

Chapter One

Out of Control

Brian Miller rebuilt the 1957 Chevy convertible for his wife as he had planned. She loved old cars and especially the 1957 Chevy. Her dad drove one when she was little and she never forgot it. Brian knew what parts he needed and had them there when it was time to install them. He figured out the proper sequence in which to reconstruct his pride and joy. He even scheduled his weeknights and weekends to ensure that he would complete the car in time to coincide with his wife's 30th birthday, yet not interfere with his family life, and work—in that order. Because things never seemed to work out exactly as planned, he constantly rescheduled his time to get things done. He met his target date a day early. On her birthday night, he ceremoniously opened the door of the Chevy for his wife. She seated herself, turned the key, and took Brian for a ride in her new car.

His planning and execution had resulted in a project completed on time. Why then, he thought from his office at the Hayes Tractor plant, couldn't he get his three production shifts running smoothly? He was the manager of the machine shop. He had a computerized planning and scheduling system that was supposed to provide schedules with which he could run the machine shop. Why was it that he couldn't achieve the same success he'd had rebuilding the Chevy?

Brian had only been at the West Coast plant for two months, having transferred from the company's Midwest division. He was the new guy on the block, and he was learning how to survive in this

good-ol'-boy environment. As he looked out over the shop, he was not a happy man. The plant was in real trouble. Product was never delivered on time, lead times were unpredictable, and productivity was atrocious. The schedule that was generated by the computer was unusable and may as well have been thrown in the trash as soon as it arrived. Things were simply out of control.

It had been 6 months since Pete Smith was promoted from the Midwest plant to replace the retiring general manager. Pete had slowly begun to prune the ranks of the old-guard managers, replacing them with a group of more forward-thinking people.

Brian was one of these, replacing the Machine Shop manager who had been with the company for 45 years and had been moved over to the Human Relations department. Brian came from Quality Control to the Machine Shop, which didn't make the people in the shop too happy. They thought the new manager should have been elevated from within their own ranks, as was the tradition. Ralph Barnard, the Production Manager, had thought so, too.

On Brian's first day on the job, he was called into Ralph's office. Pete had known Brian at the Midwest plant and had arranged for his transfer, feeling that Brian's management style and quality perspective were needed at Hayes. Ralph, on the other hand, didn't know Brian at all. Ralph, who was in his early sixties, wore a constant sour smile as if his stomach were continually in revolt. He closed the door and sank heavily into the high-backed chair behind his desk.

His desk was covered with production reports, shipping schedules, product drawings, engineering changes, and memos about missed schedules. What caught Brian's attention, however, was a statue of a steel-gloved hand with a lightning bolt struck through it. The inscription read: "Cause it to happen!" This exemplified Ralph's attitude.

"All right, it's as simple as this," Ralph said, leaning back in his chair. "You've been brought in here as the Machine Shop manager. But here's the deal, Miller: You've got three months to get productivity up and shortages down. Nobody expects you to meet the schedules that come out of Production Control. That would be virtually impossible, since they're so screwed up. What I want you to concentrate on is the hot list from Mickey in Assembly. That'll tell you the real priorities, and that's what I want you to work on. If you don't, I'll find someone who will!"

Brian slowly lifted himself from his chair and thought to himself, "What have I gotten myself into?" He said, "Well, Ralph, I appreci-

ate your vote of confidence. And I guarantee you I'll work hard to get the job done. I know I can do it."

"I hope so, kid." Ralph couldn't suppress his smile.

Needless to say, Brian left the office concerned about his lukewarm welcome, but even more determined to make a difference at Hayes. He had little idea of what he was up against.

He knew his first move was to try to establish a working relationship with his people, so Brian had his supervisors take him around and introduce him to everyone. He wanted to let these people know that he was a friendly sort and not one to just stay squirreled away in his office.

The second part of Brian's plan was to enroll quietly in a Machine Shop class at the local community college. Since his knowledge about machining parts was limited, he figured it'd probably be in his best interests to get some hands-on experience.

It was after the third class session that his teacher, Frank Snider, came up to Brian, having noticed that his hands weren't exactly the hands of a machinist. "Where do you work, Brian?" he asked.

"Hayes."

"Oh, yeah? What's your position there?"

"I'm the Machine Shop manager," Brian said.

Frank just about fell over. He had retired from Hayes' machine shop and now was teaching this class to stay busy. "I'll give you all the help I can," was Frank's generous reply. Fortunately Brian liked working with the equipment and proved himself to be a quick learner.

