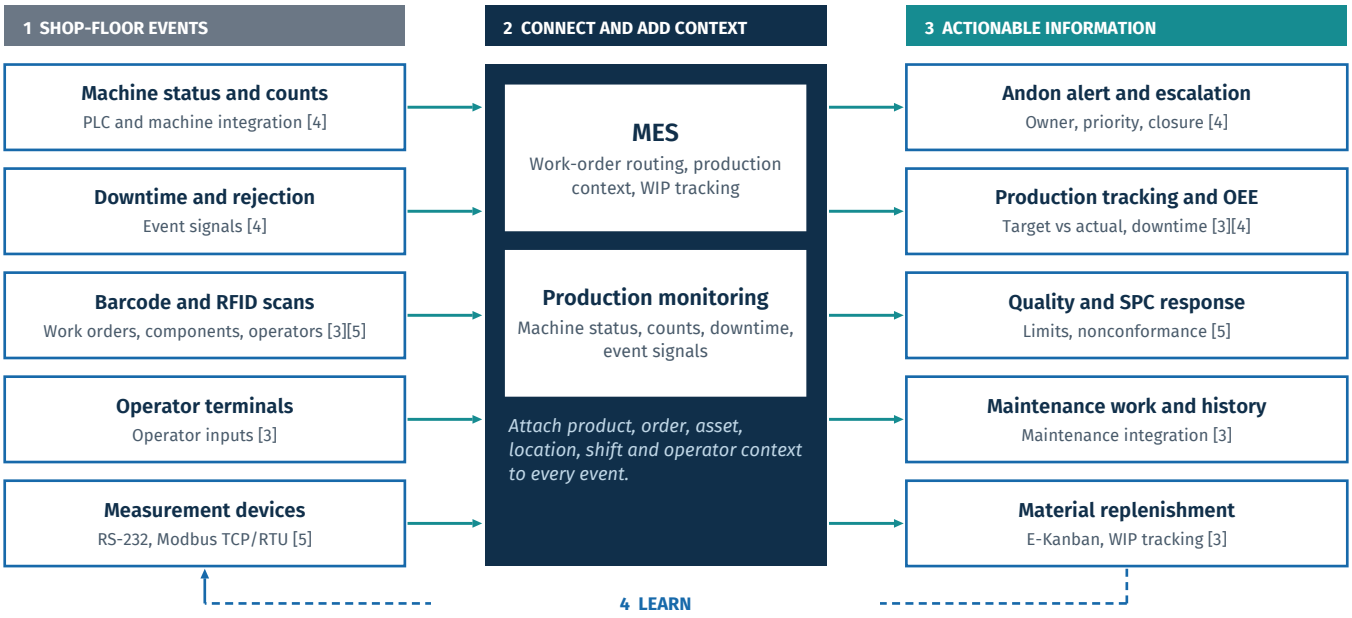
SECTION 5

Connected production systems

A connected factory is not one application. It is a set of layers that turn shop-floor events into information someone can act on. MES records execution, production monitoring makes machine behaviour visible, Andon routes abnormal conditions to an owner, quality and work-instruction records add process context, maintenance holds asset history, and material flow keeps lines supplied. The diagram shows how information is expected to move between them.

From shop-floor event to actionable production information

CONCEPTUAL INFORMATION FLOW; SOLUTION AREAS AS DESCRIBED ON COMPANY PRODUCT PAGES



Step 4 closes the loop: trend, root-cause and corrective-action review refine standards, alert thresholds and master data. Source tags: [3] MES page, [4] production monitoring page, [5] digital work instructions page. Arrows show conceptual information flow, not confirmed product-to-product interfaces.

How the layers work together

Layer	Role in the connected loop	Confirm in a demonstration
MES	Coordinates and records production execution between enterprise planning and the shop floor	Work-order routing, completion and the event model behind them
Production monitoring	Visibility layer: machine status, counts, target-versus-actual output, downtime, rejection and event signals	KPI definitions, downtime reason codes and signal completeness
Andon	Makes an abnormal condition visible, owned and escalated until it is closed	Event, context, priority, ownership, escalation and closure
Quality and work instructions	Ties each measurement and instruction to product, station, revision and operator	Units, limits, instrument identity and calibration status
Maintenance	Connects asset identity, work order, planned interval, parts and downtime into one history	Criticality, meter-based schedules, breakdown codes and link to downtime events
Material flow	Digitises replenishment signals between consumption points, stores and material handlers	Container quantity, reorder trigger, route, owner and delivery confirmation

SECTION 6

Industrial AI and machine intelligence

AI can add value where visual or document inputs are frequent, repetitive and difficult to review consistently at scale. The Soft Designers website lists wheel inspection and document analysis among its AI solutions, and its product videos page showcases demonstrations including Andon and SPC. [7] The two workflows below show how these use cases should be structured: AI proposes, a person decides, and the result becomes part of the production record.

