

The Ocean Optics Story in a Nutshell

The story of Ocean Optics is at once both very unique and very familiar. We started in an entirely different industry, making and selling pH testers for aquariums. pHish Doctor was the original garage-based business. It wasn't even a full garage, just a 10' x 10' aluminum shed in my backyard. In 1989 we made the leap to high-tech by winning a Small Business Innovation Grant from the U.S. Department of Energy. The idea was to put our aquarium pH test material at the end of an optical fiber and use it in oceanographic research. After we quit our day jobs and started work on the fiber optic pH sensor, we discovered that a key part of the proposed instrument didn't exist. We had assumed you could buy a small spectrometer to fit into an underwater housing. Suddenly we were faced with the necessity of inventing one. For two years we labored in R&D and in 1992 we launched our first commercial product.



No, it wasn't the fiber optic pH sensor; it was the world's first miniature spectrometer. This "spin-off" technology became the core product in a family of fiber optic accessories and gadgets that grew at the astounding rate of 1.4 new products per week. The growth in accessories was driven by the growth in applications that our customers dreamed up.

When things are going well, you will run out of cash

As all successful growing companies discover, when things are going well, you will run out of cash. We raised about \$1 million in cash by selling stock in two private placements. The investors were our friends, families, colleagues and distributors. Because the investors were all friends, we were able to keep the legal costs very low.



Along the way we were lured by the big money that was being made by the telecom mania. We tried our hand at what's called a roll-up strategy. The plan was to borrow money, buy some small companies, bundle them into a bigger package and sell this to Wall Street in a Public Offering. We actually did two acquisitions and started a new division before the rug was yanked out from beneath us. In 2000, the telecom bubble burst, Bank of America called our loan and we were facing insolvency.

We regrouped, worked very hard to raise cash by selling off assets. We sold non-performing portions of the business and emerged stronger and more profitable. In 2004, we successfully sold the company to Halma, plc, a UK-based public company that specializes in acquiring and mentoring smaller engineering-based companies.

Our investors were very pleased. They received about 50:1 payout for their 10-year investment. The employees were pleased, because in Halma we found a company with resources to fund our dreams, and a hands-off management style that let us have our own dreams.



Today Ocean Optics employs about 250 people in 6 facilities around the world. We have sold our first invention, the world's first miniature spectrometer, to more than 75,000 customers. Our spectrometers have flown on the MIR Space Station and the Space Shuttle, and is on the Mars Rover collecting spectra of rocks and soil right now. Our spectrometer is used to monitor patients' blood oxygen in critical care facilities, measure color of LEDs, monitor wavelengths and mode structure in lasers, detect explosives and drugs at airports, and teach students the fundamentals of spectroscopy in college and high school teaching labs.

It has been very, very fun.!

Creating Wealth

Robert Kiyosaki did a great job explaining how to make money with his wealth creation quadrant. Most of us were taught by our parents and teachers to become good employees, and trade our labor for pay. Some of us pursued additional education to become professionals (engineers, scientists, lawyers and accountants), and trade our expertise for pay. The problem with these strategies is that there is no accumulation of equity, no residual income. Once you stop working, you stop getting paid. In the two other quadrants - industrialists and investors - wealth is created by leveraging people and money, respectively, to build wealth.

Being a smart investor is an essential ingredient for everyone's personal financial strategy, but being a full-time investor requires having enough starting capital. Being an industrialist can also be very lucrative, and like investing, start-up capital is pretty handy. In both cases, not having capital is just an obstacle to overcome, and having capital doesn't guarantee success.

The benefit of being a business owner is that you can grow the value of your company. The retained value or equity is something that you must recognize and nurture carefully. When you make day-to-day business decisions, you must always ask, "Does this add to the equity of the company?" If the answer is no, or worse if the activity will diminish the equity, then don't do it.

Equity takes on many forms. Some are obvious, like intellectual property. If you have a patent you can sell it or license it to others, you can borrow money against it, and you can show its value on your balance sheet. Others are not so obvious to the new entrepreneur, but in the end intangible equity will be the most important component.

