Sarathi Motors: When the ERP using Digital Twins Meets the Assembly Line

Abstract

In August 2026, Meenakshi Iyer, Chief Transformation Officer of Sarathi Motors Ltd, a four-plant Indian automobile manufacturer, must recommend whether Project DRISHTI should go live as planned. The ₹420 crore programme replaces fragmented legacy systems with a cloud ERP and a production digital twin, promising higher equipment effectiveness, lower inventory and better plan adherence. Twenty-two months in, the project has disrupted business as usual far more than its business case anticipated: plants have lost output while releasing key staff, customisations have crept past policy, master data remains unreliable, and a new central planning structure has triggered resistance from supervisors, planners and a union wary of sensor surveillance. Spending is 15% over plan, and the planned go-live falls in the festive-season demand peak. The case asks students to weigh readiness, disruption and commitment across four options, and to examine how process re-engineering and organisational change determine whether enterprise technology succeeds as much as the software itself.

Context

At 7:40 on a humid Saturday morning in late August 2026, Meenakshi Iyer, Chief Transformation Officer of Sarathi Motors Ltd, sat alone in the war room on the fourth floor of the company's Pune headquarters. The whiteboard behind her still carried the countdown someone had written in red marker three weeks earlier: **"Go-live: 58 days."** Someone else had since added, in smaller blue letters, "…or not?"

On Monday at 10:00, Meenakshi would face the steering committee of Project DRISHTI, the company's ₹420 crore programme to replace a patchwork of legacy systems with a single cloud ERP and a production digital twin across Sarathi's four plants. The committee expected one thing from her: a clear recommendation on whether the programme should go live as planned on 26 October 2026, the end of month 24 of a 36-month plan.

The date had not been chosen carelessly. The board had approved it in 2024, the chairman had mentioned it on two earnings calls, and the systems integrator's contract carried a penalty-and-bonus clause tied to it. But the calendar had been unkind. Go-live now coincided with the Navratri–Diwali festive season, when Sarathi's dealers expected 22% more vehicles than in a normal month and every lost day of production cost roughly three times its usual margin.

The numbers on her laptop did not settle the matter. Integration testing had reached an 81% pass rate against a go-live threshold of 92%. Bill-of-materials (BOM) accuracy in the latest data-migration rehearsal was 83%, against a required 95%. Spending stood at ₹236 crore against a plan of ₹205 crore. The latest pulse survey showed that only 31% of supervisors supported the new way of working. And yet the pilot line in Pune, where the digital twin had run for ten weeks, had lifted its overall equipment effectiveness (OEE) by almost six points.

Meenakshi had spent 19 years in automotive operations before taking this role. She knew that enterprise systems rarely failed because of software alone. They failed when new technology collided with old processes, old structures and people who had been running the business perfectly well, thank you, before anyone asked them to change. Over the past 22 months she had watched DRISHTI disrupt Sarathi's business as usual in ways no project charter had anticipated.

Her phone buzzed. It was a message from Rajiv Bhatia, the managing director: *"Need your honest view on Monday. Not the consultant's view. Yours."*

She opened a fresh document and typed a single line at the top: *What would we regret more, going live too early or too late?*

Background of the company

Sarathi Motors Ltd was founded in 1971 in Pune as a manufacturer of light commercial vehicles for India's growing road-transport sector. Its first product, a 1-tonne pickup nicknamed "the Bullock" by truckers for its stubbornness on bad roads, sold more than 200,000 units over two decades. In 1994, after India's economic liberalisation, Sarathi formed a technology partnership with a Japanese automaker and entered the passenger-vehicle market with a compact hatchback. The partnership ended amicably in 2009, by which time Sarathi had built its own engineering centre and a range of hatchbacks, sedans and compact SUVs.

By fiscal year 2025–26 (April 2025–March 2026), Sarathi was India's fourth-largest passenger-vehicle maker by volume, with revenue of ₹46,800 crore, EBITDA of ₹5,150 crore and a domestic market share of 9.4% (Exhibit 1). It exported to 34 countries across Africa, Latin America and Southeast Asia, which contributed 14% of revenue. Its listed shares were held 52% by the founding Deshpande family and the rest by institutional and retail investors. The company employed about 19,500 people, including 6,800 on the shop floor across four plants.

