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CHAPTER 1

Aim Before You Improve

> *"There is surely nothing quite so useless as doing with great efficiency what should not be done at all."*
>
> — *Peter F. Drucker, "Managing for Business Effectiveness,"* Harvard Business Review (*1963*)

You can date a Lean program the way a geologist dates rock — by its layers. Walk any plant that did Lean five years ago and you will find them: yellow tape on the floor, worn through where the forklifts turn. A shadow board with four tools on it and the outlines of eleven more. A kaizen newspaper (the action list a kaizen team leaves behind) taped beside a machine, twenty-three items long, four of them closed, the last date on it older than the plant manager's tenure. A conference room with "Lean Room" on the door and boxes of old paperwork inside. A binder of monthly reports, every page counting what the program did and none of them counting what the company got.

Is any of that evidence that Lean doesn't work? None of it — the method is sound, and it has been sound for more than half a century, in factories, warehouses, hospitals and offices. Those layers are evidence of something more useful: that the program was aimed at everything, owned by somebody who left, run in bursts, and counted in activity. Each of those is a choice. Each has an opposite. This book is about the opposites, in the order you'll need them.

Here is the first, and the rule this chapter enforces: aim before you improve. Improve the work that serves the customers and products that make the money, simplify the work that serves the ones that don't, and never make waste efficient. If you improve everything at once, you improve nothing for long, because the people who did the improving can see that half of it didn't matter — and they are right.

Why Lean Fades

Four mistakes kill Lean programs, and most dead programs made all four.

The first is aim. If you point your program at everything, it starts wherever a volunteer raises a hand. Your first kaizen event lands in the corner of the plant whose foreman is enthusiastic, which is rarely the corner that makes the money. The team does good work, and the work saves an hour a week on a product line that makes up one percent of revenue. Nobody outside the room notices, and the people in the room learn that improvement is something nice that doesn't change anything.

The second is ownership: a department runs it. You hire a coordinator, give them a title with "Lean" or "Excellence" in it, and hand them the program. The coordinator schedules the events, facilitates the events, writes the reports and keeps the boards current — the supervisors attend, the line watches. Then the coordinator leaves, as good coordinators do, for a better job, and the program leaves with them. It was never the line's to keep.

The third is rhythm: it runs as events. A week of intense work, a report-out with pizza, a photograph for the newsletter, and then the plant goes back to the way it ran before, because nothing in anyone's day has changed. An event is a booster shot — and a company that lives on booster shots is sick between them.

The fourth is the count. What is the program counted in? Activity — events held, ideas submitted, people trained, audit scores. Each of those is easy to count and easy to raise, and none of them is a result a customer or an owner would pay for. A program counted in activity can report a great year while your on-time delivery falls, and it usually does, because the people running it are busy producing the numbers it is counted in.

Four fades, four antidotes. Aim it with 80/20, so your first improvement lands where the money is. Run it every day, at the line, so the improvement is part of the work instead of a break from it. Let the line own it, with the improvement people as coaches rather than owners. And count it in results: on-time delivery, lead time, quality, and dollars your chief financial officer will sign. The rest of this book installs those four, and Chapter 14 shows the calendar that holds them.

The Quad of the Work

Aim needs a map, and the map is the one 80/20 has always drawn. Rank your customers by revenue for the trailing twelve months. The ones that

