Data Preparation
Pricing Analytics
Price Modeling
Strategy
Results

PRICING STRATEGY: INCREASING PROFITABILITY THROUGH STRATEGIC PRICING & ANALYSIS

PROJECT REVIEW

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EXECUTIVE SUMMARY

This project took place in a manufacturing organization. I was a Product Manager responsible for around a $40 million product line in North America.

The project was undertaken to provide a framework for strategic pricing to replace the cost-plus margin approach. In today's competitive landscape, a cost-plus pricing approach is a serious disadvantage and leads to an array of problems that affect the P&L in a variety of ways.

To improve profitability, reduce the quote turn-around time, and standardize pricing across the organization, I have developed a robust pricing system focused on market and value pricing.

Business Benefit Obtained: As a result of implementing this project, over $1 million of margin were preserved in year one and quote and proposal turn-around time were reduced by 200%.

Additionally, the North American sales team was elated with the improved speed of quote turn-around and consistency of pricing.

Scope of Project & Timeline: Successful implementation of this six month project required analysis and modeling of tens of thousands of rows of raw, messy customer transactional data and hundreds of products' production and cost data. The final deliverable was a user-friendly Excel–based predictive pricing system complete with training for other Product Managers in North America.

This project was very complex and required the involvement of nearly every department in the organization:

- Sales
- Marketing
- Engineering
- R&D
- Operations
- Quality
- Manufacturing
- Production Planning

"The fastest and most effective way for a company to realize its maximum profit is to get its pricing right. The right price can boost profit faster than increasing volume will; the wrong price can shrink it just as quickly. Yet many otherwise tough-minded managers shy away from initiatives to improve price for fear that they will alienate or lose customers. The result of not managing price performance, however, is far more damaging. Getting the price right is one of the most fundamental and important management functions; it should be one of a manager's first responsibilities, a nuts and bolts kind of job that determines the dollar and cents performance of the company." Harvard Business Review

MY APPROACH

1. Develop a business case
2. Obtain executive buy-in
3. Develop a plan
4. Data collection (transactional and product manufacturing cost data)
5. Data wrangling & management (organization, deduplication, error handling, outliers, etc.)
6. Develop initial excel regression price models by product technical specification ('SKU')
7. Craft initial design of excel pricing/quoting tool
8. Develop price index strategy & price-performance multipliers
9. Review/check of price models
10. Continued development of excel pricing tool
11. Combine price models with pricing tool (the pricing "system")
12. Validate model outputs (prices) - run in parallel with cost data to ensure profitable prices
13. Make edits to model outputs based on validation testing
14. Prepare marketing & sales team for new pricing methodology and tool
15. Go-live of new pricing system

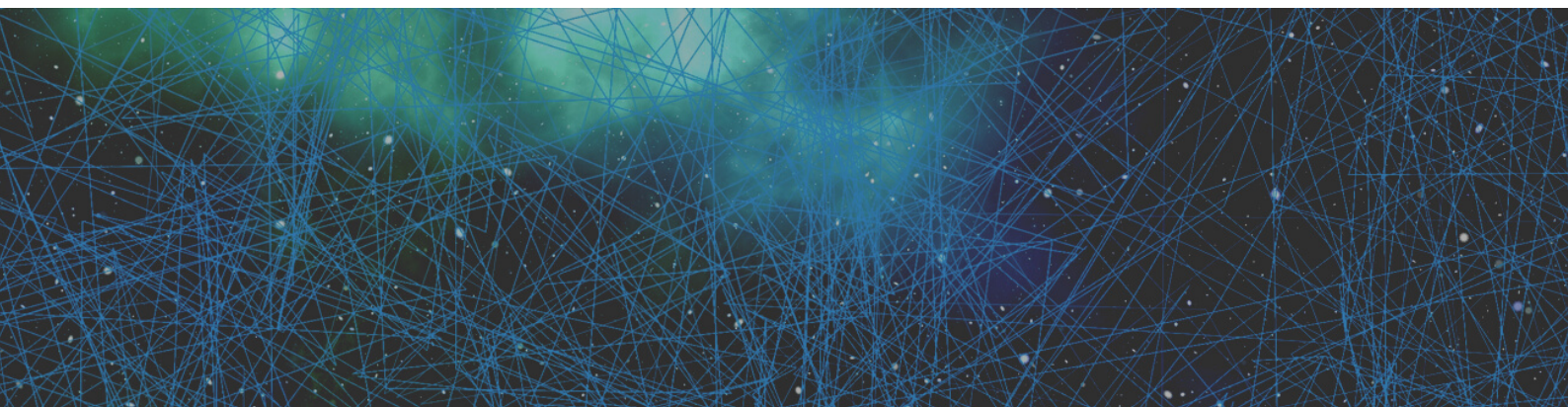
PRICING SYSTEM & TOOL OVERVIEW

It was critical that I develop a pricing system that would replace the outdated cost-plus margin methodology. There was too much at stake: profitability, time (too much wasted), sales quote close rates, growth, market share, etc.

