RIGHTTACK CONSULTING · AN ORIGIN STORY

Get to 100 a month

In 2006 I joined GT Solar with a good problem: it was building about one machine a day, and it needed to build five. This is the story of getting there — and of what happened when the market fell off a cliff. It is also, more or less, where everything else on this site comes from.

GT Solar made the big, high-technology machines that other people used to make solar power — turnkey equipment, north of nine hundred thousand dollars a unit, heavily customised. It had a near-death experience just behind it, a sales backlog past a billion dollars just ahead of it, and a problem in between that was entirely of the good kind: it was shipping about one machine a day, and it needed to ship five. Venture-owned, IPO pending, a narrow customer base in a narrow slice of a famously volatile industry. Every one of those facts was an advantage and a risk wearing the same coat — first mover, get big quick, own a slice nobody else owns — and each one, read the other way round, said the same thing: *this can go wrong fast*. The job was to grow it to a hundred machines a month inside a year, and to do that without building an organisation that could not survive the day the growth stopped. Because in this industry it always stops.

The whip you are holding the tip of

Capital equipment sits at the very end of a long supply chain, and that position has a name: the bullwhip. A small wobble in end demand amplifies at every link as it travels upstream, so a modest dip in the solar market arrived at a machine builder as a violent lurch. The academic version of this had been sitting in an MIT reading list for years — machine tools at the tip of the whip, volatility several times that of the market they served. I did not need the paper. I needed to build an operation that could ride a curve that would not sit still: up steeply, and one day down just as steeply. So the first design decision was not about throughput at all. It was about reversibility.

The toolkit was not new. That was the point.

I had spent years earlier inside ITW, and I brought its toolkit with me — not because it was clever but because it was simple enough to explain to a room of tired people at seven in the morning and have them still using it at seven at night. Eighty-twenty: a fraction of your activity generates most of your result, and most organisations spend their management attention in exactly inverse proportion. Runners, repeaters and strangers: sort the product by how it actually behaves, not by how the org chart wishes it behaved. We took the runners — the high-volume, well-understood machines — and gave them a clean, kanban-fed line. We took the repeaters and the strangers, the specials and the one-offs that were eating the floor and the attention, and we physically moved them into their own building with their own dedicated team. Same move, in miniature, that I still recommend now: separate what is attached to a customer worth keeping, and stop letting it disrupt the thing that pays the bills.

> **Have a model you can explain simply. Phase-gate, lean, eighty-twenty, runners-repeaters-strangers. If you cannot say it in a sentence, the floor cannot run it on a Monday.**

“Fast but formal” was the phrase we used, and it meant two things at once. Fast: no style prizes, some problems you solve by throwing money at them, do not fall in love with your own wonderful business processes. We put SAP in across the company in twenty-four weeks — not because the software was the point, but because a system nobody can argue with is a fast way to introduce discipline into a place that is growing faster than its habits. And formal: a real phase gate, a real change process, a model written down and repeated until you heard your own words come back to you out of other people’s mouths, which is the moment you know a thing has actually landed.

Build it only once

The machines were the size of a room, and there is a question that governs the manufacturing strategy of anything that size: does it fit in a forty-foot container? Ours did not. So we stopped thinking of ourselves as building machines and started thinking of ourselves as building *boxes* — sub-assemblies that could be built and tested in New Hampshire, torn down, shipped, and rebuilt on the customer’s floor into something that would pass acceptance test the first time. That reframing pulled a whole discipline in behind it: test design, statistics, process engineering, a real manufacturing and sustaining-engineering capability with tight links to the PhDs who understood the process physics. You do not get to five a day by working harder at building one a day. You get there by changing what “a unit” even means.

It is all about the supply chain

The thing I said most often, and the thing that turned out to matter most, was that supply is not the same as purchasing. Purchasing gets you a price. Supply gets you the material, on the day, at the volume, through a cycle — and at a hundred a month, with lead times measured in seasons, the supply chain *was* the business. We dedicated experts to it rather than leaving it to the buyers. We designed products for sourcing, not just for function. On one graphite category we went out and deliberately induced the first new entrant that market had seen since roughly the 1920s, because a category with one credible supplier is not a supply chain, it is a hostage situation. And we sequenced the globalisation the boring, safe way round: outsource before you offshore, and never push two dimensions at once. Get the work out of your own four walls to a domestic partner first; move it across an ocean second; and put a local technology centre next to any manufacturer you cannot see from your office. Offshoring is a well-trodden road, but it is paved with land mines, and the companies that hit them are usually the ones that tried to move and outsource in the same quarter.