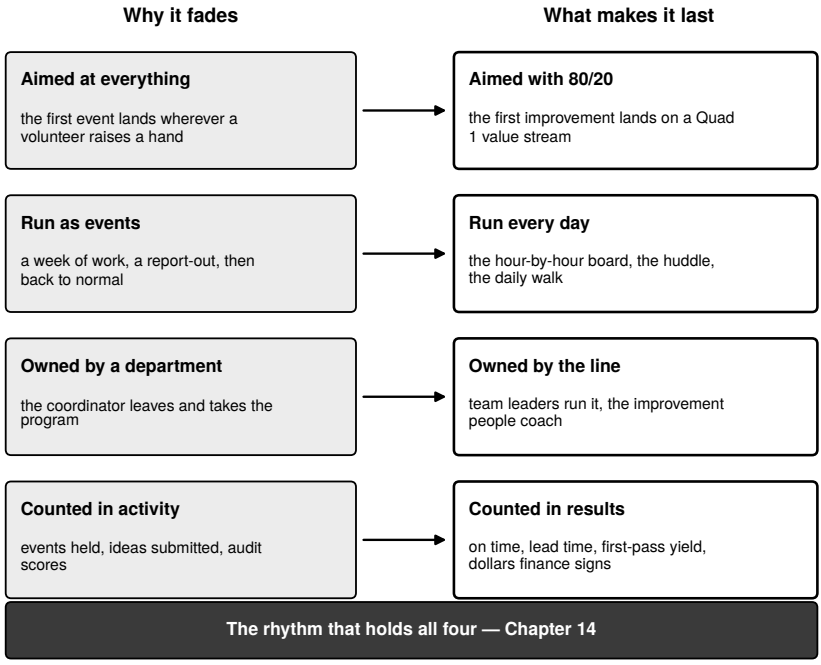


Fig. 01-01: Why Lean fades, and what makes it last: four mistakes, four antidotes, and the rhythm that holds them.

together make up the first eighty percent of it are your A customers (about a fifth of them, give or take), and everyone else is a B. Do the same with products, then lay the two lists against each other and you have four boxes, which I call the Quads. Quad 1 is A customers buying A products, the corner whose margin carries everything else. Quad 2 is A customers buying B products, the specials your best customers ask for. Quad 3 is B customers buying A products, the transactional business. Quad 4 is B customers buying B products, the long tail, the corner every company carries and almost no company prices for what it costs. *The 80/20 Company* teaches the Quad at full depth. Here you need only the boxes and one more step.

That step is to count the work, not just the revenue. Revenue tells you where the money comes from, not where the effort goes — and Lean is about effort. So for each Quad, count the things that consume your plant and your office: the changeovers, the engineering and drafting hours, the rework, the expedited shipments, the order lines. Set the share of

each beside the share of revenue. I call the result the Quad of the work, and it is the most useful page your Lean program will ever draw, because it shows you, in one table, where improvement will pay and where it will only polish.

Build it in four steps.

1. Draw the Quad on twelve months of invoice lines, at the line level, tied to the financial statements. Use the A line, eighty percent of revenue, for customers and for products.
2. Choose four or five drivers of work that your people would recognize as the hard part of their day, and count each one by Quad. Changeovers come from the production log, engineering hours from the time sheets, rework from the rework tickets, expedites from the freight bills. Pull them by hand or with the tools you have, and tie each total to its source before you use it.
3. Put share of work beside share of revenue, Quad by Quad, on one page.
4. Read it. Where the share of work runs far ahead of the share of revenue, the work is subsidized. Where the two run close, the work is earning its keep, and that is where improvement belongs first.

In almost every company I have drawn this for, Quad 4 consumes three to five times its share of revenue in the hard work, and Quad 1 consumes less than its share. That is not a moral judgment on the tail. It is arithmetic, and it decides where your first kaizen goes.

Simplify Before You Improve

Once your Quad of the work is on the wall, the order of operations follows from it — and the order is the whole point.

Quad 4 work is simplified before anyone improves it. Each value stream in the tail, each family of configurations that only B customers buy, goes on a list with one of three decisions beside it. Exit it, and stop making it. Reprice it, so it pays for the work it takes. Or starve it, and stop spending effort to grow it while the customers who want it find a better home. *The 80/20 Company* carries the register and the rules for running it. What does this book add? A prohibition — nobody schedules a kaizen event, writes standard work or paints a floor in a Quad 4 value stream until that stream has its decision. If you improve it first, you have spent your best people's best week making waste efficient, and you have made it harder to exit, because now it runs well.

