Workflow & Data Strategy – Implementation Roadmap

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Executive Summary

FabriCo currently operates with paper-based job tracking and manual processes, which create delays, bottlenecks, and limited cost visibility. This roadmap outlines a hybrid implementation strategy combining Waterfall (hardware/software rollout) with Agile (pilot and iterative adoption).

Key outcomes:

- Replace paper job cards with barcode-based tracking.
- Improve quotation accuracy and reduce delays.
- Provide managers with real-time dashboards for visibility.
- Implement Kanban stock management to cut waste.
- Generate annual savings of ~£92k with a payback in 2–3 months.

1. Introduction

This roadmap presents the practical steps required to transition FabriCo to a data-driven workflow. It includes phases, training, risks, timeline, and indicative costs, supported by real-world case studies and best practice references.
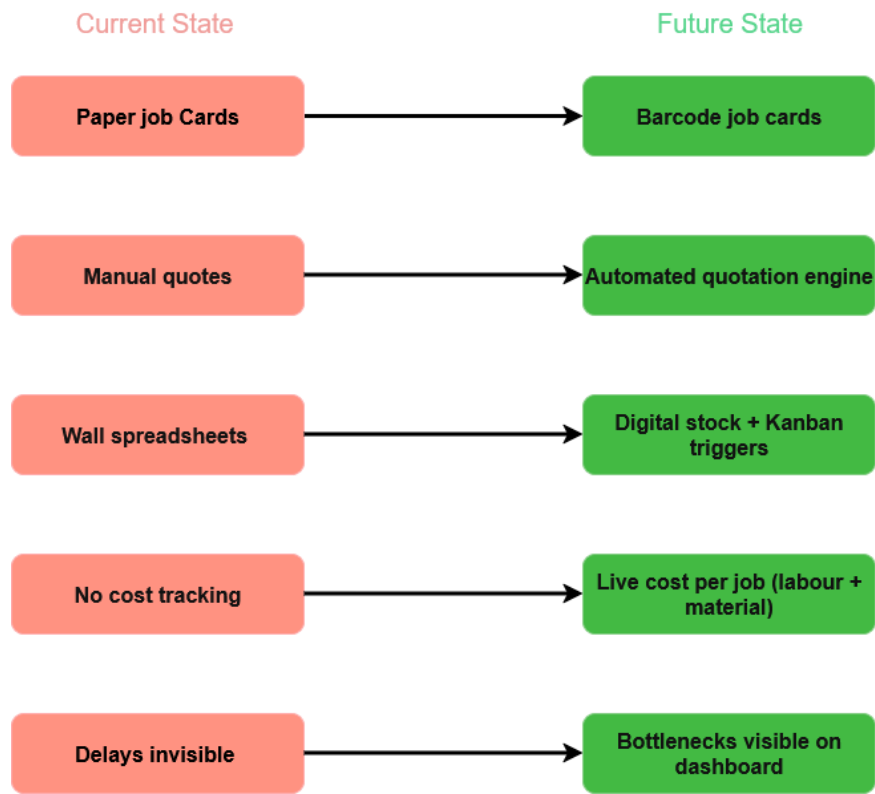
2. Current vs Future Workflow

2.1. As-Is Workflow:

Sales → Paper Job Card → Shop Floor (Punch/Fold/Weld/Paint/Assembly) → Dispatch.

2.2. To-Be Workflow:

Sales → Quotation → Engineering → Requisition → Barcode Scans at Each Stage → Dashboard → Delivery.

FabriCo Transformation: Current vs Future State

Current State		Future State
Paper job Cards	→	Barcode job cards
Manual quotes	→	Automated quotation engine
Wall spreadsheets	→	Digital stock + Kanban triggers
No cost tracking	→	Live cost per job (labour + material)
Delays invisible	→	Bottlenecks visible on dashboard