Image-based visual inspection with human disposition

WHEEL INSPECTION AS LISTED ON THE COMPANY WEBSITE; WORKFLOW IS CONCEPTUAL

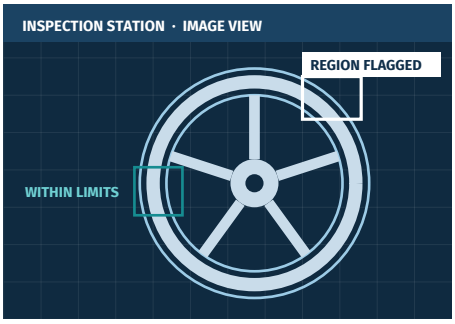


Image capture — Camera at the inspection station → **AI-assisted analysis** — Defect classes assessed → **Flag or pass** — Exceptions routed for review → **Human disposition** — Qualified person decides

WHAT TO VALIDATE BEFORE RELYING ON IT

Defect classes · Image quality · Ground-truth process · False-acceptance risk

Support repeatable visual inspection of wheel condition; the inspection record should capture the image, the AI result and the human decision.

Document analysis and AI-assisted work-instruction authoring

DESCRIBED ON THE DIGITAL WORK INSTRUCTIONS PAGE [5]; HUMAN REVIEW BEFORE PUBLISHING

Source documents — PDF, Word files and images → **AI conversion** — Structured digital instruction → **Supervisor review** — Before publishing → **Published instruction** — Revision-controlled at the station

AI use case	Potential value	Validation questions
Wheel inspection	Support repeatable visual inspection of wheel condition	Defect classes; image quality; ground-truth process; false-acceptance risk
Document analysis	Help classify, extract or summarise information from documents	Supported formats; extraction accuracy; human approval; data privacy
Work-instruction authoring	Convert existing documents into structured instructions faster, with supervisor review	Fidelity of conversion; reviewer workload; revision control after publishing
Production analytics	Turn MES and monitoring data into trends for root-cause review [3]	KPI definitions; signal completeness; data ownership

A responsible acceptance test

Use representative data from the actual site, not only curated vendor examples. Agree thresholds before pilot results are reviewed.

1. Record the denominator
2. Document the ground-truth labelling method
3. Report false-positive and false-negative rates
4. Report performance by operating condition
5. Measure system downtime and alert latency
6. Log the human disposition of each flag
7. Test on site images and documents
8. Agree thresholds in advance