I needed a system that would allow me to generate competitive quotes in minutes, not days or even weeks (for large proposals). I needed a system that I could get my peers on-board with. I needed a system that would be scalable and stand the test of time. It had to be robust, reliable, repeatable, and most importantly, deliver exceptional value to the organization.

This project was massive and complex but an incredible challenge I was excited to spearhead. I knew it held substantial upside for the organization. It was going to be the first of its kind (in the organization) and a true game-changer.

Buckle up because you're going for one heck of a real-world strategic pricing ride! We're going to dig into some of the innards of this beast to get a glimpse of what it took to get to the final deliverable. It's massive. It's technical. It's a game-changer. Millions of dollars in profit will be preserved and that's just the tip of the iceberg. Let's go!



SUMMARY: DATA, MODELS, STRATEGY

1. Gather, cleanse and format data to create a useable dataset.

2. Create regression models by product category. Plot price as function of purchase volume.

3. Create regression models by product specification and product category using Excel + XLFit software.

4. Create tables of product features that add value and determine value multipliers. Example: If printed product, add 6% to base price.

5. Develop parent (family) price curves by product category. This will simplify the project as far fewer parent curves are required vs. individual product curves.

6. Develop pricing rationale for prioritizing products the organization prefers to sell. Example: If a product has a strong market fit, is profitable and we want to sell more of it, base curve price * 0.90. This incentivizes the sales team to promote this product over other 'similar' products.

7. Integrate pricing logic & model formulas into Excel-based quoting tool. Establish required independent variables (inputs) and output format. Example: Product Manager enters 7 inputs and model outputs pricing for 5 quantity breaks. Pricing is moved to a formal quote document for presentation to the sales rep and the customer.

IN THE BEGINNING.....

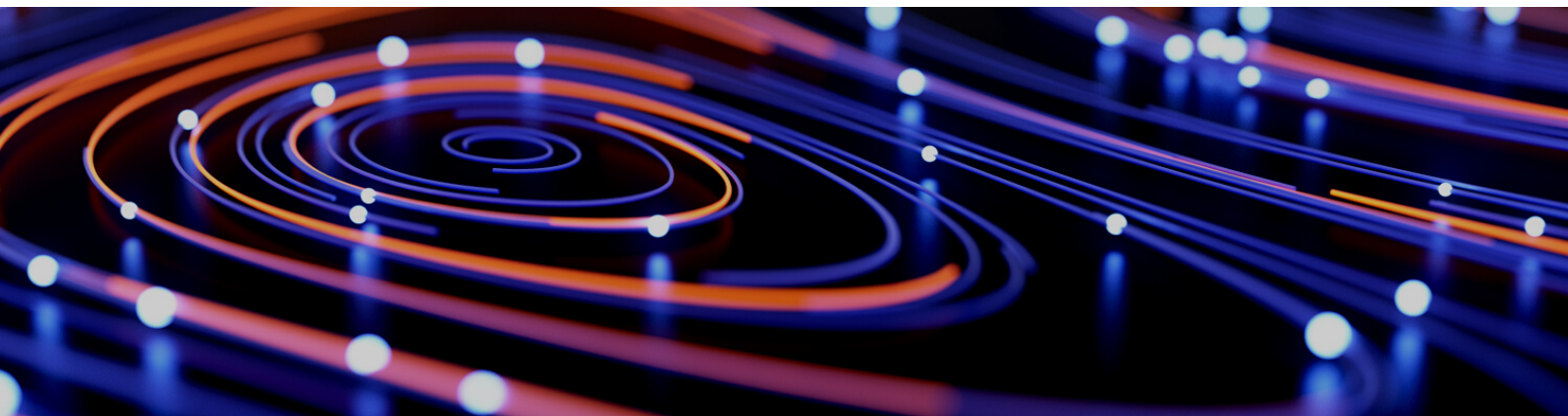
In the beginning, there was chaos. First, I had to find the data. It was hidden in legacy systems. I had to find someone in IT to help with getting access to it. Then there was some SAP master data. I had to find a way to combine all of the data, get additional data when necessary and figure out a process for doing so. It's time-consuming, unglorified and mind-numbing. It's part of the process.