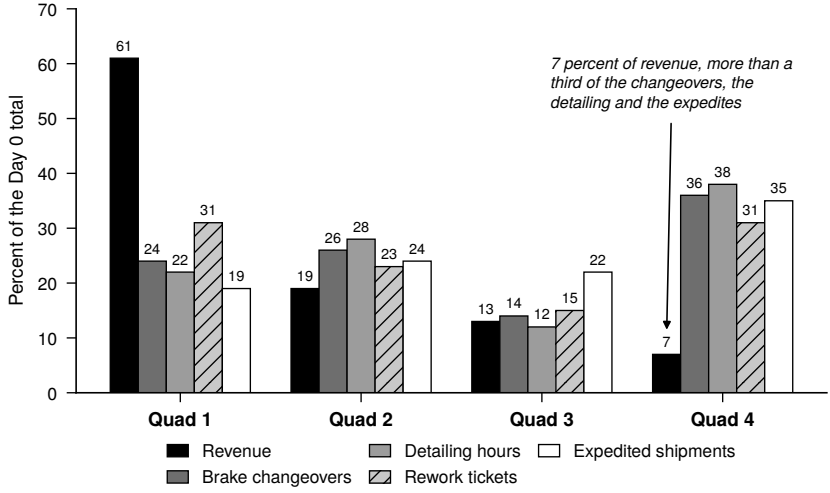


Fig. 01-02: The Quad of the work at Brennick, Day 0: Quad 4 brings in 7 percent of the revenue and consumes between 31 and 38 percent of every kind of hard work the plant counts.

Quad 2 and Quad 3 work gets streamlined, not perfected. Standardize the specials your A customers ask for, so that each one isn't engineered from scratch, and make the transactional business easy to order and cheap to serve. Both get the basics (5S, standard work, visual management) after Quad 1 has them.

And Quad 1 work? It gets everything — flow, pull, standard work, the hour-by-hour board, the best team leaders, the fastest changeovers. This is the work your best customers are buying, and every hour of lead time you take out of it, every defect you stop at the source, comes back as share of their business.

Never make waste efficient. It's the shortest rule in this book, and it saves you more money than any tool in it.

Choose the Model Line

You don't start everywhere. You start on one line, in Quad 1, and you make it work completely before you spread it. A model line is not a pilot. A pilot asks whether something will work. A model line already knows it will, and exists to show the rest of the company what "working" looks like at your company, with your people, on your machines.

Choose it on five tests.

1. It serves Quad 1. The product is an A product and the customers are A customers, so every improvement shows up in the results that matter.
2. It is visible. People walk past it on the way to the cafeteria, and they will notice when it changes.
3. Its leader wants it. One supervisor or lead who asks when you're starting, not why. You will need skeptics later. You need a believer first.
4. It can show a result in a hundred days: lead time, on-time delivery or first-pass yield, measured before and after.
5. It is contained. One value stream, a cell or a line, with its own start and finish, so a problem upstream doesn't drown the experiment.

Then hold it to its scope for a hundred days (harder than it sounds). What do you do when every plant manager wants the model line's tools in his own area the week they start working? Let him want it. A program that spreads before its first line works has spread a rumor.

The Four Results and the Commitment

Before your first kaizen, write down what your program will be counted in: four results, each with today's number beside it.

1. On time and complete. The share of orders shipped complete on or before the date you promised, measured against the promise, not against a date somebody moved.
2. Lead time. Calendar or working days from the moment an order can start to the moment it ships, for each Quad 1 value stream.
3. First-pass yield. Of the units that reach final inspection, the share that pass the first time, with no rework.
4. Dollars. The lines in the profit and loss statement, the P&L, that the program will move (overtime, expedited freight, scrap, rework labor, inventory), and the earnings before interest, taxes, depreciation and amortization, EBITDA, they add up to, signed by the chief financial officer.

Everything your program does is measured against those four, and Chapter 12 builds the tree that connects the plant floor to them. Activity counts will exist (you'll hold events and collect ideas), but they go on the back of the page.

Then make the commitment, in writing and in person. Nobody loses a job because of an improvement. When a better way frees a person,

that person moves to better work — a second cell, a new team leader role, the growth the improvement made possible. Without that sentence, every person on the floor is right to hold back their best idea, because their best idea might be the one that eliminates them, and you'll get the improvements people can afford to make. With it, you get the rest.

