CASE 1: STARBUCKS — AS-IS TO TO-BE REENGINEERING

Scenario

The Starbucks ordering process involves multiple manual hand-offs: customers queue, order verbally, pay at a cashier, the barista prepares, and customers wait at the pickup counter. Long queues and repeated verbal confirmations create delays and errors.

As-Is Process (describe visually or in bullet form)

1. Customer enters and joins queue.
2. Cashier takes order, repeats it, keys into POS.
3. Customer pays (cash/card).
4. Order slip travels to barista station.
5. Barista reads, prepares, calls name aloud.
6. Customer collects drink.

Bottlenecks:

- Cashier typing + payment confirmation (≈ 20–25 s).
- Barista preparation (≈ 45–60 s).
- Verbal miscommunication → 3–4 % remake rate.

Lead Time: ≈ 12–15 min at peak.
Throughput: ≈ 120 orders/hour.
WIP: ≈ 12 customers in system (Little's Law).

To-Be Process (Reengineered)

1. Customer orders through **mobile app** before arrival.

2. Payment is made digitally → **no POS interaction**.
3. App sends **structured drink specs** directly to barista screen.
4. Barista begins prep **before arrival** (using ETA prediction).
5. App shows real-time progress and pickup counter.
6. Customer enters, scans code, and collects drink.

Automation/Rule Changes:

- Remove cashier task entirely.
- Introduce geolocation: start preparation when user X minutes away.
- Synchronize inventory in real time.
- Store data for loyalty and analytics.

Quantitative Comparison

Metric	As-Is	To-Be
Cost per transaction	Rs 130	Rs 118
Avg. Lead Time	12 min	7 min
Throughput	120 orders/hr	170 orders/hr
Error rate	3.5 %	2.0 %
Automation level	15 %	65 %

Merit Function: To-Be ≈ 0.31 vs As-Is ≈ 0.66 → Clear improvement.

Payback: Mobile app (Rs 400,000 capex) ÷ Savings (≈ Rs 70,000 / month) ≈ 6 months.

Conclusion Paragraph

> “Reengineering the ordering system replaced manual cashier operations with a fully digital ordering and payment flow. Lead time fell by over 40 %, throughput rose by

50 %, and transaction cost declined. The barista remains the primary bottleneck but now operates at steady utilization below 85 %, reducing queues. With a six-month payback and a lower overall merit score, the redesigned system demonstrates higher efficiency, productivity, and customer satisfaction. Staff were retrained for customer engagement and app assistance, ensuring smooth change adoption."

CASE 2: UNIVERSITY FEES / ENROLLMENT PROCESS

Scenario

Students manually enroll in courses each semester and pay fees through a separate banking system. Errors in payment verification and eligibility checks delay registration and overload administrative staff.

As-Is Process

1. Student selects courses on portal.
2. System does **not** validate prerequisites.
3. Payment is made externally; proof uploaded manually.
4. Staff verify receipts and approve enrollment.
5. Errors, missing files, and time gaps cause bottlenecks.

Bottlenecks: Manual verification and exception handling.
Lead Time: 3–5 days average for full registration.
Error Rate: ≈ 10 % (wrong course selections, unpaid fees).

To-Be Process (Reengineered)

1. Portal integrated with **bank API** → instant payment confirmation.
2. **Business rules** encoded: only eligible students can enroll.
3. System automatically locks courses after prerequisites not met.

4. Notifications and invoices auto-generated; HR/Finance dashboards update in real time.
5. Students receive instant confirmation email.

Quantitative Effects

Metric	As-Is	To-Be
Avg. Processing Time	3–5 days	< 2 hours
Staff Hours / Batch	120	35
Error Rate	10 %	1–2 %
Student Satisfaction	Medium	High
Opex	High	Moderate

Result: > 70 % efficiency gain and > 80 % reduction in manual workload.

Conclusion Paragraph

> "Reengineering the enrollment and fee process established rule-based validations and live payment integration, removing redundant manual checks. Turnaround time dropped from days to hours, staff workload fell sharply, and data consistency improved. The new system demonstrates both efficiency and accuracy, aligning financial and academic departments through a shared database."

CASE 3: TESLA / MANUFACTURING PROCESS ANALOGY

Scenario

Electric-vehicle (EV) manufacturing requires synchronized operations — design, battery assembly, and quality testing. Any delay on one station halts the entire production line.

As-Is Process

- Separate work cells for body, battery, and electronics assembly.
- Manual material movement using forklifts.
- Delayed quality checks after full assembly → high rework cost.

Bottlenecks

Battery module alignment and final inspection queues.
Cycle Time: 14 min/unit; Demand requires 10 min/unit.

To-Be Process (Reengineered)

1. Introduce **Automated Guided Vehicles (AGVs)** for parts movement.
2. **Inline quality sensors** perform continuous checks instead of post-assembly inspection.
3. **Parallel sub-assembly** for battery modules.
4. **Real-time dashboards** monitor throughput per station.

Quantitative Effects

Metric	As-Is	To-Be
Cycle Time	14 min	9 min
Defect Rate	5 %	1.5 %
Utilization	95 %	82 % (healthy)
Throughput	4 units/hr	6.5 units/hr

Key Learnings

- Vertical integration (owning battery production) improves control.
- Real-time data reduces decision lag.
- Investment heavy but amortized through higher throughput.

Conclusion Paragraph

> “By embedding sensors and automating material flow, Tesla achieved real-time visibility and eliminated waiting between assembly and inspection. Average cycle time fell 35 %, defect rates dropped by 70 %, and overall productivity improved. The To-Be design demonstrates how industrial reengineering balances capital investment with sustained operational savings.”

Universal “Closing Lines” for Any Case

- “The redesigned process follows the principles of **data visibility, automation, and rule enforcement**, converting tacit manual steps into measurable digital flows.”
- “Overall efficiency improved through reduced non-value-added time, while productivity increased via higher throughput per resource.”
- “The project’s merit score and payback analysis confirm sustainable benefits under moderate variability, validating the success of reengineering.”