Several weeks later, Frank returned to Hayes to pick up some scrapped parts that Hayes had agreed to give the college for its students' use. Brian was on the shop floor, expediting a past-due part, when he found Frank chatting with a group of Brian's machinists who were some of Frank's old buddies. Frank made a point of telling them all about his new star pupil. Brian was embarrassed. But, contrary to his fear that it would lower his workers' estimation of him, it earned Brian a good deal of respect. The old timers were really impressed that the "kid" would take the time to try to learn the trade.

Brian, however, had bigger problems to face with his new job than just earning the respect of his workers. First, there were the daily 8:30 A.M. part-shortage meetings.

Some years ago the company had installed an Enterprise Resource Planning system to generate information that told the material

planners when to release orders. The computer was also providing Brian with schedules and machine-load reports for each of the work centers. The only problem was that they were completely worthless. They didn't reflect the work that really needed to be done, and a large percentage of the scheduled orders were already past due. Consequently, everyone was using hot lists to communicate the real priorities.

The supply chain organization constantly told Brian that there wasn't anything wrong with the computer system. The problem was with the people, who were simply not following the schedules. Brian knew that they were including him in their comments, but he had no idea what he was doing wrong.

Brian also knew there were problems with management. It was as if top management didn't understand the limitations of the manufacturing process. It seemed they just wished things would happen and then expected Brian and the other managers to get them done on time. Sales was continually promising new orders with less than normal lead-time and expecting them to be shipped on time. To say the least, the job ahead of Brian was not going to be easy or fun.

Brian arrived at the factory each morning around 6:30. He wasn't expected to be in the office until 8:00, but expectation and reality had already proven to be two different things. His first action was to find his third-shift supervisor to see what went on the night before. Then, he would track down the expeditor. "Tony," he would yell through the constant noise that permeated the plant, "where's the hot sheet? Get me an update, will ya?" Thank God Tony was devoted and arrived even before Brian.

The next half hour or so would be spent going through the parts on the hot list, checking their status with Tony, and, at the same time, trying to assess what progress had been made and where he needed to concentrate his effort to "cause it to happen." Brian would walk into the plant and check with his own eyes to make sure that the hot parts were running on the machines.

Built in the 1920s, the Hayes facility was an old shop, with a smattering of new state-of-the-art equipment mixed in with mostly older machines. Even though they'd been painted and repainted over the years, there was no escaping the age of the plant and its equipment.

At 8:30, the managers gathered for the shortage meeting: Ralph; Dan from Fabrication; Mickey from Assembly; Joan from Produc-

tion Control; Roy, the Materials Manager; and Harold from Purchasing. It was Dan and Mickey who made Brian's life difficult. But, then, they probably felt the same way about Brian.

Dan was in his mid-forties and had been a buddy of Ralph's for years. They were regular golfing partners, football couch potatoes, and they'd been known to enjoy a beer or two together as well. Mickey was in his mid-thirties—the same age as Brian. Ralph's relationship with Mickey was also special. Ralph had a son of his own, but it was common knowledge that Ralph also looked upon Mickey as a son. The only problem in this little mutual-admiration society was that Dan and Mickey didn't like each other. Neither had any advantage over the other with the boss. Their only common ground was that they could both gang up on Brian.

On this particular day, the shortage meeting got under way right on schedule. It was one of the few things at Hayes that was consistently on schedule. As usual, they started at the top of the list of shortages, which was typically over 300 parts. The status of each and every part was reviewed. Brian was prepared. He'd done his homework and knew where most parts on the shortage list were, and when they should be delivered to Mickey or Dan. Invariably, Mickey's response was, "That's not good enough! I need that part at least two days earlier." Now, everyone in the room knew that Mickey always wanted everything before he really needed it. If a part from Dan's Fabrication department was late, Dan always pointed the finger at Mickey, saying, "The parts are in the paint shop," which was under Mickey's jurisdiction. It was how Dan always got off the hook. But on this particular day, Mickey had decided it was time to push back.

Reading down the list, Ralph came to a cover that was supposed to be coming out of Fabrication on its way to Assembly. Dan, without blinking, said, "It's in paint." Mickey was ready for this, and jumped right on Dan.

"That's a bunch of bull!" Mickey shouted. "I just came from there. That cover's *not* in paint! It's sitting in your hand-grind area."

This backlash infuriated Dan. "You're wrong, as usual, Mickey! We've completed enough on that order to cover the shortage, and they're in paint!" Ralph interceded and cooled the two men down. Brian shook his head in dismay. This was the daily atmosphere in which he now found himself.