I had to make really good friends with manufacturing engineering (they knew how to get me the production data and some other costing standards). I had to buddy-up with someone in SAP master data as that was coming on-board at the time. Let's not forget about production planning and accounting & finance and our costing department. The data was everywhere yet siloed. It made gathering the necessary information a headache, but it had to be done.

The data I was able to extract and obtain was a mess. It had duplicates, missing data, nonsensical data (data input errors), completely incorrect data (outdated manufacturing standards, for example) and everything in your wildest data nightmares.

The only tools at my disposal were a standard issue work laptop and Excel and some modeling software. Now to start the cleansing process to get to a dataset that was usable. It was a huge undertaking and I'm surprised my computer didn't overheat and melt right in front of me. It was processing countless formulas in tens of thousands of rows, workbooks and worksheets. Nested conditional statements, conditional formatting, data validations, filters, vlookups, pivot tables, sums, averages, index(match), etc.

For a project like this, I used a lot of cell formatting to start making sense of the data and to start organizing it. I created reference tables, pivot tables and color-coded cells. It's a lot to take in but it was critical that I figure out how to get a handle on the data tornado in front of me. Getting the data organized up-front is key to keep a project like this moving forward. Do not get overwhelmed. Have a process and method to your madness.

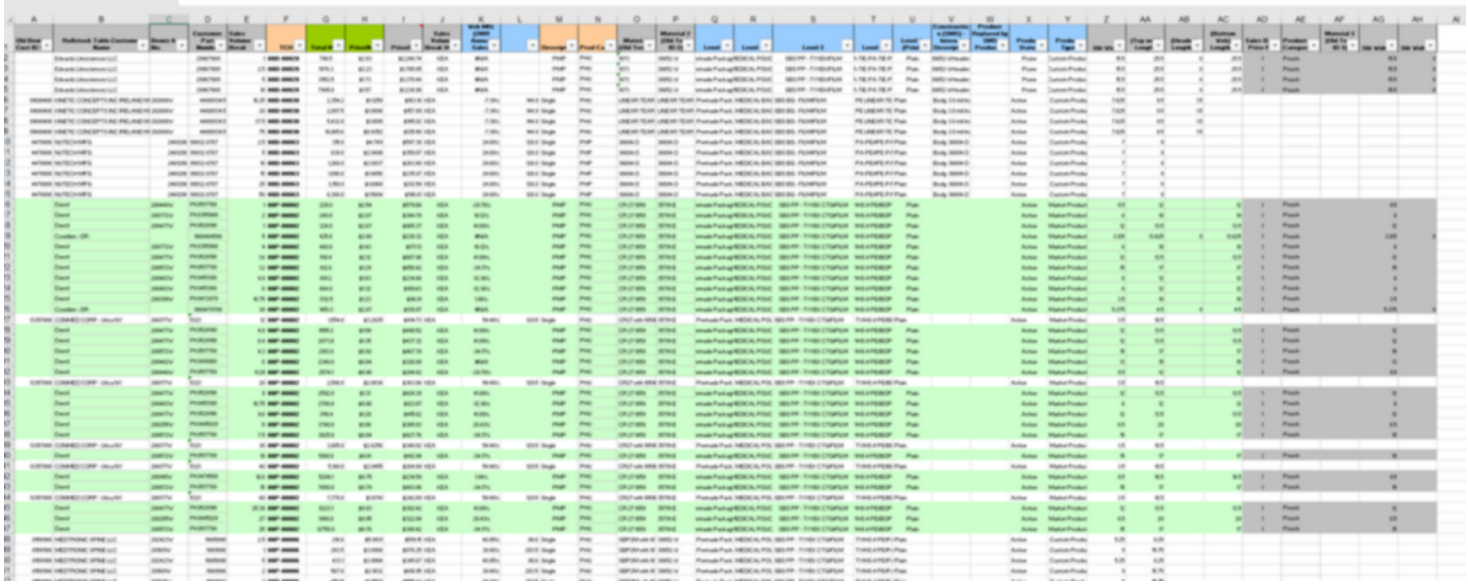


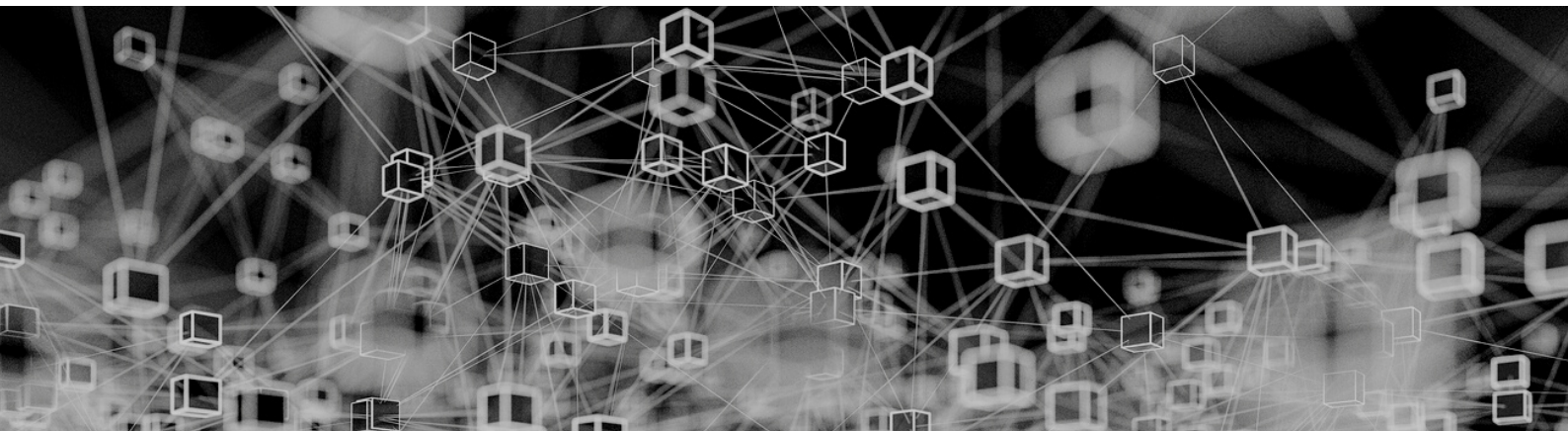
IN THE MIDDLE.....

Huge progress has been made. I now have the data in a meaningful way in Excel and it's looking good. Countless hours have gone into cleansing and standardizing. There are many spreadsheets I'm now using. Each has a lot of tabs. Again, it's critical you keep the data organized.

Below is a small part of one of countless spreadsheets I created. It's not much to look at when it's blurred out but it provides some insight into part of the process.

All data has been changed and/or blurred for the sake of protecting the confidentiality of the real data.