The plants had grown in different decades and carried the habits of their eras (Exhibit 2). **Pune** (1971, expanded 2002) was the original site, home to the engineering centre and two lean-manufacturing pilots. **Manesar** in Haryana (1998) was the largest plant by volume and the most unionised; a wage dispute in 2019 had stopped production for eleven days and was still remembered on both sides. **Chennai** (2007) built export models under strict customer audits. **Sanand** in Gujarat (2018), the newest, had a young workforce and the most automated body shop. Together the plants ran 12 assembly lines and produced about 52,000 vehicles a month at 91% capacity utilisation.

Sarathi's information systems had grown the same way. Each plant ran a different version of a 2004-vintage ERP, customised so heavily that upgrades had become impossible. Production planning was done separately at every plant using a mix of home-grown tools and spreadsheets; the most important one at Manesar was named, without irony, *FINAL_v7_REALLYFINAL.xlsx*. The four plants used three different definitions of OEE, which made monthly reviews in Pune lively but not very useful.

In 2023, competitive pressure sharpened. Two rivals had launched electric SUVs, raw-material prices had risen, and Sarathi's inventory had crept up to 42 days of cost of goods sold, locking about ₹4,000 crore of working capital. A consulting study concluded that Sarathi lost the equivalent of one full plant's output each year to unplanned downtime, schedule changes and parts shortages.

The board's answer, approved in September 2024, was **Project DRISHTI** ("vision" in Sanskrit). It would deliver one cloud ERP across all plants, an Integrated Planning & Control Centre (IPCC) at headquarters, and a digital twin of every assembly line, fed by about 9,000 IoT sensors. The business case promised to lift OEE from 68% to 80%, cut inventory from 42 to 30 days and raise production-plan adherence from 74% to 92%, with payback in 2.4 years (Exhibit 3). The budget was ₹420 crore over 36 months, with go-live at month 24 and the final year reserved for stabilisation and benefits capture.

The MD, Rajiv Bhatia, asked Meenakshi Iyer, then head of manufacturing excellence, to lead it. "You know the plants," he told her. "The software people know the software. We need someone who knows why both will disappoint us."

Problems in the operations

DRISHTI began well. In its first six months the steering committee rejected a big-bang roll-out and chose a phased approach, with Pune, the most change-ready plant, as the pilot and the other three plants following in waves after go-live. A core team of 180 people was assembled from the plants, IT and finance. Within a year, however, it was clear that the hardest problems were not in the software. They sat where the new system met the old way of running the factories.

Business as usual under strain

The core team had been "borrowed" from the plants, but the plants' production targets had not been reduced. About 110 of the 180 team members were experienced planners, supervisors and maintenance engineers, precisely the people who kept lines running at 91% utilisation. Plant heads responded in predictable ways. Some quietly recalled their people for "urgent" work during month-end pushes; others sent their least experienced staff to design workshops. Workshop attendance among supervisors fell to 54%.

Output suffered anyway. In the three months when design workshops peaked, Manesar and Chennai missed their production plans by 3–5%, and Sarathi lost an estimated 9,400 vehicles over the first 18 months (Exhibit 4). Harjeet Gill, the Manesar plant head, put it bluntly at a review: "You can have my best planner or my production number. Please tell me which one my bonus is based on."

Four plants, four processes

The process-mapping workshops revealed that the four plants planned production in four different ways. Pune planned weekly using the ERP and Excel; Sanand weekly in the ERP; Chennai fortnightly in a home-grown tool; Manesar "as required" in its famous spreadsheet. A Chennai planner kept much of the material plan in his head, and his leave plans became a project risk in their own right.

The fit-gap analysis found 340 gaps between the ERP's standard processes and current practice (Exhibit 5). Only 43 of them, 15 regulatory and 28 genuine competitive differentiators, justified customisation. The committee adopted a fit-to-standard policy with a design authority to police exceptions. In practice the design authority was overruled 28 times by plant heads escalating to the MD, and 71 customisations were built. Each added testing effort, about ₹0.35 crore of build cost and a permanent line in the upgrade bill. "Every customisation request starts with the words 'our plant is unique'," said Sandeep Kulkarni, the CIO. "In 22 months I have not met a plant that was not unique."

Data nobody owned

The digital twin and the ERP both depended on clean master data, which nobody at Sarathi had been responsible for. An audit found BOM accuracy of 71%, 18% duplicate material codes and routings that matched shop-floor reality only 64% of the time. A data-cleansing workstream improved BOM accuracy to 83% by August 2026, but progress had stalled: the people who knew which data was right were the same overloaded planners the plants kept recalling.