After the meeting Dan had taken off immediately. Brian went looking for him to try to learn more about the Hayes environment

and found him just leaving the grind area. Brian asked him if the covers he had so adamantly insisted were in paint were really there. Dan smiled, and said, "The parts are always there when Mickey goes back to look. And they were there this time, too. I saw to that long before the meeting was over. You don't think I have to go to the bathroom *that* much, do you?" Brian was beginning to realize that intimidation was the only way to survive in this environment. You tried to intimidate the boss. You tried to intimidate your peers, and you absolutely had to intimidate the people that worked for you.

It was surprising that anything got built in this factory. It did, but only through sheer brute force and the dedication of guys like Mickey in Assembly. Mickey battled against confusion and chaos, and was in constant communication with his people and the expeditors. He knew what must ship and when. He also knew what was missing to make those shipments and he made sure he let everyone else know.

For Brian, that meant on average 150 different parts in his shop that were all past due and needed in assembly that week. Most of the parts had more than a six-week lead time. Each part had a specific day during the week when it was needed, and it took constant watching to make sure that Mickey got the parts that he needed when he needed them. Brian was continually checking, making sure the right parts were running on the machines.

Every day Mickey would come in with a list of additional parts that weren't on the original shortage list. "You know that motor mount we thought we had? Well, we had some screw-up and we need more." Brian loved to get half a page filled with extras. It just made his day.

Once the part-shortage meeting had been completed, everyone had a new set of priorities. Brian rounded up his supervisors and Tony to let them know about the additions. "Guess what, guys, more hot parts." No one seemed the least bit surprised. "What I live for," said one of the supervisors reviewing the list. Tony added these new items onto the original hot sheets and passed them around to the supervisors. Afterward, Brian was once again out on the floor making sure they were running the right parts.

With 170 employees in his machine shop to deal with, Brian's life was rarely dull. There were grievances to arbitrate, promotions to consider, attendance problems, fixture breakdowns, and industrial engineers plotting new equipment layouts. "The new Libiher hobb

won't fit in the same position as the old hobb and the foundation for it is larger than we expected," said an engineer, looking over the drawing. "This means we'll have to move the horizontal broach." Next there were the personnel meetings to review all the problems about hiring new people. Then, it was time for lunch.

Brian closed the door to his office. He didn't want to see anybody. He just wanted to eat his sandwich in peace. The phone rang—it was his wife. "Yes, dear, just another day in paradise."

After lunch, it was more of the same: more meetings, more problems, more parts to expedite. The frustration level continued to rise. "All I want," Brian thought to himself, "is some decent, reliable information. At least then I might be able to come up with some sort of game plan." At 35 years old, Brian hadn't gotten to the point where he was ready to accept that things couldn't and wouldn't get better. He knew that lots of things were wrong at Hayes. He had graduated from college as an industrial engineer, and that had supposedly trained him to find better ways. Although he wasn't exactly sure just how it was supposed to be, he knew it was not supposed to be like this.

One day, while he was waiting in the expeditor's office, which was located in the middle of the shop, Brian picked up the computer-printed schedule. It listed everything that was supposed to be made in each work center for the next week, sorted by operation start date. He took it to Tony and asked, "Why don't we start using these instead of hot lists?"

Tony sighed disgustedly and told him that the first 12 items on the schedule for the lathes were parts nobody seemed to need. Then, he pointed out that the 23rd item on the schedule was the hottest job in the whole factory, according to the shortage meeting that morning. Brian was confused. He stared down at the computer printout. It was the right concept, but the information on it seemed useless. Not knowing where the information came from or how it was developed, he was at a loss.

Brian realized that the key to getting work done on time was having the right number of people, with the right skill sets, at the right time. To accomplish that, he needed visibility of what was required. All he had was a report that the computer generated every week. It showed the total amount of work in standard hours that were scheduled to be completed week by week for each work center. The trouble was that it always contained a lot of work that was already

past due. The future wasn't any better. He knew he could not believe the amount of work the computer showed. In some cases there was very little work and in other cases the amount of work shown far exceeded what Brian knew was coming. The load was all over the place. He didn't know whether to hire additional people to take care of the past dues, or to lay people off. Brian decided to check it out with Mac, the ex-machine-shop manager, now manager of Human Relations. He must have had some way to predict when and where people and equipment were needed.