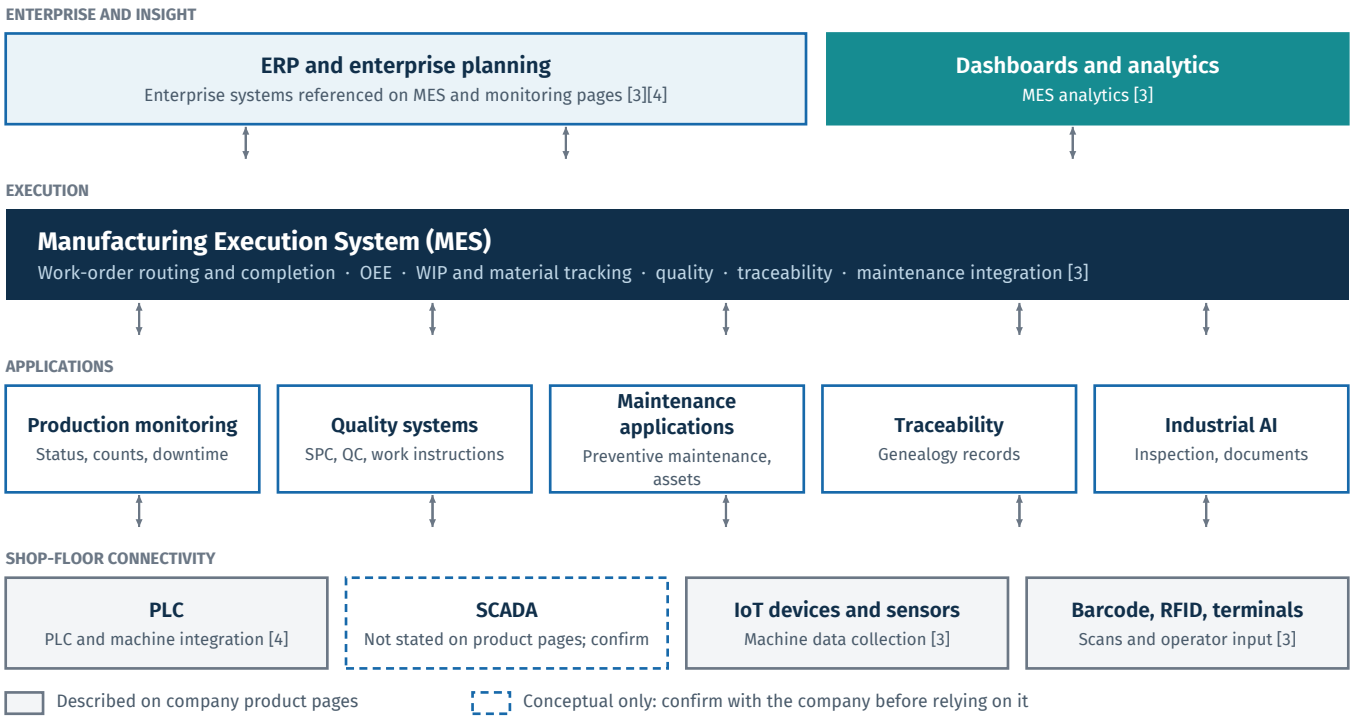
Industrial AI should support, not replace, defined inspection procedures and qualified human judgement.

SECTION 7

Integration architecture and implementation roadmap

The operating architecture should connect enterprise planning, shop-floor signals, workflow applications and decision support. The model below is a diligence framework; actual Soft Designers architecture, supported APIs and integration patterns must be confirmed with the company.

Conceptual Industry 4.0 architecture
NOT A CONFIRMED PRODUCT ARCHITECTURE



Implementation roadmap

1 Discover	2 Pilot	3 Stabilise	4 Scale	5 Optimise
2–4 WEEKS	**6–10 WEEKS**	**4–8 WEEKS**	**SITE OR LINE WAVES**	**ONGOING**
ACTIVITIES Map process, losses, systems, users, data owners and baseline KPIs	ACTIVITIES Select one line, site or workflow; configure roles, master data, events, dashboards and training	ACTIVITIES Resolve defects, tune alerts, verify controls, establish support and governance	ACTIVITIES Replicate templates; integrate adjacent workflows; standardise reporting	ACTIVITIES Root-cause analysis, workflow refinement, analytics and periodic control review
EXIT CRITERIA **Signed scope, process map, baseline and integration inventory**	EXIT CRITERIA **User acceptance, data quality, adoption and agreed pilot measures**	EXIT CRITERIA **Stable usage, owner-led action closure and support model**	EXIT CRITERIA **Repeatable deployment playbook and measured benefits**	EXIT CRITERIA **Sustained KPI improvement and governance review**

Integration checklist

- **Systems:** ERP, MES, PLC and SCADA, CMMS, QMS, identity provider, barcode and RFID, industrial cameras and BI tools.
- **Data:** equipment, line, product, BOM, work order, batch and serial, employee, location and defect codes.
- **Technology:** supported protocols and APIs, edge gateways, network segmentation, offline mode, retry logic, timestamps and synchronisation.
- **Security:** role-based access, MFA and SSO, encryption, audit logs, backup, vulnerability management and incident response.
- **Operations:** ownership for alerts, master data, system administration, training, support hours and change control.

SECTION 8

Business case, KPI framework and ROI model

Build the business case from the plant's own baseline. Avoid generic claims such as "increase productivity by 30%" unless the source, context and calculation are explicit. A credible case separates hard savings, capacity released, risk reduction and qualitative benefits.

