E2 MUD · MANUFACTURING

The NUUMI Proof: Same Workers, Different Systems, Opposite Results

GM's worst plant. Same workforce. Same union. Different operating system. Within one year: GM's best plant. The experiment nobody would have designed — and the lesson that still hasn't landed.

I know what some of you are going to say.

When I argue that the dominant manufacturing operating model systematically suppresses frontline intelligence — that there are millions of workers in American factories and hospitals, and warehouses and fulfillment centers whose problem-solving capability has been deliberately designed out of their jobs — some of you will call it romantic nonsense. You'll say these are simple jobs performed by people the labor market sorted there. That there's no hidden intelligence being suppressed. That the system is just efficient.

I welcome that objection. Because the evidence against it is overwhelming. And I'm going to spend the next eight weeks laying it out — not with theory, not with philosophy, but with data, natural experiments, and documented performance outcomes that the skeptics will have to reckon with.

We start with the strongest piece of evidence I know. A story so clean in its experimental design that if you proposed it as a controlled study, your IRB would reject it as too good to be true.

We start with NUMMI.

The Worst Plant in America

By the late 1970s, General Motors' Fremont Assembly Plant in California had earned a reputation that even GM's own leadership didn't dispute: it was the worst plant in the system.

Absenteeism ran above 20 percent. On some mornings, so few workers showed up that supervisors had to cross the street to the local bar to drag people back to the line. Wildcat strikes were routine. Workers drank on the job, did drugs on the job, and — as multiple firsthand accounts confirm — had sex in the plant during shifts. Sabotage was a sport.

Workers left bolts deliberately untightened. They stuffed Coke bottles inside door panels so the cars would rattle and annoy customers. Cars regularly rolled off the end of the line inoperable and had to be towed away for repairs.

Under the union contract, workers were virtually impossible to fire. Management and labor existed in a state of cold war. The plant was, by any reasonable measure, a disaster.

In 1982, GM shut it down.

If you stopped the story here, you'd have a clean narrative. Bad workers. Bad culture. Bad outcomes. The labor market sorted these people into a factory, they proved themselves incapable, and the rational response was to close the doors.

That narrative is wrong. And what happened next proved it.

The Experiment Nobody Would Have Designed

In 1984, Toyota and GM reopened the Fremont plant as a joint venture called New United Motor Manufacturing, Inc. — NUMMI. Toyota would manage the plant. GM would contribute the facility. Both companies would sell the vehicles produced there.

Here is what Toyota did that made this a natural experiment of extraordinary power:

They rehired the same workforce.

Over 85 percent of NUMMI's initial employees were UAW members from the old GM Fremont plant. Not the good ones. Not a carefully screened subset. The same workforce — including, at the UAW's insistence, the same union leadership that had presided over GM's worst operation.

GM was against rehiring the militants. Toyota agreed to it anyway. They believed their system could work with any workforce — a hypothesis they were about to test with the hardest possible case.

Toyota did one other critical thing before reopening. They sent groups of these workers to Toyota's Takaoka plant in Japan. Not for a PowerPoint presentation. Not for a classroom seminar. They put them on the assembly line. They let them work inside a system that treated every worker as a problem-solver, that gave them authority to stop the line when they saw a defect, that asked for their ideas and implemented them.

The workers came back to Fremont and started building cars.

The Results That Should Have Changed Everything

Within one year, the plant that had been GM's worst became GM's best.

Not good. Not improved.

The best.

John Shook was there. An industrial anthropologist hired by Toyota in 1983 to help develop training programs for the venture, Shook had a front-row seat to what he later called one of the most striking stories of cultural reinvention he had ever witnessed. Writing in the MIT Sloan Management Review, he put the outcome in terms that leave no room for ambiguity:

> *"We took the quality of the plant from GM's very worst to GM's very best — not just bad to good, from worst to best — in only one year. The exact same workers, including the old troublemakers.*

The only thing that changed was the system.

The production and management system."

Let that sink in.

The workers who had been drinking on the line, sabotaging cars, walking off the job — those workers, in the same building, with the same union, produced the highest quality vehicles in General Motors' entire North American operation. In twelve months.