3. Why Hybrid Methodology

- Waterfall: Sequential steps for hardware/software setup (scanners, Power BI, dashboards).
- Agile: Iterative rollout for workflow adoption (pilot in one department, gather feedback, scale).
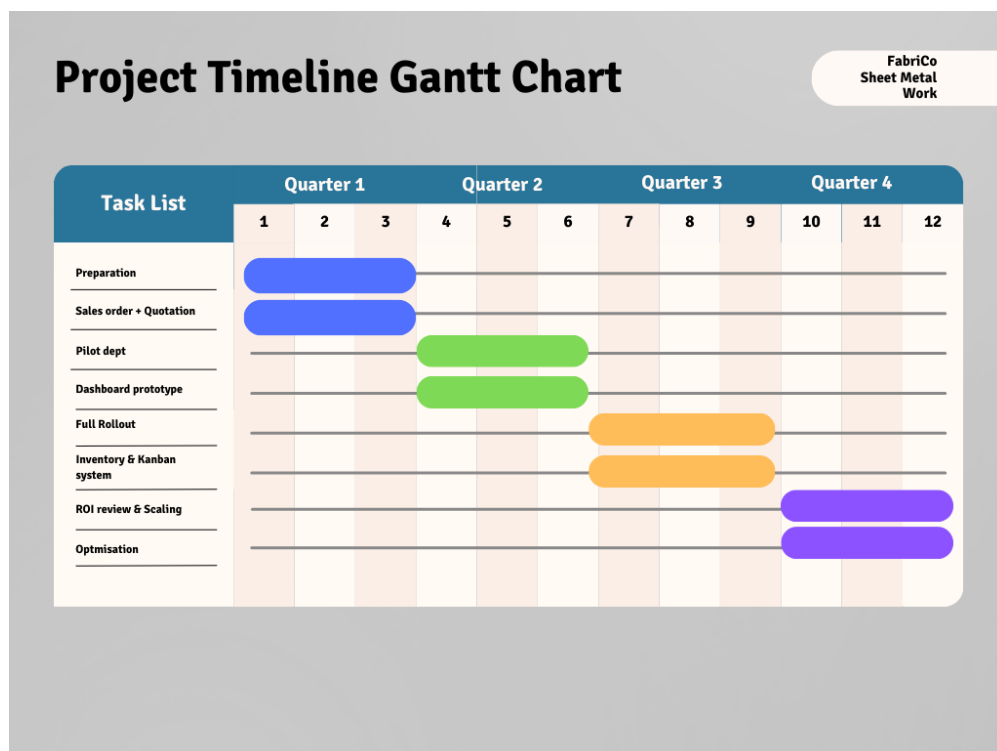
This combination provides structure for management and flexibility for operators, ensuring minimal disruption while delivering early value.

4. Implementation Phases

4.1. Phase 1 – Preparation (Months 1 – 3)

- Define scope and assign project lead
- Purchase barcode scanners and required hardware (tablets/PCs)
- Configure Power BI workspace and data structure
- Awareness sessions with staff

4.2. Phase 2 – Pilot (Months 2–3)

- Launch barcode scanning in one department (Punching/Folding/Welding)
- Train 2–3 operators to run the pilot
- Build dashboard prototype with live tracking
- Collect feedback and refine workflow

4.3. Phase 3 – Full Rollout (Months 4–5)

- Expand barcode tracking to all departments (Painting, Assembly)
- Train all staff (operators, supervisors, admin)
- Deploy live dashboard for managers
- Hold weekly feedback sessions

4.4. Phase 4 – Optimisation (Month 6)

- Add Kanban stock management for materials and consumables
- Refine dashboards with key KPIs (on-time %, bottlenecks, waste)

4.5. Phase 5 – Scaling & ROI (Months 6–12)

- Measure annual savings (~£92k estimated impact)
- Review workflow performance and refine where needed
- Document improvements to support future growth opportunities

5. Timeline Breakdown (What happens each quarter—and why)

How to read this: We use relative months (Month 1–12) rather than fixed dates. The sequence is designed for real-world adoption on the shop floor: build the foundation → prove it in a pilot → scale it → measure and improve.

5.1. Quarter 1 (Months 1–3) — Foundations that feed the pilot

5.1.1. *Preparation*

Why Q1: Hardware, access, and basic training must exist before any pilot can work. Doing this early avoids blocking later phases. What we do:

- Procure and register barcode scanners & tablets/PCs; label assets and assign owners.
- Set up shared storage, Power BI workspace, and data tables (Jobs, Stages, Scans, Materials).
- Decide scanning points and physical placement (Punching, Folding, Welding, Painting, Assembly).
- Create SOPs, one-page cheat sheets, and floor signage; run awareness sessions.