Our equity was not our technology but our business model

The most important part of Ocean Optics' equity was not its technology but its business model. We created a system for developing, manufacturing and selling products that generated profits and cash flow. When we sold the company, the price we received was largely based on a multiple of profits that the business generated. Our tangible assets were just a small fraction of that price. This system or business model has many components, including our brand name, our advertising, our products, our distributors, and of course, our customers. While many competitors duplicate certain elements of what we do, it's the whole package that makes Ocean Optics unique, and that gives the company its value.

While wealth isn't everything, it sure comes in handy when you try to buy things. It also lets you fulfill your charitable and altruistic impulses. I'm very proud of the success of Ocean Optics mainly because we were able to create 6 millionaires and a dozen or so half-millionaires among our investors. If we had the means to calculate the total economic impact of Ocean Optics, it would be huge.

Last Things First

"If you don't know where you are going, you may end up somewhere else," is something that baseball legend Yogi Berra might have said. It's very useful to have an end-game or exit strategy in mind when you start your business. If you try to raise money it will be essential. There are two main options: going public (selling the company to the public), or selling to another company. There are other less common alternatives, like employee buyouts and such, but they are harder to engineer.

I like to visualize, so picture yourself selling your company in 10 years. How will you do it? Who will you approach? Why will someone buy you? When you sell a company, the buyer will go through something called **due diligence**. It's a discovery process that looks for reasons why not to do the deal. You will need to create a due diligence file containing all the stuff requested in the due diligence checklist (see Appendix I for an example). There are obvious things like financials, but not so obvious things like minutes of all your board meetings, environmental reports for any property that you owned, copies of all contracts including purchase orders, and lists of all potential liabilities. You should make a due diligence file now and keep it up to date. It's a lot easier than trying to recreate it later. One last point, keep your business squeaky clean and very simple. Legal entanglements lower the value of your company.

In the end, someone will buy your company for either strategic reasons (access to technology, markets etc), or for the cash flow. There are only a handful of potential strategic buyers, so start courting them early and keep them up to date with your progress. Make sure you understand their strategy, so you can optimize your strategic value to them. There are many potential buyers of cash flow, so focus on having good cash flow! Keep track of who is doing acquisitions in your industry and make sure they know about you and your company.

write your business plan only after you plan your business!

Business Plan

Don't worry about writing a business plan; do worry about planning your business. We spent more than a year planning our business while we also worked on our SBIR research project. We were very fortunate to have gotten free mentoring from Dawnbreaker, a consultant hired by the U.S. Department of Energy to help their SBIR companies commercialize their research. We went through a series of exercises and homework assignments that made us think. That's the key; often times it's easy to get too busy to think.

You need to slow down and give it a try! While most people think of the business plan as a way to get investors, it's much more valuable as a blueprint for success. At Ocean Optics our original plan served as a daily guide for over 10 years, giving us a framework for how to think about the thousands of issues that arise in the course of running a business. In actuality, we never raised any money with the written document. Our first investors believed in us as individuals. Our one outside investor was a venture firm that didn't read the plan at all. They just happened to have a few hundred thousand dollars left over and they needed a nice quick small investment to round out their portfolio.

Sales & Marketing is the only thing

Sales and Marketing

To mangle a famous quote, "Sales is not the most important thing, it's the only thing!"

Ocean Optics has always been first and foremost a sales and marketing organization. We view research and development as a sales and marketing activity, and we view sales and marketing as an experimental science. So, in a practical sense, what does this mean?

We designed our products by first imagining how we would sell them. I mean we actually pictured ourselves talking to a prospect, discovering their needs and wants, offering a solution and getting paid to do it. That is the essence of being in business. If you can't do that successfully, you won't have a business.



Early in my career I sold laboratory products... chemicals, glassware, instruments and such. Despite having a 10-lb. catalogue to haul around (this was long before the internet or even PCs), I often found myself investing time to understand a prospect's problems, only to realize we didn't have a product to solve that problem. It was frustrating and of course, inefficient. No solution, no sales, no commission.

At Ocean Optics we decided to eliminate this bottleneck by emphasizing a particular attribute in everything we do... namely flexibility. Our products are highly modular, all the modules can work with each other, and all the modules connect with flexible optical fibers. From our modular products there are trillions of possible combinations, all we have to do as salespeople is pick the best combination for a particular customer. Our company also has a flexible attitude. We are always willing to try new things and very eager to work with customers. We are not too scared of failure to try. In practice we actually develop new products and applications during a sales call. We don't worry about market size, market

niche, core competency, return on investment or any of the hundreds of other usual business school things that get in the way of creativity.