Manufacturing KPI framework

DOMAIN	LEADING / PROCESS MEASURES (what teams control)	OUTCOME MEASURES (what the business sees)
Production	Signal completeness; production response time; event closure; schedule adherence	OEE; machine availability; downtime hours; production output (throughput); changeover time
Quality	Inspection completion; SPC rule response; corrective-action closure	First-pass yield; scrap and rework; customer escapes
Materials	Material replenishment time; shortage alerts; scan adherence	Line stoppage due to shortage; inventory turns; WIP
Maintenance	PM adherence; backlog age; repeat-failure review	MTBF; MTTR; unplanned downtime
Industrial AI	Alert latency; precision and recall; human disposition time	Verified false-acceptance and false-rejection rates; sustained inspection consistency

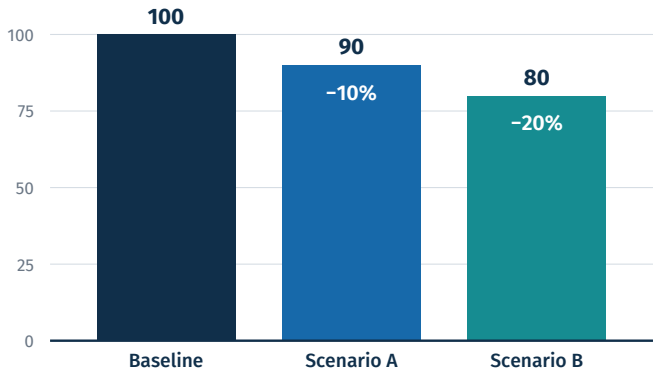
Scorecard template: ten manufacturing KPIs

OEE PRODUCTION BASELINE PILOT TARGET	**Machine availability** PRODUCTION BASELINE PILOT TARGET	**Production output** PRODUCTION BASELINE PILOT TARGET	**Downtime** PRODUCTION BASELINE PILOT TARGET	**Production response time** PRODUCTION BASELINE PILOT TARGET
MTTR MAINTENANCE BASELINE PILOT TARGET	**MTBF** MAINTENANCE BASELINE PILOT TARGET	**First-pass yield** QUALITY BASELINE PILOT TARGET	**Scrap and rework** QUALITY BASELINE PILOT TARGET	**Material replenishment time** MATERIALS BASELINE PILOT TARGET

Scorecard fields are left blank on purpose: fill them from the plant's own measured baseline and pilot results, not from vendor or industry averages.

Illustrative downtime sensitivity

Downtime index (baseline = 100)



ILLUSTRATIVE: NOT SOFT DESIGNERS CUSTOMER RESULTS

Assume a plant starts with a downtime index of 100. Scenario A models a 10% reduction; Scenario B models a 20% reduction. These are sensitivity cases only. Replace them with pilot-measured changes and calculate the financial effect using actual contribution margin, shift pattern and recoverable capacity.

SECTION 8

A transparent ROI worksheet

The worksheet keeps the calculation visible so that finance, operations and the vendor can agree every input. Formulas are unchanged from the research source; the right-hand column is for the plant's own validated values.

Hard savings
Cost removed or avoided, such as downtime and scrap

Capacity released
Output recovered without new assets

Risk reduction
Lower exposure to repeat failures and escapes

Qualitative benefits
Visibility, response and decision quality

Worksheet

Input	Calculation / definition	Plant value (to be validated)
Annual addressable downtime cost	Baseline unplanned downtime hours × validated cost per lost production hour	
Recoverable share	Share of downtime that the selected workflow can realistically influence	
Annual benefit	Addressable downtime cost × measured reduction × recoverable share	
Annual quality benefit	Baseline scrap and rework cost × measured reduction attributable to intervention	
Annual net benefit	Downtime benefit + quality benefit + material benefit + labour time benefit − recurring costs	
Payback period	One-time implementation cost ÷ monthly net benefit	
ROI (year 1)	(Year-one benefits − year-one total costs) ÷ year-one total costs	

How the calculation chains together

1 **Addressable downtime cost**
Baseline unplanned downtime hours × validated cost per lost production hour

→

2 **Annual downtime benefit**
Addressable downtime cost × measured reduction × recoverable share

→

3 **Annual net benefit**
Downtime + quality + material + labour time benefit − recurring costs

→

4 **Payback and year-1 ROI**
Implementation cost ÷ monthly net benefit; (benefits − costs) ÷ costs

Applying the downtime formula to the sensitivity cases

Case	Measured reduction (illustrative assumption)	Annual downtime benefit
Scenario A	10%: replace with pilot-measured value	Addressable downtime cost × 10% × recoverable share
Scenario B	20%: replace with pilot-measured value	Addressable downtime cost × 20% × recoverable share

CAUTION

Do not double count benefits. For example, if OEE improvement already includes quality and availability gains, do not add the full scrap and downtime values again without isolating the components.