Be precise about what it promises. Does it promise that no one is ever laid off for any reason? It does not — a recession is a different conversation, and you should say so. It does not promise that every job stays the same, because the point is that jobs change. It promises one thing: improvement is never the reason. Keep that promise once, visibly, and you will never have to make it again.

Brennick

The banner was in the cafeteria, above the microwaves: "Our Lean Journey." The sun had taken most of the blue out of it. I counted it as the first layer on my first morning at Brennick Door & Frame and found the rest before lunch.

Brennick makes hollow metal doors and frames for commercial buildings (schools, hospitals, offices, warehouses) in one plant in Cookeville, Tennessee, about halfway between Nashville and Knoxville on Interstate 40. Elmer Brennick started it in 1971, welding frames in a rented shed, and his son Grady ran it until Fenwick Lane Partners bought the company from the family eleven months before I arrived. Grady kept a minority stake and a seat on the board, and Emmett Whitford, the Fenwick Lane partner who led the deal, took the chair. Fenwick Lane's plan called for about $16 million of EBITDA by the end of Year 3. Brennick was earning $10.0 million on $104.0 million of revenue, 9.6 percent, with 418 people, 296 of them in the plant across two shifts. It sold through about 238 distributors (the companies that supply doors, frames and hardware to commercial contractors), and forty-six of them bought 80 percent of everything Brennick made.

Elmer had a saying, and every long-service employee could recite it. *A late frame stops a wall.* He meant it literally. On a masonry job, the frame is set before the block goes up, and the masons build the wall around it. If the frame isn't there, the masons stand around at the contractor's expense, and the contractor remembers whose frame it was. In the twelve months before I arrived, Brennick shipped 68 percent of its orders complete and on the date it had promised. The other 32 percent were stopping walls.

The other layers took a morning. Ruth Treadwell, the plant manager, walked me through them without being asked (which told me something about Ruth). Floor tape in Cell 1, the welded-frame cell, faded to the color of the concrete. A kaizen newspaper beside the number-three press brake, last updated twenty-six months earlier. A 5S audit sheet (the workplace-organization check Chapter 4 teaches) on a clipboard with a score of 3.4 out of 5 and a date nobody could explain. A conference room labeled Lean Room, with sixty boxes of old job travelers in it.

The program had a name, the Lean Journey, and a person, Joanne Yates, hired as Lean coordinator about three and a half years before I arrived. Her binder was in the plant manager's office. Fourteen kaizen events in eighteen months, three hundred eighty ideas submitted, two hundred twelve people trained, a 5S audit average that rose from 2.1 to 3.4. Every monthly report counted those four things, and none of them mentioned on-time delivery, lead time, rework or a dollar. And on-time delivery? It was 71 percent the month Joanne started and 68 percent the month she left, twenty months before I arrived, for a better job in Knoxville. Nobody replaced her — the events stopped within a quarter and the boards within two.

I did not blame Joanne, and I told Ruth so: Joanne had done exactly what she was hired to do. Her first event was a 5S week in the bullet-resistant door area, because its foreman volunteered. It was good work — in a corner of the plant that made 1.4 percent of the revenue. Aimed at everything, owned by a department, run as events, counted in activity: all four fades, in one binder.

Carol Abernathy, the chief financial officer, and her analyst built the Quad by Day 9. Quad 1 was $63.4 million, 61 percent of revenue, and Quad 2 was $19.8 million, Quad 3 $13.5 million, Quad 4 $7.3 million, 7 percent. That was the revenue. Then we counted the work. Ruth pulled the changeover log for the six press brakes. Raj Mehta, who ran engineering and detailing (the department that turns an order into shop drawings and machine programs), pulled his department's hours by order. Naomi Takeda, the quality manager, pulled twelve months of rework tickets, and Carol pulled the expedited freight bills. Quad 4, 7 percent of the revenue, consumed 36 percent of the brake changeovers, 38 percent of the detailing hours, 31 percent of the rework tickets and 35 percent of the expedited shipments. Quad 1, 61 percent of the revenue, consumed less than a third of each.