A new structure nobody had asked for

The greatest value in DRISHTI's business case came not from the software but from changing who made decisions. The digital twin made central, real-time planning possible. The design called for an IPCC at headquarters to take over scheduling from the plants, affecting 86 plant planners and 140 supervisors who had long enjoyed the authority to "adjust the schedule" on the shop floor.

The committee chose a hybrid design: 24 planners would remain at the plants as "planning business partners", and supervisors would be redeployed as "line digital champions". On paper this was elegant. On the floor it felt like a demotion. Supervisors who had once rearranged the build sequence by walking over to a line now had to raise a request on a dashboard. The pulse survey in July 2026 showed support for the change at 31% among supervisors and 38% among planners, against 74% in finance (Exhibit 6). Two senior planners resigned, and the programme's lead solution architect left for a competitor in May 2026.

Sensors and suspicion

When IoT sensors were installed on Line 3 in Pune, workers noticed that the twin recorded cycle times not only per line but per workstation, per shift. Within a week a rumour had spread to Manesar that the sensors would be used to rank and dismiss slow workers. The union wrote to the MD rejecting "electronic surveillance disguised as digital twin." Legal counsel advised that person-level data could fall under India's Digital Personal Data Protection Act, 2023, and recommended a data-use charter limiting the twin to line-level analytics. Negotiations on that charter were still under way, and Manesar had refused to allow sensor installation until it was signed.

Resistance that did not look like resistance

Open opposition was rare. Resistance at Sarathi was polite and procedural: training sessions rescheduled for production reasons, test scripts "pending business validation" for weeks, and users who completed training but kept parallel spreadsheets "just in case." A survey of pilot users found that 41% still maintained their own Excel plans. Kavita Sethi, head of change management, called it "the Excel insurance policy": nobody would cancel it until the new system had proved it would pay out.

Money and working capital

By August 2026 DRISHTI had spent ₹236 crore against a plan of ₹205 crore, a 15% overrun (Exhibit 7). The customisations, a data-cleansing sub-contract and two extensions of the systems integrator's team accounted for most of it. The contingency line had shrunk from ₹40 crore to ₹9 crore. Meanwhile plant managers, worried about the cutover, had begun building safety stock "for go-live", adding about two inventory days, roughly ₹190 crore of working capital, in a programme whose stated goal was to release it.

The pilot was the one unambiguous bright spot. On Pune's Line 3, after ten weeks, the twin had lifted OEE from 71% to 76.8%, cut unplanned downtime from 11.2% to 7.1% and reduced weekly schedule changes from 37 to 12. Analysis showed that only about a third of the gain came from the technology. The rest came from moving scheduling authority from supervisors to the IPCC, which was exactly the change the rest of the organisation was resisting.

Dilemma

Meenakshi's team had reduced the go-live decision to four options, each with a champion and a price (Exhibit 9).

Option 1: Go live as planned on 26 October. The systems integrator, Vertex Consulting, argued that testing would reach threshold in the remaining eight weeks if the business "took validation seriously". The date protected the integrator's bonus clause, kept the programme on its published timeline and avoided extending a 140-person vendor team at about ₹2.4 crore a month. Its critics pointed out that it placed the cutover in the middle of the festive peak, when a 15% output dip for six weeks could cost about 14,000 vehicles and ₹1,000 crore of revenue, and hand dealers to competitors.

Option 2: Delay go-live by three months, to late January 2027. This would avoid the festive peak, allow a data-cleansing sprint and a third mock cutover, and give the change team time to finish the union charter. Kulkarni favoured it. It would add about ₹18 crore and three months to the timeline, and Meenakshi worried about momentum: a programme that slips once often slips again. Rajiv Bhatia would also have to explain the delay to a board that had heard the October date twice on earnings calls.

Option 3: Go live on time but cut scope. Launch the core ERP in October and restrict the digital twin to the four lines that were ready, moving the other eight to a "Phase 2". This would save about ₹12 crore and reduce cutover complexity. Farida Khambatta, the CFO, liked the savings. But the twin was the source of most of the OEE benefit, and without it the business case would weaken by roughly ₹180 crore a year. "We would be buying a very expensive accounting system," Meenakshi noted.

Option 4: Add a second integrator team to crash testing. A rival firm had offered 60 testers within three weeks for ₹35 crore. It would accelerate test execution but not data cleansing, which depended on Sarathi's own planners. Meenakshi remembered Brooks's law from an engineering course: adding people to a late project tends to make it later.