Dependencies: None (starting point). Deliverables / "Done".

- Hardware installed and tested at one cell: user accounts active.
- Baseline data model deployed; simple "scan to table" test working.
- SOPs published; short toolbox talk delivered to all shifts.

Key risk & mitigation: Procurement lag → place orders in Week 1; have a backup scanner supplier.

5.1.2. *Sales Order + Quotation (digital)*

Why Q1: The pilot needs digital orders feeding it; otherwise, scans won't link to jobs cleanly. This also delivers an early, visible "quick win." What we do

- Build a simple Sales Order form (SharePoint/Excel/low code) that creates a job ID.
- Attach quotation template: labour rate × hours + materials × unit cost + margin.
- Connect order → job template → barcode job card generation.

Dependencies: Prep data model from 5.1.1 Deliverables / "Done"

- 100% of pilot jobs created through the new digital order form.

- Auto-generated job IDs/barcodes printed with the job pack.
- First 5–10 historical jobs costed through the template (sanity check).

Key risk & mitigation: Form adoption → do a 30-minute session with Sales/Admin; provide a 1-pager.

5.2. Quarter 2 (Months 4–6) — Prove it in production

5.2.1. Pilot (one department)

Why Q2: With orders/quoting digital and kit installed, we can test end-to-end on a controlled scope to de-risk rollout. What we do:

- Start with one flow (e.g., Punching → Folding → Welding).
- Train 2–3 operators as champions; run daily stand-ups for the first two weeks.
- Capture "scan in / scan out" times; collect notes on blockers (missing materials, rework).

Dependencies: Q1 foundations and digital order flow. Deliverables / "Done".

- ≥95% of pilot jobs scanned at 2+ stages for 2 consecutive weeks.
- Simple reports show stage duration and idle time; issues are logged with quick tags.
- Feedback loop documented (what changed in SOPs/layout as a result).

Key risk & mitigation: Inconsistent scanning → visible floor signage + supervisor spot checks.

5.2.2. Dashboard prototype

Why Q2 (in parallel with the pilot): You need live visibility to tune the pilot quickly. What we do:

- Publish a Power BI prototype: WIP by stage, jobs stalled >X hours, labour time per job.
- Add a basic Cost view: labour time × rate; simple material capture to start.

Dependencies: Pilot scan data. Deliverables / "Done".

- Daily view used in the morning huddle; at least 3 actions/week taken from the dashboard.
- Data quality >90% (few missing scans; outliers flagged).

Key risk & mitigation: "Blank" visuals due to poor data → enforce scan compliance first.

5.3. Quarter 3 (Months 7–9) — Scale what worked

5.3.1. Full Rollout (all departments)

Why Q3: Only scale after the pilot proves flow, labels, and SOPs. Three months gives space for training and bug-fixing. What we do:

- Extend scanning to Painting, Assembly, and any remaining work cells.
- Train all operators/supervisors/admin; update rota for scanner custody.
- Turn the prototype into a live production dashboard; set up TV displays on the floor.

Dependencies: Stable pilot + working prototype. Deliverables / "Done".

- ≥90% of factory jobs scanned at every defined stage for 4 consecutive weeks.
- Floor TVs show live queue/aging; supervisors act on flags during the shift.

Key risk & mitigation: Adoption dip on nights/weekends → assign a champion per shift.

5.3.2. Inventory & Kanban system

Why Q3 (with rollout): Stock control benefits from the same barcode infrastructure and is easier once job flow is visible. What we do:

- Check-in/out barcode for key materials & consumables; two-bin Kanban for fast-movers.
- Reorder thresholds and email alerts; quick "offcut" recording for sheet reuse.
- Add a lightweight Material Availability tile to the dashboard.

Dependencies: Working scanners + trained staff. Deliverables / "Done".

- Stockouts of fast-movers reduced by ≥50% vs. baseline quarter.
- Offcut reuse recorded; monthly report of reclaimed value.

Key risk & mitigation: Over-complexity → start with top 10 SKUs; expand later.