SECTION 9

Customer examples and evidence quality

The Soft Designers MES page displays customer stories. For manufacturing technology, the relevant published example is Grundfos, described as using Andon for real-time monitoring and alerts with 24/7 visibility. This is a company-published case-story statement, not an independently audited performance finding in this research. [3]

Three classes of evidence used in this paper

COMPANY-PUBLISHED CLAIM	INDEPENDENTLY VERIFIED RESULT	ILLUSTRATIVE SCENARIO
Statements on Soft Designers webpages: product features and customer stories. **Used for: feature descriptions; the Grundfos example.**	Outcomes confirmed by an independent party with baseline, period and scope. **In this paper: none available.**	Analytical examples built to show method, not observed results. **Used for: loss model, downtime sensitivity, pilot scenario.**

Published example

Published example	What the website states	Evidence class	How a buyer should validate
Grundfos	Andon, real-time monitoring and alerts; 24/7 visibility	Company-published claim	Confirm monitored assets and lines, alert coverage, uptime and response-time measurement

This example is a useful lead for customer-reference diligence. Ask the company for the following before treating it as proof. A product website's summary is not a substitute for a detailed case study.

1 Named reference, where permitted	2 Deployment dates	3 Module scope	4 Before and after KPI definitions
5 Sample dashboards	6 Implementation duration	7 Integration landscape	8 Customer permission to share results

Illustrative manufacturing scenario

A multi-line component plant. This scenario is illustrative and is not a claim about an existing Soft Designers customer.

TODAY (ILLUSTRATIVE)		SENSIBLE PILOT (ILLUSTRATIVE)
Stoppages are recorded in operator notebooks	→	**Machine status and downtime reason capture connected to Andon escalation**
Quality checks live in spreadsheets	→	**Serial and lot scans linked to the work order**
Material requests are made by phone	→	**Critical inspection steps placed inside digital work instructions**

SECTION 10 · INDUSTRY 4.0

Implementation risks and governance

Risk or gap	Why it matters	Mitigation / diligence question
Integration depth INTEGRATION	A suite label does not guarantee shared data or low-friction integration	Request architecture, API documents, interface list and reference integration
Data quality and master data DATA	Bad asset, product and operator IDs undermine dashboards and genealogy	Define data owners, validation rules and change process
Machine connectivity INTEGRATION	Missing or intermittent machine signals leave gaps in downtime and output records	Inventory PLC brands and protocols; confirm OPC UA and Modbus support, edge gateways, offline behaviour and retry logic
System interoperability INTEGRATION	ERP, MES, maintenance and quality tools must exchange consistent identifiers and events	Request the interface catalogue; test hand-offs end to end with real site data
Cybersecurity and resilience SECURITY	Connected OT systems expand operational attack surface	Segment networks; review access, patching, backup and incident response
Downtime during deployment OPERATIONS	Cut-over on a live line can itself interrupt production	Pilot on one line; schedule cut-over in planned windows; confirm offline mode and a rollback path
User adoption OPERATIONS	Operators may bypass systems that slow work or add duplicate entry	Co-design workflows; minimise friction; train supervisors and operators
Alert fatigue OPERATIONS	Too many low-value alerts reduce trust and response	Tune thresholds, route by severity, measure acknowledgement and closure
Scalability OPERATIONS	A pilot that works on one line may not replicate across lines and sites	Use templates and standard master data; require a repeatable deployment playbook
Vendor dependency COMMERCIAL	Reliance on one supplier for platform, support and upgrades	Review service model: support SLA, upgrade cadence, licensing model and exit terms
Data ownership COMMERCIAL	Production data may be hosted, retained or reused outside plant control	Agree ownership, hosting region, retention and export rights in the contract
AI performance variation AI	Lighting, image quality and site conditions affect vision models	Run representative acceptance tests; publish error rates and limitations

Rows for machine connectivity, interoperability, deployment downtime, scalability, vendor dependency and data ownership are editorial governance prompts, not statements about Soft Designers products.

Research gaps to close with Soft Designers

- **Technical datasheets:** deployment model, hosting regions, architecture, APIs, supported browsers and devices, and licensing model for each product.
- **Security and assurance:** certifications (if any), penetration-test summaries, vulnerability process, backup and DR objectives and data-retention controls.
- **Integration catalogue:** ERP, MES, CMMS and QMS vendors, PLC brands, OPC UA and Modbus support, camera compatibility and identity integrations.
- **AI evidence:** validated model metrics, test-set composition, false-positive and false-negative rates, edge hardware requirements and retraining governance.
- **Customer proof:** independently attributable case studies with baseline, timeframe, sample size, deployment scope and measurable results.
- **Service model:** implementation methodology, support SLA, training, change requests, upgrade cadence and customer success ownership.