Underneath the options lay deeper questions. Was the October date a business commitment or a sunk-cost anchor? How much disruption could the plants absorb when people were already tired and resistant? Was the stalled data quality a technical problem or a symptom of the organisational one, a structure that still rewarded plant heads for output today rather than capability tomorrow? And whatever she chose for go-live, how would she make sure the people who had to use DRISHTI on the shop floor actually wanted it to work?

Closure

By Saturday evening the war room was empty except for Meenakshi and a cold cup of chai. She had a recommendation to make by Monday, and she knew the steering committee would ask more than "which option?" They would want to know whether DRISHTI could still meet its three original promises:

the functional objectives, the ₹420 crore budget and the 36-month timeline. If not all three, which one should give way?

She also knew that the go-live decision was only the visible part of the problem. Whatever date she chose, the plants would need people released from production, supervisors would need a reason to believe in their new roles, the union would need a signed charter, and plant heads would need targets that did not punish them for helping the programme. A brilliant cutover on a broken organisation would simply move the problem from the project to the factory floor.

She wrote three headings on the whiteboard, under the old countdown: *Readiness. Disruption. Commitment.* Then she began to write.

Questions for discussion

1. Why did DRISHTI disrupt Sarathi's business as usual far more than its business case anticipated? Distinguish the technology, process and organisational causes.
2. Using the data in the exhibits, assess Sarathi's readiness to go live on 26 October. Which indicators matter most, and why?
3. Evaluate the four options against functional objectives, budget, timeline and people. Which would you recommend, and what would you have to believe for it to succeed?
4. How should Meenakshi address resistance from supervisors, planners and the union, whichever option is chosen?
5. Looking back, which earlier decisions on the programme would you have made differently?

Appendix

All data is fictitious, prepared for classroom discussion. Fiscal years run April–March (FY26 = April 2025–March 2026). ₹1 crore = ₹10 million.

Exhibit 1: Sarathi Motors financial and operating summary

Measure	FY22	FY23	FY24	FY25	FY26
Revenue (₹ crore)	31,200	35,900	40,100	43,600	46,800
EBITDA (₹ crore)	3,060	3,730	4,490	5,060	5,150
EBITDA margin (%)	9.8	10.4	11.2	11.6	11.0
Vehicles sold (thousand)	470	528	571	602	624
Domestic market share (%)	8.6	8.9	9.2	9.3	9.4
Export share of revenue (%)	11	12	13	14	14
Inventory (days of COGS)	36	38	40	41	42
Employees (thousand)	17.8	18.4	18.9	19.2	19.5

Exhibit 2: Plant profile (2026)

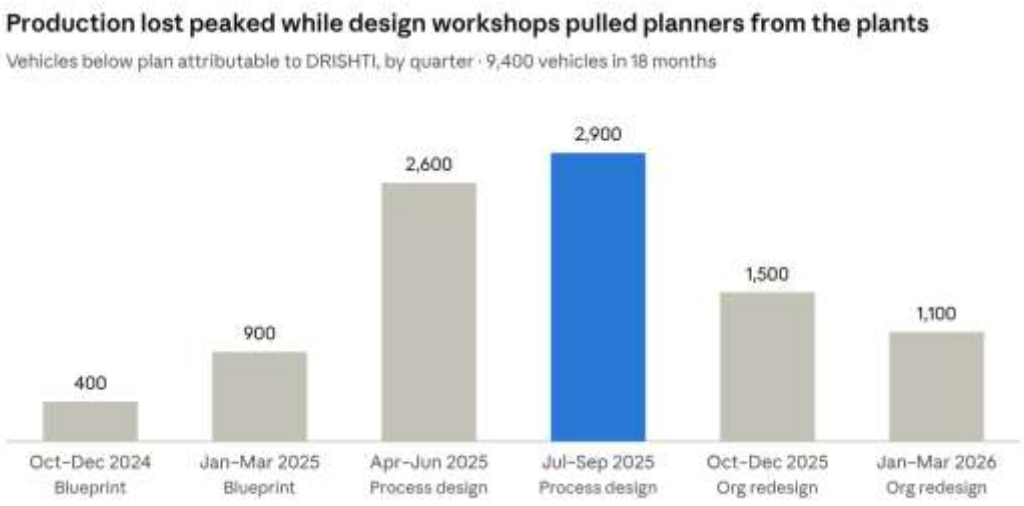
Plant	Started	Lines	Monthly output (vehicles)	OEE (%)	Plan adherence (%)	Planning tool	Change readiness (0–100)	Union strength
Manesar	1998	4	17,500	64	68	Spreadsheet	48	High
Pune	1971	3	13,000	71	79	ERP + Excel	72	Moderate
Chennai	2007	3	12,000	67	72	Home-grown tool	55	Moderate
Sanand	2018	2	9,500	70	77	ERP	64	Low
Total / average		**12**	**52,000**	**68**	**74**			