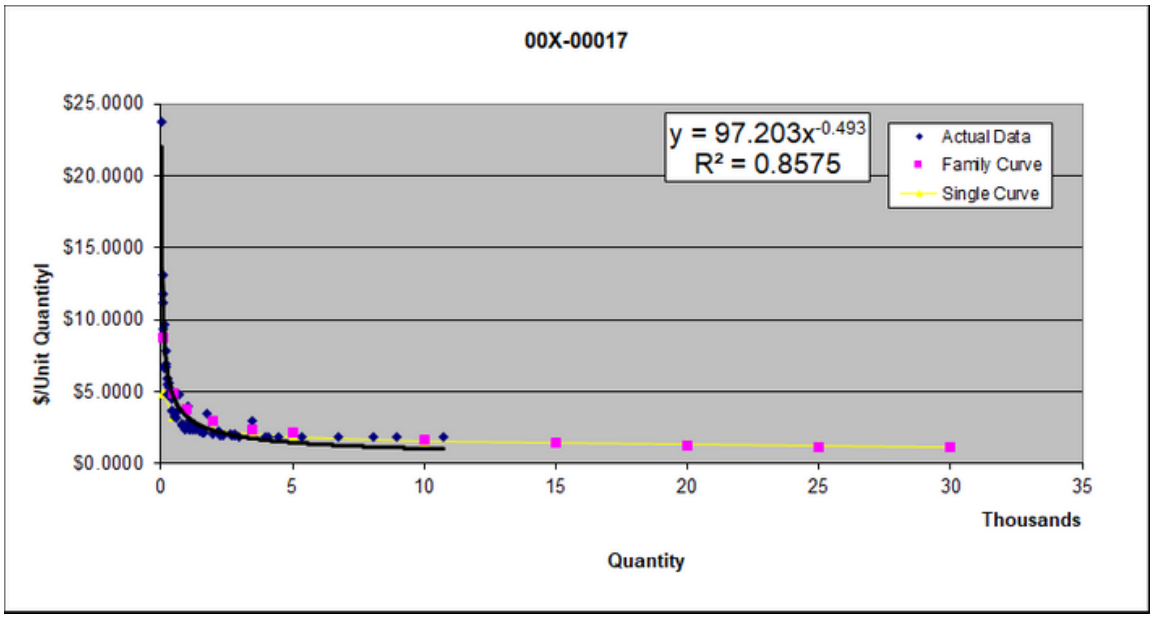


IN THE MIDDLE.....

The hardest part, data wrangling and cleansing, is over. I can now start to make some simple graphs of the historical prices as a function of volume. In essence, the more a customer purchases, the lower the price. It's a simple regression really but it yields a formula that I'll use later. But you get an idea of