STANDARDS NOTE

Standards alignment should be reviewed by qualified personnel. Depending on sector and jurisdiction, relevant frameworks may include ISO 9001 (quality management), ISO 55000 (asset management), ISO/IEC 27001 (information security), IEC 62443 (industrial automation and control system security) and applicable sector-specific requirements. Listing a standard here does not imply Soft Designers is certified against it.

SECTION 11

Recommendations and closing perspective

For manufacturers evaluating Soft Designers or a comparable platform, the recommended sequence is seven steps, from finding the constraint to scaling a proven result.

1. **Identify production bottlenecks**
   Start with a value-stream review. Identify the three most expensive breakdowns in the current operating model.
2. **Prioritise measurable use cases**
   Rank candidate workflows by cost and by how measurable the outcome is. Prioritise one high-cost workflow rather than launching every module at once.
3. **Establish reliable machine and production data**
   Define the event model and master data before configuring dashboards. Agree what constitutes downtime, a defect and a completed action.
4. **Select a pilot**
   Choose one pilot with clear ownership, stable scope and accessible baseline data; a production line or maintenance workflow is easier to govern than an enterprise-wide rollout. Demonstrate end-to-end workflows, not isolated screens: follow a machine stop, quality hold or material shortage from detection through closure and reporting.
5. **Integrate manufacturing systems**
   Test integration, security, offline behaviour and exception handling using the actual site environment.
6. **Measure operational improvements**
   Measure adoption and operational outcomes together. A technically successful deployment that is bypassed by frontline teams is not a successful transformation.
7. **Scale across lines and facilities**
   Scale only after the pilot demonstrates reliable data, clear accountability and repeatable value.

CLOSING PERSPECTIVE

The next stage of industrial digitisation is not defined by the number of dashboards or applications deployed. It is defined by how reliably an organisation turns events into context, context into accountable action, and action into measurable learning. Soft Designers' published portfolio spans many of the capabilities required for this connected operating model across manufacturing execution, quality, traceability, maintenance and industrial AI. The decision for each manufacturer is to validate fit, integration, usability, governance and measurable outcomes against its own processes and constraints.

About the company

Soft Designers presents itself as a provider of Industry 4.0 and AI solutions for manufacturing organisations, with its India head office listed in Bengaluru. For current product scope, demonstrations and commercial information, consult the company directly.

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REFERENCES

References and source notes

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https://www.cii.in/PublicationDetail.aspx?enc=lcbRiFsIZ0UVvdM1XXIctGwI1qTOeL4s9JoOIfWdyXc%3D

[2] **Soft Designers.** Official website and portfolio overview. COMPANY-PUBLISHED
https://www.softdesigners.co.in/

[3] **Soft Designers.** Manufacturing Execution System Software page, including described MES functions and customer-story summaries. COMPANY-PUBLISHED
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https://www.softdesigners.co.in/digital-work-instruction-software/

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https://www.gs1.org/docs/traceability/GS1_tracebility_what_you_need_to_know.pdf

[7] **Soft Designers.** Product Videos and demonstrations. COMPANY-PUBLISHED
https://www.softdesigners.co.in/product-videos/

EVIDENCE LIMITATIONS

The paper relies on publicly accessible company pages and cited institutional guidance. Website content can change; feature descriptions are vendor-published. The customer statement cited above was presented by Soft Designers and has not been independently audited for this paper. Charts labelled illustrative are analytical examples, not observed industrial averages or vendor results. This paper is intended for strategic evaluation and should not replace technical, legal, cybersecurity or procurement due diligence.

Where each source is used

Ref.	Used in this paper for	Pages
[1]	Digital-maturity framing for Indian manufacturing	4
[2]	Portfolio overview and company description	5
[3]	MES functions and the Grundfos customer-story statement	6, 8, 9, 10, 13
[4]	Production monitoring capabilities and industrial protocols	6, 8, 10
[5]	Digital work instruction features and AI-assisted authoring	7, 8, 9
[6]	Definition of traceability and its purpose	7
[7]	Product demonstrations, including Andon and SPC	9

Prepared November 2026 | Research and editorial synthesis