Exhibit 3: Project DRISHTI business case (approved September 2024)

Objective	Baseline	Target at month 36	Estimated annual value
Overall equipment effectiveness	68%	80%	₹310 crore a year
Inventory	42 days	30 days	₹1,150 crore cash released (one-time)
Production-plan adherence	74%	92%	₹95 crore a year
Lines covered by digital twin	0	12	Enabler of OEE gains
Budget	–	₹420 crore	Payback 2.4 years
Timeline	–	Go-live month 24; close month 36	Each month of delay defers ~₹34 crore of benefits

Exhibit 4: Production lost to project disruption, by quarter

Vehicles below plan attributable to DRISHTI (people released to the project, workshops, sensor installation), October 2024–March 2026.



Company data (fictitious) · October 2024–March 2026

Exhibit 5: Fit-gap analysis and customisations built

Gap category	Gaps found	Justified by policy	Customisations built
Reports and screen layouts	205	0	19
Plant-to-plant process variations	92	0	9
Competitive differentiators (e.g., export build sequencing)	28	28	28
Statutory and regulatory (GST, emission traceability)	15	15	15
Total	**340**	**43**	**71**

Exhibit 6: Pulse survey on DRISHTI, July 2026

Stakeholder group	Respondents	Support for change (%)	Top concern
Supervisors	118	31	Loss of authority over the line
Plant planners	74	38	Relocation to the IPCC, new skills
Shop-floor workers	1,620	42	Sensor surveillance, job security
Maintenance engineers	165	57	Workload during cutover
IT and core team	152	61	Burnout, 60-hour weeks

Stakeholder group	Respondents	Support for change (%)	Top concern
Finance	88	74	Budget overrun

Exhibit 7: DRISHTI budget, plan versus actual to August 2026 (₹ crore)

Workstream	Plan to date	Actual to date	Variance
Systems integrator and licences	128	141	+13
Customisation	6	25	+19
Data cleansing	8	14	+6
IoT sensors and digital twin	22	21	−1
Programme management	10	11	+1
Training and change management	31	24	−7
Total	**205**	**236**	**+31**

Contingency remaining: ₹9 crore of the original ₹40 crore. Approved budget: ₹420 crore.

Exhibit 8: Go-live readiness dashboard, 22 August 2026

Criterion	Status	Go-live threshold
Integration test pass rate	81%	≥ 92%
Open critical defects	23	0
Interfaces working	39 of 46	46 of 46
BOM accuracy (mock migration)	83%	≥ 95%
Routing accuracy	77%	≥ 95%
End users trained	68%	≥ 90%
Super-users certified	96 of 140	140
Union data-use charter (Manesar)	Under negotiation	Signed
Pilot users keeping parallel Excel plans	41%	< 10%

Exhibit 9: Go-live options compared

Option	Go-live date	Added cost (₹ crore)	Timeline effect	Twin lines at go-live	Main risk
1. Go live as planned	26 Oct 2026	0	None	12	Output dip during festive peak
2. Delay three months	Late Jan 2027	+18	+3 months	12	Loss of momentum; board credibility
3. Go live, cut twin scope	26 Oct 2026	−12	None (Phase 2 later)	4	Business case falls ~₹180 crore a year
4. Add second integrator team	26 Oct 2026	+35	None (if it works)	12	Data quality unchanged; coordination load

Exhibit 10: Festive-season demand forecast

Month (2026)	Demand versus a normal month	Dealer stock (days)
September	+8%	28
October	+22%	19
November	+18%	21
December	−5%	30

Exhibit 11: Digital twin pilot, Pune Line 3 (ten weeks)

Metric	Before	After
OEE	71.0%	76.8%
Unplanned downtime	11.2%	7.1%
Schedule changes per week	37	12
Who changed the schedule	Supervisors	IPCC dashboard with line lead
Share of OEE gain from technology alone (estimate)	–	About one third