4th Storyworth B: How did you get your first job? Professional

My professional career began as an employee after obtaining my BSME at Clarkson in May 1973, but I was already applying some of what I had learned before I graduated, which helped me land my first role with Fafnir. They wanted to acquire a bunch of new machines and setup a new plant eventually, with everything that entailed. But the role expanded as I demonstrated some of my talents for machine development, and specifically control, which came to include adapting in-process gaging and diamond-roll dressing to grinding machines, as well as finding and fixing production issues making even precision aircraft bearings. I was to subsequently parlay whatever I learned in one role to some other role pretty well over my career.

An engineer's job is a mix of technical and diplomatic; making machines is the relatively easier of the two. Implementation on the production floor requires selling people who often feel threatened by the effort, which is ALWAYS to reduce costs, usually in the form of their jobs. But I learned early, and never lost, the recognition of how to best get people to compromise and do things MY way. Most production floor personnel know better how to improve the costs of doing things than ANY white collar genius; they live it every day. But they are also rarely beneficiaries of the little "perks" which the office staff get as a matter of course; group meetings with pastries and coffee and the like. And even less often listened to, to understand what THEIR problems are before you add to their headaches by asking them to do things a new way entirely.

Part of my early Fafnir role had me running off machines at the vendor plants, then arranging their install at both CT and future TN plants, and training operators. My machine control skills were only demonstrated over time, and were evolved to become part of daily life. But I discovered that there were two key actions I could take which made implementations an absolute cinch by comparison with others' experience; I listened to what the floor personnels' problems were, and actively sought to improve those for them FIRST, and I paid attention to what donuts each person took, and made certain there was THEIR fave at any meeting I called for the team, all provided by my wallet. I NEVER failed to get timeliness ROI, which simply made ME look better to MY "masters". Nor did I EVER forget that mantra ;-)

I also got to see the reps for the machine tool makers, whose job it was to assure the customer was well cared for, ESPECIALLY when things didn't go according to plan. Runoffs were a statistical process, which most now view as Six Sigma, although it had no such moniker at the time. And when runoffs were a problem, the vendor knew we had HUGE costs to keep us at their facility while they fixed whatever was the issue. So I got to see guys who knew exactly what they were doing pull out all the stops – great meals and entertainment so we'd not pack up and head home. I got that treatment in spades when I was traveling the world with GE as a Sourcing Quality Engineer once I was an independent, but more on that later. However, I learned how things in the REAL world got done, and they are NOT as simply defined as you might believe. That ALSO required me to learn that MY integrity mattered far more than any technical expertise – I made far more friends and good career moves even when I had to tell vendors NO, because they knew I made real effort to find ways to reach yes wherever I could. I well recall the day with GE when I had to convince their Engineering Department to accept a DIN standard battery to replace their GE Plastics Shell sole source which was causing GE to suffer liquidated damages and costing customers for deliveries. I simply wrote a quote on the whiteboard by that world famous philosopher Mick Jagger; "You can't always get what you want, but if you try sometimes, you just might find, you get what you NEED". It is amazing how few really NEW things there are in the world ;-)

Eventually, Fafnir and many other big companies laid me off in "downsizing", despite my ability to show them that it cost them more out of pocket to let me go than to stay, because I NEVER returned less than six times my own cost within the first year I was wherever. But it didn't matter, sadly. At my last two, Gaylord and Fastek, I left the companies with a HUGE percentage of their future value having been non-existent without me. So when Fastek folded because they tried to be Kodak Park East, it was time to go independent.

Along the way I had gotten my MBA as part of a "whore" deal when I had left for a new job and they wanted me back because of my machine tools abilities. So we both benefitted, though it left a bad taste in my mouth.

While working with Gaylord, I had a funny occurrence; I had designed modular flooring units with adjustors to allow use of movable shelving in rental properties, which is how many libraries operate, and their leases preclude any revisions to the buildings. The plant which was to make them was in Los Angeles, specifically Compton, which is an industrial area, and they had not produced a single unit in six months, even as Gaylord had been selling the systems for all that time. So I was sent out to "kick ass and take names".