Brian walked into Mac's office. Mac was behind his desk, as gruff and grumpy as if he had never left the shop floor. He didn't really like being H.R. manager, but after 45 years, he wasn't about to leave Hayes. Brian put the capacity report on the desk before Mac. "I'm having a terrible time trying to plan the number of people I need. Is it really possible to plan with this capacity report?"

Mac let out an abrupt laugh. "You look at that thing and you tell me." Being his replacement, Brian knew Mac resented him, and no amount of charm was about to melt that guided exterior.

"Well, it seems obvious to me that it's useless. So what did you use to plan with?"

"Well," Mac drawled, enjoying the fact that Brian was having such problems, "when you get a little more experience, you'll get the gut feel, and you'll know."

Brian stared at Mac blankly. He had precious little time to turn things around. Mac had had 45 years, and Brian could see by the chaos on the shop floor that after all those years, Mac hadn't done very well at balancing capacity. Brian felt a deep emptiness.

He walked into his office like a condemned man, picked up the phone, and asked Tony to come to his office. Brian had confidence in Tony. He knew that a good expeditor was the key to survival, and Tony knew more than anyone about the machine shop at Hayes.

Tony entered the office tentatively. The tone of Brian's voice on the phone had suggested that he wasn't very happy. Tony pulled a chair out and sat down. "So, what's the story?" he asked. It was how Tony approached every encounter.

"Tony, what do I do about planning capacity in this place? I can't tell if we're coming or going."

"Is that all this is about?" Tony asked, having already assumed that Brian was going to want to reschedule the whole shop. "Man, that's a piece of cake."

“A piece of cake?”

“Sure. C’mon, I’ll show you.” Tony led Brian onto the shop floor amidst the constant roar and clatter. “A piece of cake,” Brian thought. “Okay, maybe I will survive this place.” He was starting to feel better.

Tony walked him over to a group of machining centers. A box was attached to a column nearby and it was jammed full of work orders to be completed. “You see that?” Tony asked, raising his voice over the noise, as one of machines peeled a string of metal chips from a part. “You can just look at the work-order box and know we’re in big trouble on these machines. We gotta have more capacity, so we’re going to have to work overtime.” The two walked down the aisle to a drill press that had one work order. “See that?” Tony pointed to the only order in the box. “We don’t have any capacity problems here.”

“That’s great, Tony. That’s just great,” Brian said as the sinking feeling returned. “But, it’s all after the fact. It’s too late to do anything about it. I mean, if I need to hire people, I need to do it a lot sooner than when the work goes past due.”

Tony smiled. “When I said it was a piece of cake, I meant that I’d show you how we did it. I never said it worked, but that’s the way we’ve always done it. The problem now is that we’re just too big to operate like this any more.”

“That’s not all,” Brian said. “Late shipments just aren’t going to be tolerated anymore. Our jobs are on the line here.”

Later, while leaning back in his chair and staring vacantly at the calendar on the wall, Brian counted the days he had left. He stared down at the schedule and the capacity reports on his desk. He had the tools that were supposed to be giving him the information he needed, but they weren’t providing accurate information. “The computer can’t be the answer,” he thought. “Look what it produces—junk. If only I knew what I had to do to solve a problem. No matter how difficult the solution might be, at least I could apply myself and do it.” But Brian didn’t even know what the problem was. And the frustration continued to build.

Then he thought about his wife’s Chevy, sitting in the garage at home. He remembered when he had finally finished it, turned the ignition key and it wouldn’t start. Why wouldn’t it start? He had had to go back and, without a clue, track down the problem. But once he found the problem, even though it meant additional hours of

work, he knew what he had to do. He never minded the hard work. The frustration at Hayes was maddening because he couldn't find the problem.

The frustration didn't just stay at the factory. As the weeks and months passed, Brian began to bring it home more and more. He was tired, angry, and sick of all the endless problems without solutions. He'd snap at his wife, the innocent victim of his frustration. Then, there was her hurt and anger because her husband was never there, with all of his waking hours being consumed by a job that seemed without reward, a job that seemed to be tearing them apart. Maybe they should go back to the Midwest plant. Things had been better there.

Brian tried to explain how out of control things were, but he didn't have the words. All he had was this continual, unnerving agitation. It was often all he could do to keep himself in control. He wanted her to understand, but the problem was that he himself didn't understand. Something had to give.