5.4. Quarter 4 (Months 10–12) — Prove the value and tune it

5.4.1. ROI review & scaling

Why Q4: You now have enough months of data to calculate impact credibly. What we do:

- Quantify five drivers: delay reduction, quoting wins, bottleneck throughput, micro-savings (10 min/day), waste reduction.
- Compare Q4 metrics with pre-pilot baseline; document financial impact.

- Decide on next scaling steps (more scanners, extra visuals, client-facing status).

Dependencies: At least one full quarter of stable rollout data. Deliverables / "Done".

- ROI pack: methods, assumptions, and results (target ~£92k/yr value).
- Recommendations for Year 2 (e.g., deeper costing, external portal).

Key risk & mitigation: "Soft" numbers → keep conservative assumptions and show formulas.

5.4.2. Optimisation

Why Q4 (with ROI): Tighten what's live based on measured results. What we do:

- Refine KPIs (on-time %, stage cycle time, rework %, scrap £, scan compliance %).
- Tweak stage definitions, scanner placement, and SOPs; address top 3 recurring blockers.
- Lock in governance: weekly ops review using the dashboard; monthly performance pack.

Dependencies: Full rollout running. Deliverables / "Done".

- Sustained scan compliance ≥95% and on-time % improved vs. baseline.
- Updated SOPs; continuous-improvement backlog with owners and due dates.

Key risk & mitigation: Initiative fade → book recurring reviews and assign action owners.

5.5. Roles & ownership (applies across all quarters)

- Sponsor / PM: prioritisation, unblockers, cadence.
- Sales/Admin: order form, quotation template, job IDs/barcodes.
- Engineering: drawing links to job IDs; release readiness.
- Dept Leads / Champions: scan compliance, local SOPs, feedback.
- Data/IT: data model, Power BI, devices, permissions.

6. Costs & ROI

- Setup Costs (one-off):

Barcode scanners (x5 @ £250) → £1,250

Tablets/PCs for shop floor (x3 @ £500) → £1,500

Power BI Pro licenses (5 users @ £10.50/month, annual) → £630

Training (operator + supervisor sessions) → £1,000

Total setup cost ≈ £4,400

- Annual Savings (estimated):

Delay reduction → £4,900

Better quoting → £60,000

Bottleneck fixes → £12,000

Accountability boost → £10,400

Waste reduction → £5,200

Total estimated savings ≈ £92,500/year

- Payback period: ~2–3 months

7. References & Research Basis

The assumptions and estimated values in this roadmap are supported by external research and industry reports. These sources were used as a foundation for calculating ROI, timeframes, and expected benefits:

- Barcode adoption ROI: Barcode inventory systems typically achieve ROI within 6–12 months, with cost savings of 25–30% in inventory handling (Finale Inventory, 2023).
- Operational efficiency gains: Case studies show barcode systems reduce emergency orders by 30–40%, speed up slow-moving item identification by 42%, and improve forecast accuracy by 37% (Finale Inventory, 2023).
- Productivity and error reduction: Barcode scanning reduces manual data entry errors by ~30% and lowers downtime by ~25%, directly improving shop-floor productivity (We Are Conker, 2023).
- Kanban systems in manufacturing: Lean production research demonstrates that digital Kanban reduces shortages, improves material flow, and lowers waste, creating stability in production (Shoplogix, 2023).

These findings provide the logical foundation for the proposed implementation plan and demonstrate that the expected impact (~£92k/year savings) is consistent with outcomes reported across the manufacturing sector.

8. Conclusion

This roadmap shows that the proposed changes are both practical and achievable within a twelve-month period. The phased structure beginning with preparation and pilot testing, followed by a full rollout, optimisation, and ROI review ensures progress is made quickly without overloading the business.

The investment required is modest compared with the value created. Hardware, training, and software setup can be completed for a few thousand pounds, while the estimated annual savings are around £92,000. By introducing barcode scanning, digital sales orders and quotations, real-time dashboards, and Kanban stock management, the business gains faster quoting, reduced delays, stronger stock control, and measurable cost savings.

In short, the roadmap demonstrates that these improvements can be delivered step by step, with early benefits visible within the first quarter and full return on investment achieved within the first year.