Not knowing what I would discover, except that the workers were a bunch of surfers, I decided to rent a 928 Porsche from Beverly Hills to show up. In "the land of cars", that bought credibility, but I discovered that there were also some design issues which were a problem because of their capabilities. Being in the Porsche Club, I checked and found PCA had a social gathering on the Saturday after I arrived, and with Compton being dead over a weekend, I decided to run up to Malibu to check it out. There I found a CHEAPER motel right on the shore with a veranda overlooking the beach, where I worked all weekend as the bikinis walked by to redesign the flooring so it could be made by them, and thoroughly enjoyed the "view". They started shipping the modules the following week, and the VP had no problem approving my expense report for the rented car ;-)

When later I left Gaylord I had developed a new Se-Lin labeler, for which the ALS-owned patent was expiring, but so was the technology as libraries wanted to use OCLC bibliographic databases, and they were incompatible with the manual typewriter modifications needed for the ALS mechanism. Gaylord was about to see competitors sell the consumables onto the machines THEY had worked so hard to produce. So I looked at the physics involved, and figured how to both a) adapt to a conventional dot matrix printer without revision, and b) allow automatic tension control, because doing so would allow us to patent the consumables as well, giving Gaylord a 17 year monopoly. It was a huge hit, especially with Academic Libraries, whose entire shelf-list is always in full circulation. But they still "downsized me". So in 1986 I figured if I was going to be let go every three years anyway, I might as well make twice as much while I am there as an independent, and I set about to make a go of commercial software development to "scrape" OCLC data and print it to the Se-Lin continuous strip, using a borrowed IBM PC. That turned out to be at best break-even, but put me in the place where I learned C++ programming, which presented me an opportunity at GE DSO in Schenectady to fill-in as Project Manager for an existing project, when the prior PM left for greener pastures. The hiring manager, Dick, didn't need a programmer; he needed a guy who could talk to the IBM guys who would be, and not get snowed.

But when I read the contract it stipulated no specific deliverables for IBM, so as soon as they burned the budget, they could walk away. When I pointed that out to Dick, I also suggested that I could tradeoff to write the user interfaces, which would all use the same info, but present it as each site wanted for THEIR greatest familiarity, which helped my implementation at the 13 warehouses, while IBM would make the data handshake work with the rest of the GE MRP systems, so we could first utilize barcoding and RFID tech in their warehousing. I had taken a 20% cut from my usual rate because of his budget being fixed and my need for income, but when I had subsequently asked Dick whether he could do anything, I was surprised to get a call seeking my services by Chris Trow. When I asked what the role was he entailed, he said "we'll share a few beers and you'll bill me" that 20%, because Dick had HIS project with Chris about to start and Dick wanted to take care of ME. I never asked Dick for a chair after that when he said "sit".

And I subsequently worked with Dick as a Global Sourcing Quality Engineer, and eventually on a project after he retired from GE when he worked with a Chinese Transformer company, and I worked as his "customer service" for him to help his client in New Hampshire become comfortable with the idea of hardware from China for such an important substation role for their utility.

On a winter day I got a call from Duracell – could I get to Bethel CT to discuss a new packaging concept? So I flew to Stewart intending to rent a car, only to discover my license had expired, and I was SOL. Thankfully, my sister lived nearby in Newburgh NY, and she loaned me their VW Thing, with the fabric roof which kept trying to fly open. But I made it, and got the project to develop a prototype, which adapted existing machines to allow making the packages both ways, since, as I suggested to them at the time, initial sales would simply replace existing sales, so new machines would be a huge waste. I then went off to do another project, with a client who lied about the job, but I was stuck in Chicago, until I got another call from Duracell; they wanted to do the complete job, but had a tight time frame, for their "Ultra". They envisioned a new plant, but my advice to allow existing machines to selectably make either package saved $40MM. And got me away from that Chicago crap. And paid for my Porsche 993 Cabriolet ;-) Weirdly, I had to convince their vendor to do it ;-)

In the midst of that I worked with TRW, where I had presented myself but they needed me to work through one of their "body shops", which subsequently was the basis for my winning a huge tax settlement with IRS. They needed to follow QS9000 specs, which is like ISO in terms of documentation, change control, and customer approvals for any changes first, with the addition of Automotive OEM requirements heaped on top thereof.

TRW Auburn was making Remote Keyless Entry systems for most of the automakers of the world, and they were at capacity on their automated assembly & test line. So they needed somebody to instruct personnel on documentation and training, and there I was. I was not then, and am not now, an electronics guru at chip level. I am more of a modular logic guy. But somebody spent more than four hours every day compiling and posting End-Of-Line (EOL) performance data for the machine, yet missed the obvious. And I understood enough from what I was seeing on my third day there that I commented to my "handler", one of their manufacturing engineers, that they had a design defect. I could not know what it was at that point, but I could see a pattern.

As it happened, TRW Corporate in Michigan had sent their guru, Dwight, who had developed the airbag trigger, to explore a problem they were experiencing but could not identify – a lot of complaints of RKE not working but which the dealerships could not duplicate. So Dwight called his team to a meeting, of which I was of course not privy, to inquire if anyone had any ideas. My handler, Steve, told him that I had just made that observation, but that he had no idea why. To his great credit, and ultimate benefit, Dwight came and asked me himself.