one of the steps to go from a spreadsheet of 35 columns and thousands of raw data to a simple price-quantity curve. There are many pieces to this project and they all come together at the end.

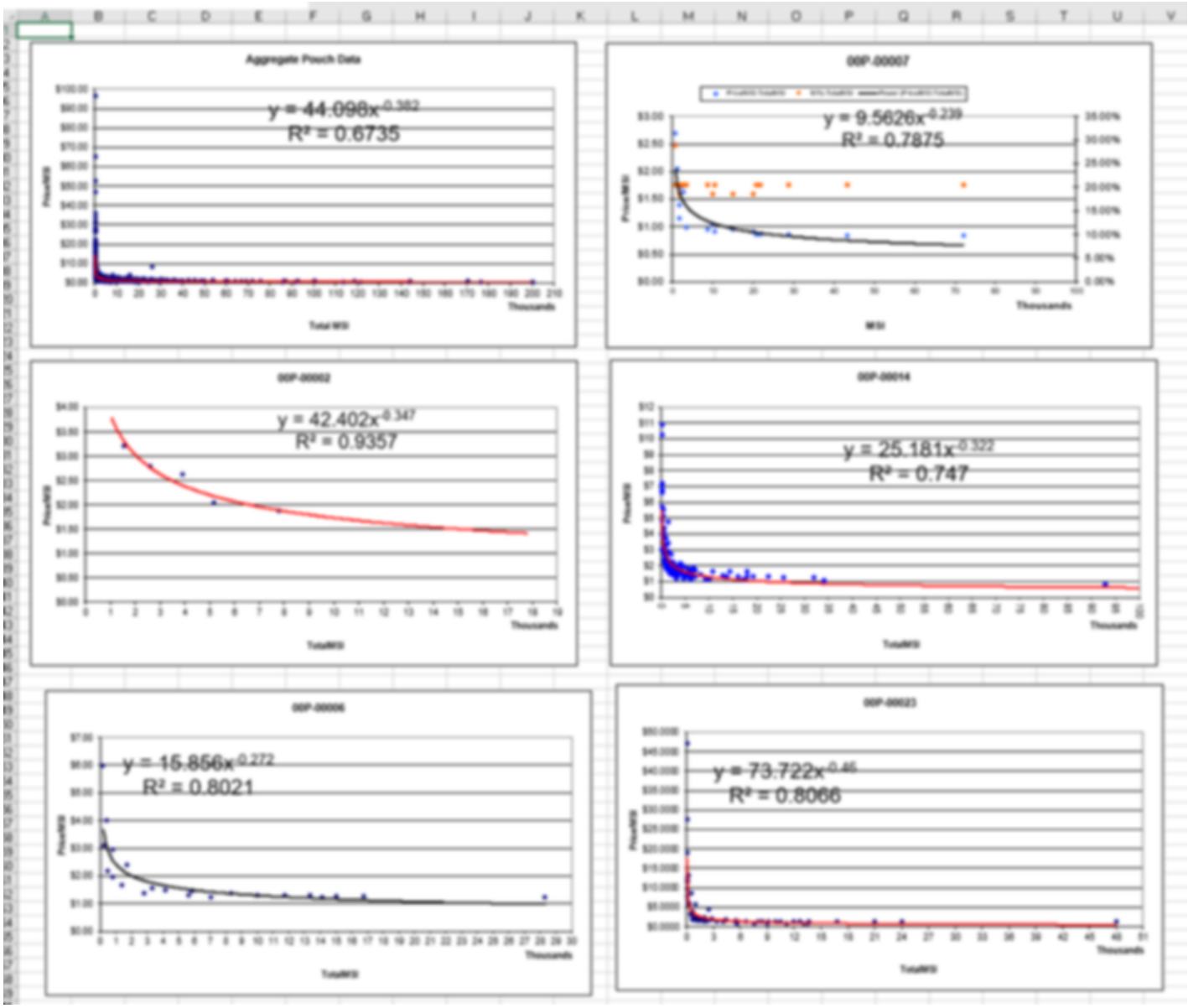
In hindsight, it's quite fascinating to look at all the components of the project and how they were integrated into the final deliverable.