A 2024 Harvard Business School case study by Willy Shih confirmed what practitioners had known for decades: Toyota transformed Fremont into the most productive auto assembly plant in the United States, with quality comparable to its Japanese factories.

Isao Yoshino, the Toyota training manager at NUMMI's launch, reflected on the transformation with a simplicity that cuts through every layer of management theory: "We did not do anything else. We just offered the opportunity for them to learn, and they voluntarily decided to change themselves."

What Actually Changed

If it wasn't the people, what was it?

The operating model. Specifically, Toyota replaced a system designed to suppress frontline intelligence with one designed to deploy it.

Under GM's old model, the Fremont plant operated on pure Taylorist principles — principles I'll trace back to their explicit origins in the next essay. Workers performed narrow, prescribed tasks. They had no authority to stop the line. Their ideas were not solicited. Their judgment was not valued. Problems were management's responsibility to identify and fix. The workers' job was to execute.

Under this model, the rational worker response was exactly what GM got: disengagement, cynicism, sabotage, and substance abuse. Not because the workers were incapable, but because the system told them every day that their capability was unwanted.

Toyota's model inverted every one of these assumptions. Workers were organized into teams with real problem-solving authority. Any worker could stop the production line — the famous

andon

cord — when they spotted a quality issue. Suggestions were actively solicited and rapidly implemented. Workers rotated through jobs and were cross-trained. The uniform, cafeteria, and parking lot were shared across all levels of the organization. A no-layoff policy removed the existential fear that had driven much of the adversarial behavior.

The cultural changes ran deeper than process. Workers who visited Japan identified what motivated them to change: they were treated as intelligent contributors whose judgment mattered. For many of them, it was the first time in their working lives that a manager had asked what they thought.

The Part Nobody Wants to Talk About

Here is what should haunt every manufacturing executive who reads the NUMMI story:

GM had a front-row seat for twenty-five years. They embedded managers at NUMMI. They studied the Toyota Production System up close. And for fifteen of those years, they failed to transfer the lessons to a single other plant in the United States.

It wasn't that they didn't try. GM sent a team to replicate the approach at their Van Nuys plant in Southern California. It failed. The workers there had never lost their jobs and didn't believe they were at risk. But more importantly, the

management

system didn't change. As one of the GM managers who attempted the transfer recalled, the problem was a resistance to change that went beyond the workers. It permeated the entire management structure.

By 1998 — fifteen years after NUMMI's founding — GM had still not successfully implemented lean manufacturing across its U.S. operations. By 2009, the company was bankrupt.

The lesson is not that GM's managers were stupid. The lesson is that intelligence suppression is

structural

. It's embedded in the operating model, the management incentives, the labor relations framework, and the cultural assumptions about what workers are capable of. It's not something one plant manager can fix by copying a set of tools. It's a system — and as Deming told us, the system belongs to management.

What This Means for the AI Conversation

I opened this series by referencing a Forbes article about AI as a "Toolmaster" — a force multiplier for professionals who direct it with expertise and judgment. The article profiles marketing directors and lawyers and CFOs who use AI to amplify their already-deployed intelligence.

Beautiful. Also incomplete.

The article assumes — as nearly the entire AI conversation assumes — that the human intelligence is already active. That the professional already has judgment, context, and domain expertise. AI just makes them faster.

What about the 80 million Americans who work frontline jobs in manufacturing, healthcare, logistics, retail, and service? What about the workers whose problem-solving muscles have been atrophied by a century of Taylorist operating models that told them, explicitly, to stop thinking?

You cannot hand a power tool to someone whose intelligence has been systematically suppressed and expect Toolmaster results. The AI becomes another compliance instrument — or, worse, another justification for eliminating the human entirely.

NUMMI proved that the intelligence is there. It proved that the same people, in a different system, will generate extraordinary outcomes. The question for the AI era is not whether frontline workers are smart enough to use these tools. NUMMI answered that forty years ago.

The question is whether management is brave enough to build the system that lets them.

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Already Paid For: Why Unlocking Frontline Intelligence Beats Automating Workers Away

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Written with AI assistance. The argument, the judgments, and the floor testimony are the author’s own.

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