Here is a typical Ocean Optics sales call. A prospect calls and asks “Can your spectrometer measure <stuff>?” We say, “I don’t know, what’s <stuff> and why on earth do you want to measure it?” An hour later we have developed a new way to measure <stuff>, we have gotten an order for the first system and we have a vague concept for a new accessory <stuff gadget> we need to develop in the next few weeks to fill the order. We’ll make a few of <stuff gadgets>, add them to our product line, and then through our experimental marketing we’ll discover a few more uses for them. In our 13-year history we have averaged 1.4 new products per week. The only thing keeping us from doing more is lack of brain bandwidth!

Sales and Marketing Practical Stuff, Starting on a Shoestring If you are a multi-billion dollar company, you have resources to do quite sophisticated sales and marketing planning. If you are small, you need to be clever. Here are a few tips.

Know your industry. You are trying to join an industry, so you need to know everything you can about the industry. **Trade Journals** are free; they list new products, trade shows, conventions and job postings, and have articles about various issues of interest to the industry. They also report on industry leaders, who owns whom, who landed big contracts, who got funding and who is going public. Read these journals from cover to cover!

Go to **Trade Shows and Conventions!** If you have a good contact with a company who is exhibiting, you may be able to get in for free. Either way, this is where you meet people and make contacts. All business is fundamentally based on relationships with people. That’s why the trade show industry is doing so well. Face-to-face business is essential. If your business deals with technology, then you must attend professional society meetings. That’s where you find out the latest developments and technologies, and that’s where you meet people you will one day try to recruit or sell to. After you are in business and can afford it, join the professional and industry associations, attend the meetings, and exhibit at the trade shows!

We made our first sales by walking the floor at PITTCON in New Orleans in 1992. Our prototype miniature spectrometer was in our shirt pocket! We invited potential OEM customers back to our hotel room for demonstrations. It was a very low-budget way to get into the industry. A year later we had our first trade show booth at PITTCON in Atlanta. We were so busy we never had a chance to take a break. In 4 days we did demonstrations and collected leads from 585 prospects.

You need friends! Or, to be more precise you need to start creating a network of **stakeholders, admirers and advisors**. Talk to sales people! Advertising reps are ideal because they talk to everyone in the industry. They will help spread the word about you and help place your new product announcements in return for the promise of future advertising business. They will become stakeholders, or people who have a vested interest in your success. Admirers are hard to target, they really just kind of happen. However, when you find you have an admirer, treat them well. They help spread word of mouth advertising. Good advisors are the hardest to find. We found advisors by making the rounds of business development groups like the Small Business Development Center, NASA Tech transfer office and groups at the local universities. We ended up with pro bono legal, accounting and marketing help from firms trying to help grow local high-tech businesses. Eventually you may need to formalize the relationship by asking some of

your advisors to become board members. They may ask for something in return, because they will assume some liability for joining the board. In the very least you will need to offer Directors and Officers Liability Insurance.

Our most valuable advice came from a marketing firm. It was valuable because we did just the opposite. They wanted us to change our name to something high tech like "Spectra Tech" or "Tech Spectra." We noticed the big, impressive booths at trade shows were companies like Hewlett Packard and Perkin Elmer. So, we stuck with Ocean Optics. Be careful though, if you pick a name or a logo you might be stuck with it for years to come. Our first logo was a laser shooting at a dolphin. It incorporated the twin ideas of optics and the ocean, but it was a bit sinister. Later we adapted a clip art globe. Since 70% of the world is covered with oceans and all the optics are manufactured on land, it seemed good enough.

We did pick up a very useful concept from an advertising firm that wanted our business. Don't underestimate the value of listening to sales pitches from advertising firms... they always divulge their best stuff to land the contract! We borrowed the idea of a **sales platform** from just such a pitch. A sales platform is a plan to coordinate all aspects of the marketing message to make sure they are internally consistent. Again, it's the master guide that you use to make everyday decisions about how you talk to people, how you craft your ads, and even what shirts you wear at trade shows. The elements to the sales platform are:

- **Audience (people in the target market)**
- **Objectives (what you want to accomplish)**
- **Theme**
- **Storyline**
- **Image**
- **Features/Benefits/Proofs Answers to Objections**

The first 2 elements are part of strategy; the last 4 are your messaging and your brand.