Below is a price-to-quantity curve for a specific product SKU (also known as a technical specification). This is one of countless simple regression models used in this analysis. The project started off making product-specific curves but then an associate of mine had a great idea. He recommended that we create parent or "family' curves (by product category) and use that as the main curve to which I'd then apply multipliers (0.9, 1.2, etc.) to for specific products to reach product-specific prices. Brilliant! So that's what I did moving forward.



IN THE MIDDLE.....

A lot of analysis had to take place. I didn't have all the answers and that's okay. I had to learn a lot as I went through the project. Curves, curves and more curves. Data outliers. Curves with too little data. Curves that didn't make sense. Curves with poor R-squared values (poor fit).



IN THE END.....

After all the data wrangling, cleansing, organizing and modeling, in the end I have formulas for the parent ("family") curves. I also have built look-up tables of product features that I apply price adjustment multipliers to. I also have a quoting tool which will be fed the price formulas and various multipliers. Ultimately, the user of the pricing/quoting tool will enter inputs and the tool will output prices with quantity breaks. It really is that simple.

It all seems to work well. But before I can push the tool live to the organization, it must be validated. I ran it along-side cost data to make sure the predicted prices are profitable. I'll continue to do this until I'm confident the tool is going to price opportunities appropriately. The company cannot lose money on any deals. I must find any anomalies or model errors and correct them.

This is a process. I had to edit the models and update the quoting tool when errors or issues popped-up. That's okay as long as pricing errors are not sent to customers. This phase was not rushed. I had to have a lot of confidence that the pricing system is generating profitable, realistic prices.

Deliverables:
Great, you're still here! Let's review the deliverables for this project. I've created an Excel-based quoting tool that predicts profitable pricing for products. It turns a historically very complex, lengthy and tedious process into one that is fast, efficient and accurate.

It gets the organization away from the damaged and drama-laden cost-plus pricing approach and into market pricing and value-based pricing. We're now delivering consistent prices that are no longer a function of costs (costs constantly change and that will drive everyone crazy). Sure, I can keep generating costs along with the predicted prices to determine profitability, but costs should not be driving prices.