Inside the walls, the watchword was flow. We ran a lean programme that never really ended — and at one point knocked down internal walls, in the middle of a New Hampshire winter, to straighten a material path. The truest thing I learned about lean I learned on that floor: the best moments are the ones where your own team undoes something you did, because it means the thinking has moved from you to them.

> **Pay well, bonus better, and yes, you can be fired. Over a million dollars of revenue per person buys you the right to be demanding — and the duty to invest in front-line supervision, because that is where a flexible workforce is won or lost.**

Because the workforce was flexible — more than half temporary at the peaks, which is how you build an organisation that can shrink — the front line was everything. A flexible workforce is not a spreadsheet line; it is people, with people's lives and people's problems, and the difference between chaos and a line that runs is the quality of the supervisor standing in front of it. So we invested there: a safety culture, a grade system, promotion paths, real supervisor training. Low overhead is a strategy, but it is not an excuse to under-resource the one layer that makes the strategy work.

Plan for the downside

All of that was the growth story, and it worked — we went past sixty a month, past eighty. But the whole time, the discipline underneath it was the opposite of optimism. Because we knew the curve would turn, we built the downside plan while the orders were still flooding in and our judgement was still clear. We modelled the risk in the bill of materials and reported it weekly. We separated what we were genuinely committed to from what we

could still cancel, and we valued each properly — cancellation charges, restocking, tooling, and, crucially, the customer deposits and progress payments that were sitting on other people's balance sheets as recoverable cash rather than sunk cost. We agreed, in advance, which suppliers we would protect if it came to it — the ones we would be fighting for capacity with on the way back up — and we were open with them, because they needed to survive too. Two tests hung over the whole exercise: *how do you look yourself in the mirror*, and *be sure the law is on your side*.

> **And it happened.**

In the back half of 2008 the market did not soften. It fell off a cliff — orders down by an order of magnitude in a single quarter. We cut supply-chain obligations by roughly two-thirds inside four months, and we came out of it cash positive, because we had already decided which advances to repatriate, which commitments were real, and which suppliers we would not burn. None of that could have been worked out in the moment; a downside plan written during a downturn is a negotiation with yourself, and you lose it. Then, exactly as the shape of the industry promised, the recovery arrived faster than anyone had planned for, and the line climbed back — past a hundred, past a hundred and fifty — into a supply base we had been careful not to torch on the way down.

What I learned, and re-learned

Build the operations strategy around the business strategy, never the other way round. Eighty-twenty thinking works — a small, dedicated, properly motivated team beats a big committee every time. Respect the bullwhip and plan for it before you feel it. Supply is not purchasing, and outsourcing is never free. Have a plan for the downside written in daylight. And plan for cost-down from day one, because in this kind of market the selling price is falling the whole time and your cost has to fall faster.

None of that was invented at GT Solar. Most of it I had learned somewhere else and was re-learning under fire, which is the only way any of it really sticks. But it is where a decade of separate ideas fused into one operating instinct — and if the methods on this site read as though they were forged in a real company under real pressure rather than assembled from a textbook, it is because a good number of them were, and this is the fire.

There is a postscript that tells you why any of this still matters. GT Solar's 2008 offering was, at the time, one of the largest clean-technology IPOs the country had seen. Years later a company building grid-scale battery storage came looking, and the reason they called was that GT Solar sat on their shortlist of the era's stand-out green-tech IPOs and they wanted to talk to the person who had run the ramp. That is the whole argument for writing this down. The IPO was a moment; the capability that took a business from one a day to a

hundred a month and through the cliff intact was still worth hiring a decade later. Methods outlive markets.

That is the work I do.

WHERE THIS SHOWS UP ON THE SITE

The seven methods →

Runners-repeaters-strangers became **delete, separate or structure**; the ramp became **ramp readiness**; the cliff became **downside planning**; the supply chain became **sourcing**. Or start a conversation: rtackconsulting.com/contact