I explained that they made a specific customer product in two -, three -, and four - button units, which were internally identical. Their data showed a dropout rate at EOL where each button was pressed once and the signal checked, with the four button at twice the dropout rate of the two, and the three midway between. So, I explained, EACH press had half the dropout rate for the two button probability of the transmitter not working right. I did not know why, but the data was unmistakable.

Dwight asked me to join him and we walked to the Plant Manager's office, where Dwight proceeded to tell him that it did not matter what my role HAD been, as of then I was working for Dwight, and that I was in charge of finding and resolving the issue, because Dwight needed somebody who could "look at data and tell him the story". That began a number of month's inquiry and environmental chamber and round the clock testing and documentation, along with statistical analysis and plotting, until the cause was discovered. While my contract with them precludes my divulging details, suffice it to say that the fix proved to be VERY unusual, at least in the short term, as we used a lower cost power transistor which was far less sensitive to the issue as a temporary fix while they redesigned the circuit to eliminate the root cause design flaw. And I had my first foray into statistical analysis to determine failure mode, which I still use to assist with most problems' resolution to this day. Sometimes formally, sometimes just applying the principles, which are ALSO the foundation for AI and Machine Learning, an online course I took, like Electronics, during my "retirement" to maintain my skills.

But the TRW experience effectively made me sort of an expert on their transmitters, so I was asked to look into a self-inflicted wound; they had changed a manufacturing process without OEM approval, and wanted to know if it would cause warranty issues. The problem was they used tin, which is better for soldering reliability than the spec nickel, but less durable, where mechanical terminals made contact, and in the operation of the buttons the tin would suffer fretting corrosion. If you have ever seen lake effect snow pile up, you know the symptoms; ten pounds of crap and a five pound bag. Eventually the non-conductive tin oxide, which develops immediately and is very brittle, so pushes with micro-motion like that of a plow to become an insulator in the circuit. And, yes, that would cause them to fail with high probability during the warranty life.

So they had me setup and run an offsite rework project wherein we would receive by business reply mail the 1.5 million affected transmitters, and replace their internal printed circuit board, then return the same transmitter to the original owner, at a cost of about $7 per vs the $120 it would cost for the dealers to replace the units. Which gave me my first foray into LAN setup and operation, and database management on a huge scale.

It also taught me that women can be far cruder than men as they talk amongst themselves during work, such that I had to put a stop to it. So I asked three questions; a) What's long, round, hard and full of seamen?; b) What word starts with F and ends with UCK?; c) And what four letter word ends in K and means the same as intercourse? If you're answers were not; a) Submarine; b) Firetruck; and c) Talk, then your mind is on the wrong things and you should get back to work. Like the donuts I mentioned earlier, I learned… ;-)

I also moved a switch production line from their Brantford Ontario plant to Auburn, as well as some added process quality work, resulting in over five years service, an unusually long period for any IC role. And I never actually did the thing they'd hired me for in the first place. But my work on the transmitter intermittency earned me a TRW Chairman's Award for Innovation. So far as I know, I am the only non-employee to ever receive such an honor. And on other jobs I bounced between but returned for second and third stints over time.

When I later contacted Dick again seeking another GE role, he had moved to running global SQE's and needed a guy who could read a contract and teach others how to assure they got what they needed. As well as fly with a moment's notice to the other side of the planet to approve vendors and equipment for the electrical grid, although I had never SEEN the stuff. I knew how to read a contract and he had confidence in my ability to bring him solutions vs problems. That took me to Europe, where I had my first opportunity to drive the Autobahn, and the Autostrada in Italy. I spent a month there during one stint, and loved the role.

Imagine you are rolling along on a pleasant afternoon and the car starts to misfire. I was in a BMW 528i wagon, which is like a rental Chevy in Germany. I was bouncing on the rev limiter at 240 kmh, which is 150 MILES per hour REAL. I did enjoy myself ;-) That role took me to all of Japan, Great Britain, Taiwan, Australia, Mexico, Slovenia, Austria, Germany; East and West, all over the USA, and Montreal in Canada (where I was on the morning of 9/11, and the crew spoke only French while I spoke only English – see what I meant about my language skills from my earlier chapters? ;-)

I spent my last five IC years before Enron's 40% of GE business and their collapse wiped out MY ability to have any further role there, sadly, because that was the BEST gig of my entire career. When I left it I went to work with my now ex-wife in HER business, and you can read into that whatever you feel you need. But it cost my marriage, my career and my credit, and had I known it going in, I'd have told her to do HER business without ME. I am not bitter, but I am disappointed, because I COULD have gotten back into real engineering work instead of running her healthcare office, until it was too late and the world was simply wrong by 2008, so I have been semi-retired since 2012.

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