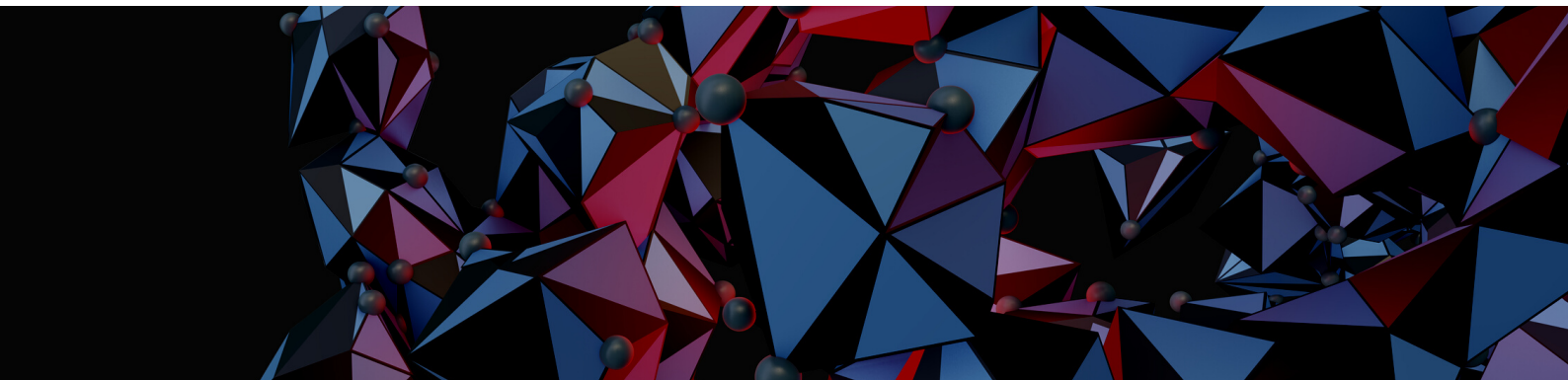
BONUS DELIVERABLE

After all the data collection, analysis, strategizing, thinking and developing, I had a new appreciation and understanding for my product line. I've spent time with nearly every department in the organization. I've met with plant managers across the country to discuss products that do and do not run well on production assets. I've spent time with the sales team getting their input for which products sell well and why. I've spent time with R&D to determine which products have various value-add performance characteristics and where product redundancy lies. I've exhausted our costing department and manufacturing teams....we need relevant and current costing and production standards to really understand where we are in terms of profitability on opportunities. I cannot use outdated setup times, hourly rates and costs that are not relevant to creating a product.

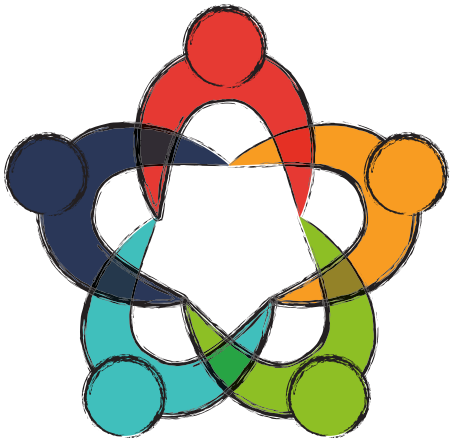
Now I know which products to promote and which products to potentially prune from the product line. I started with hundreds of products and boiled them down to fit on a 2-page document ("cheat sheet") that has around 30 products. It's another sales tool which helps our sales team gauge product pricing and understand which ones to sell that make the most sense for the customer. It's a lot of product and price intelligence packed into a simple PDF document.

It's like the ultimate product line cheat sheet complete with price indexes so the sales team can instantly know how much one product costs relative to an alternative product. They no longer have to request 5 different quotes to determine which option has the best pricing. This is huge!

Example: Lori, an outside sales rep is talking to a customer about a new opportunity. She thinks 2 product options would be appropriate for the customer's application. She can go to the cheat sheet on her phone and let the customer know that option A is priced 15% more than option B but option A's performance is also 15% more. At the end of the conversation, Lori and the customer believe option B is best since it's less costly and they don't need the increased performance (the customer's product is a commodity so low price is key).



CHALLENGES & LEARNINGS ALONG THE WAY



I could write a series of books on this but I'll attempt to keep it to the major challenges I experienced. Some of these may be obvious and others may be surprising.

Data wrangling and organizing is tough. It's a lot of work. It requires patience and often the help of peers. Don't be afraid to ask for help. I had a small army helping me in various ways. My job is to add value to the organization and in order to do so, help is often required. I've learned that being available to help those that have helped me goes a long way. Don't just eat and run.

Not everyone will be on-board. Some people just don't have time for more projects. Others may not want to be bothered. They've found their corner and comfort zone and they just want to hum along doing whatever they're doing. That's okay. I had to keep looking for ways around the roadblocks.

Expect push-back from changes in processes and new tools. For some, change is evil. New tools and/or processes may lead some people to believe their positions will be obsoleted. That can be a big problem (rightfully so) especially if the project requires them to participate. It's like they're helping dig their own grave. I had to manage expectations and fears (easier said than done sometimes). I did not intend on putting anyone out of work yet some thought that was the case. I was shocked. It was time for some damage control.

Celebrate the wins & give credit. A lot of people have helped me along the way. It's helpful to share project wins to show them their time was spent wisely. This project was a team effort. I made sure to show my gratitude to those that have helped and to explain how the project was delivering value. Everyone likes to feel as though they're part of a winning team. I made sure to give credit and accolades where they were due. It's natural for people to want to feel appreciated and valued, especially in front of their peers.