Most sales people are comfortable with the concept of features and benefits, but the longest lasting messages are in the theme, storyline and image. Long after people forgot about our 1-nm resolution and high performance whatever, they remembered our story (we invented the world's first miniature spectrometer because we had to), they felt resonance with the theme "smaller is faster, less expensive and higher tech," and they knew Ocean Optics as the high-tech company with an attitude.

Ocean Optics -- high-tech company with an attitude!

Be different! There is a principle in ecology that states that no two organisms can occupy the same niche at the same time. One will survive and the other will go extinct. So it is with companies and products. Only the different survive. You need to be very clear about what makes your product and your company unique. You can sell differences, you can't sell similarity.

You need to be a **professional salesperson**. All aspects of your business involve sales -- raising money, recruiting talent, and of course, selling products and services. Professionals take charge of their own education, so you need to study salesmanship. There are lots of books, CDs, courses and coaches. Here is a quick summary of the most important aspects:

- Sales & Marketing is communication. In marketing, you are projecting a message and hoping someone listens. In selling you are asking questions and listening.
- Communication requires error checking. It sounds kind of obvious but always tell your prospects what you think they just told you.
- Salespeople ask many questions, but one question rules them all: **“Why?”** If you don’t know the why, you can’t serve the customers needs. I told this to a group of 5th grade students once who were visiting Ocean Optics. One bright kid raised his hand and asked, “Why?” We gave him a prize.
- Sell the vision, negotiate the details. Never discuss minutiae (like price, specifications, delivery) until you have sold the prospect on your concept or vision on how to solve his problem.

One question rules them all: “Why?”

If you are a good salesperson, all you really need to make a living is a phone, and a list of prospects. That is because it is amazingly inexpensive to design new products, manufacture them and distribute these goods anywhere in the world. The bottleneck is in getting people to learn about new products and to try them and buy them. The value proposition is in the distribution not of goods, but of knowledge that goes with the products. Applications, tech support and training are all part of this intellectual distribution model, and the professional salesperson is the intellectual distributor.

Your sales and tech support people will build one of the most important equity components in your company, namely market contact. Once you are in a market, you will be exposed to many opportunities. Your contacts will tell you their wants, you’ll see their needs and, if you are at least a little clever, you will have ideas for new products or services to solve their problems. So, what’s the best way to do market research? Sell a product. Even if it doesn’t exist yet, get into the market. Your prospects will quickly let you know what they really want.

Lack of resources is no excuse! Companies never fail due to lack of resources, they only fail due to poor management. I was in debt, getting hounded by bill collectors, and worrying about raising my infant daughters in poverty. I naturally blamed Ronald Regan, the government in general and other vague entities called “they” for my troubles. If I had said, “Well, I need a million dollars to start a company and without that money I can’t succeed” then guess where I’d be today. Your job as an entrepreneur is to succeed with what you have and to overcome whatever obstacles get in your way. Put things in perspective! If you make only the US minimum wage, you are in the top 8% income bracket in the world. That means you are at 92% of the goal of being the richest person in the world! Stop whining!

Your job as an entrepreneur is to succeed with what you have

Was I lucky? Luck is defined as being random, and what every good scientist knows is that randomness averages out over enough data points. So, I suspect I was lucky about half of the time.

Was I blessed? Absolutely. I was born in the greatest country to two loving parents. I was educated by great teachers at good schools. I went to a world class university. My fellow citizens made a faith investment in me totaling more than a million dollars, asking only that I try to succeed. I entered an industry that was highly ethical, where many people helped just because they liked us. My friends and family entrusted me with their own hard-earned wealth.

The question was never "How could I succeed." The question was "How could I possibly fail?"



I hope you found something useful in our story. A great many people helped us along the way, and I like to help others as well.

Feel free to contact me!

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The story does continue... with my new ventures into drones and agriculture and neonatal respiratory sensors and whatever challenges happen to present themselves.

God Bless!

Mike