Reuben Kendrick, the vice president of sales, read the page twice. "Those are customers," he said. They were, and I said so — but what did they cost, and who was paying for it? The answer was on the page: the A distributors were, in late frames. We agreed that Quad 4 would be simplified on its own track, Reuben's track, under the rules *The 80/20 Company* teaches, and that no Lean effort would touch a Quad 4 value stream until it had its decision. By Day 180 that track had retired 1,240 of Brennick's 7,800 active configurations. It isn't this book's story, and I will mention it only when it changes the work.

The model line chose itself. Cell 1 built stock-size welded frames, mostly for the forty-six A distributors: 240 frames a day on two shifts, the largest Quad 1 value stream in the building by volume, beside the main aisle to the cafeteria. Its weld lead, Luz Avila, asked me on my second day when we were starting, and its second-shift supervisor, Vern Rourke, thirty-one years at Brennick, told me on my third that they had tried this with Joanne. Both were useful. I hired Tunde Adeyemi on Day 20 as continuous improvement manager, into the budget line Joanne's job had left open, with a job description that said he would teach and coach and would own nothing on the floor. Ruth would own the model line. Luz would run it.

On Day 15 I held my first town hall in the warehouse, both shifts, second shift coming in early on the clock. I wrote the four results on a whiteboard with today's numbers: on time and complete, 68 percent. Lead time for a welded frame, from the day the order was released to the day it shipped, 42 working days. First-pass yield, 86 percent, and dollars: $10.0 million of EBITDA and $13.7 million of inventory. Then I made the commitment, and I read it, because I wanted the words to be the same every time anyone repeated them. Nobody at Brennick will lose a job because of an improvement. If we find a better way and it frees a person, that person gets better work. Vern was in the third row with his arms folded — he didn't unfold them, but he stayed for the questions.

Emmett Whitford asked the board's question on Day 30, which was the right one. What will this cost, and when will we see it? Less than a million dollars of capital in the first year, I said, most of it tooling. On-time delivery on the model line by Day 100, on-time delivery for the company by Day 365, and EBITDA and cash on Carol's signature, not mine. Grady Brennick, who had said nothing all morning, said his father would have liked the first number best. A late frame stops a wall.

From the Record

The rule against making waste efficient is older than Lean, and its best early proof was written by brick makers.

In the early 1920s the United States Department of Commerce, under Herbert Hoover, began bringing whole industries to the table to cut the variety they made. The method was a conference: makers, distributors and users of one product in one room, with the Department's people keeping the record. Among the first to sit down were the makers of vitrified paving brick, the hard-fired block that paved city streets before asphalt took them. They had 66 sizes and shapes in production. Who had decided on sixty-six? Nobody — each had been added for a city engineer with a preference, a contractor with a habit, a mold somebody already owned. Around the table, makers and buyers together, they agreed to make eleven. They came back and cut to seven, then to six in active use, and at a fourth conference, in March 1925, the Department's bulletin recorded four sizes left on the recognized list.

Nobody in the paving-brick business learned to make sixty-six sizes faster — they stopped making sixty-two of them, and every kiln, every mold shop and every stockyard in the industry got simpler at once. The Department called the program simplified practice, and it ran it industry by industry through the 1920s. The improvement was real, and it came before anyone touched a kiln.

Aim first. Then improve what's left.

Do This

1. Walk your plant and write down the layers: every board, tape line, binder and banner from the last program, with the last date on each.
2. Build the Quad on twelve months of invoice lines, then the Quad of the work: changeovers, engineering hours, rework and expedites, counted by Quad and tied to their sources.
3. Put every Quad 4 value stream on a simplify list with an owner and a date, before anyone schedules a kaizen.
4. Choose one model line in Quad 1, on the five tests, with a leader who asked when you were starting.
5. Write the four results with today's number beside each, and post them where the model line can see them.
6. Make the commitment in writing, read it to the whole company yourself, and keep it the first time it's tested.