Sitting in his office, Brian tried to sort through the problems he was encountering. He even thought back to a management problem-solving class he'd taken in college, and suddenly a vision of Harvey Piscoli's face appeared in his mind. Harvey! Why hadn't he thought of him earlier? Brian was on the phone in a second. Harvey was one of Brian's best buddies in college and he was now the Production Manager at ERON Technology, located a few blocks from Brian's old Midwest plant. Brian was never sure what it was that Harvey's company built, but it had something to do with scientific research instrumentation.

"Piscoli!" Brian said to Harvey on the other end. "I've gotta tell you, buddy, I think I've gotten myself in over my head by taking this transfer to the West Coast. And I'm afraid to admit it, but I think I need some help." It lifted Brian's spirits just to hear Harvey's laugh. Brian then explained his desperate and deteriorating situation. "I tell you, Harvey, I come to work each day wondering how I'm going to meet my schedules and productivity goals. I don't even know what the real schedule is. Everyone seems to have their own. I spend most of my time chasing after parts shortages."

Brian continued: "My schedule calls for 800 hours of output one week, 700 the next, and 900 the week after that. And my capacity report always has a bunch of past-due work, and the future is unrealistic. It's gotten so bad, Harvey," Brian said, "I don't have time to

think about who is going to be on vacation next week or what tooling I need or which machines need maintenance.”

“Brian, I’ve been in that situation before. What are you guys using for a scheduling system?” Harvey asked.

“We’ve got a new ERP system, but it certainly doesn’t seem to be much help,” said Brian. “I spend half my day trying to keep up with the changes.”

“Sounds like you guys have to close the loop,” Harvey said.

“Harvey, they’ve got me jumping through the loop. In fact, it kinda feels like that loop is getting tightened around my neck.” Both Brian and Harvey laughed.

“Tell me, Brian, are you getting valid schedules for each work center every day?”

“We have a weekly schedule for the shop, but nobody uses it. The schedules I get now are unreliable; the dates either change constantly, or they’re way past due.”

“What about capacity planning? Are you guys doing that?” Harvey asked.

“I get that capacity report that I told you about every week,” Brian said. “It’s supposed to tell me how much capacity I need, but I haven’t found it very useful either because it only shows me released work, not what is planned for the future.”

“I’ll tell you, partner,” Harvey said, “Capacity planning has made an amazing difference for us. We’re even able to anticipate capacity problems and take the actions necessary to avoid them. The visibility we’re getting today has made this job one even you could probably do, Miller.”

“Talk to me, Harvey. All I wish is that I had some idea of what was really going to happen tomorrow.”

“Not to gloat, buddy, but we’re able to tell what’s happening months in advance. And if we don’t think we can meet the schedule, we get together with the planners before the problem gets to the crisis stage and we work it out.”

“Your system’s supporting all that for you? How do you stay on top of it all? I tell you, Harvey, my boss is constantly monitoring the efficiency, utilization, and output of my departments. If we miss any of the goals he sets for us . . . well, you can guess what it’s like. Then, if I try to talk to him about how far behind we are, he tells me, ‘Put a little pressure on your people. They’ll get the work out. They always have.’”

“Well, don’t get too down on yourself, Brian. It sounds similar to this place a few years ago.” Harvey went on to explain that ERON now had an overall operating plan and the schedules that supported that plan. The impact on his job was significant. His responsibility now was to meet the Master Schedule. That meant making sure he had the equipment, tooling, and manpower necessary to address that demand. “But, the most important part, Brian, is that we have all the information we need to run the factory and meet our schedules. Now, management expects me to make the schedule, but they’ve also given me the authority to make sure that we do.”

All Brian could do was shake his head in disbelief. “Obviously, we’re not getting the most out of our ERP system. And, I gotta tell you, Harvey, it’s gonna be tough to get people at Hayes to change the way they do things. They’ve been doing them this way since creation. I also know they’ve been doing it wrong that long, too. So, where do we start?”

Harvey tried to reassure his friend. “You have to have accurate data to start with. When we first got going, our data was about as reliable as a stopped watch—it was only accurate twice a day. If I were you, I would make sure that the data feeding into ERP is accurate. Then, I would take a look at the routings.”

“Piscoli, I knew you were the man I had to talk to. Now, all I got to do is figure out what you’re talking *about* and go do it, right? Thanks, buddy.”

Brian realized he still had a lot to learn and there would be a great deal of work involved. But, it was like he had always said: “Hard work isn’t the problem. When you know what you’ve got to do, you do it. It’s the not knowing that makes everyone crazy. Then, you’re just working against yourself, and that’s the hardest work you can do.