



## Stanford eCorner

### Entrepreneurial Journeys in Healthcare (Entire Talk)

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It's not just your strengths as a leader, it's your passion, says William Hagstrom, CEO of Crescendo Bioscience, in South San Francisco, CA. He strongly advises future entrepreneurs to think of your business as a worthy crusade. Giving example with his own career, he urges those starting a company to architect their venture deeply, form a culture of excellence, and think about risk early. The culmination of his experience has redefined the role of CEO for him as way to empower others.



#### Transcript

Well, thank you for this opportunity. The title of my talk is going to be the Importance of Purpose in the Entrepreneurial Journey. And I think you'll see the significance of that as we move on. 10 years into my career, I was vice president of a billion dollar division of a \$6 billion company. Our scope included 40,000 products and seven market segments and diagnostics. On the path to this position, we had the opportunity to be involved in multiple product launches, new venture launches, turnaround and restructuring assignments. As exciting as these experiences had been in my current position, I felt the degree to which I could truly change the business, chart new courses, pursue new targets was somewhat limited. The organization I was in at that time, didn't seem to be as interested in breaking through to the next level. I was frustrated. The opportunities I had pursued previously where we could do the analysis, make the decision, move forward weren't the same today.

With this as a backdrop, I want to take you to a specific meeting, a so-called lateral coordination meeting where the heads of sales and marketing, five or six divisions were all gathered together talk about their goals, their objectives, places we could go as an organization. And as I was strenuously arguing for a new direction in how we should pursue our competitors in a different fashion, I'll never forget the break that we took after that discussion. A colleague caught me in the hall and said something that would change my life forever. His comment was, "Relax. It's only a job. It's not a crusade." And that comment hit me like a ton of bricks because to me if I was going to be investing my life, my time, it better be a crusade. It better not just be a job. Within five minutes, I gathered some of my thoughts and called a friend in the search business and eight weeks later, I was running my first company as CEO. My first experience as an entrepreneur. I want to talk about that experience in a little while.

But I want to start by saying, as you think about your life, your career, that you think about signing on to a worthy crusade, a worthy cause, something that has deep meaning and significance. The talk this afternoon, we'll talk about first the past as preparation. How 10 years in larger organization prepared me from my first entrepreneurial experience. The early journey as an entrepreneur with primary focus on a company called UroCor as well as some experience with a group I formed I called Alpha BioPartners. Then want to talk about what we're doing now, a company called Crescendo Bioscience which Tom alluded to. And then talk about lessons learned at each stage of the way. Let's begin with the past as preparation. I started with a company called Becton Dickinson as a billion dollar diagnostics and medical device company. I had the good fortune of joining a smaller division that had been recently acquired by the corporation. It specialize in the field of electrocardiography with an EKG carts would place in all different sizes and types of institution.

And behind that, there was a pull through of consumable products, as well as we offer computer interpretation of EKGs. I

had the opportunity initially to build the sales administration group to look at order processing, tracking, forecasting capabilities. And with that task behind me, begged for the opportunity to go into the marketing department to work on consumables and supplies. And there my first really interesting opportunity was to work on something that sounds very simple. It was a patient cable. How does a cable hook up to an EKG instrument and give accurate recordings? Here's what we found. We went out and work with text, that interacted with patients. When they put the block on a patient, they immediately flinched because it was cold. So, maybe there's an opportunity to do something about that. All the wires came out of one end of the block.

But yet they were all going to be placed different parts of the body anatomically. So, maybe we could realign how that happened. The texts were always dealing with tangled up cords so maybe something could be done about that. Those kinds of observations, that kind of interaction, left a real influence on me as we redesign things like that cable and then went to work on things like EKG carts. The company had previously put a really high power design firm in place. The style was fantastic but the problem was it had issues like the EKG carts didn't fit between beds in the hospital or when you try to wheel them into an elevator, the wheels got caught because they were too small with the crevasse involved. So, a lot of time was spent with the white text jacket, meeting with EKG text all across the country, learning what work, what didn't work, what they wanted accomplish. And that led to a real sense of how do you think about new product design? How do you think about innovation? And this was an opportunity that I had at a very early stage of my career to which I was very grateful. The next was being able to trained in the Becton Dickinson program which was focused on strategic management and planning, where we learned a lot about how you analyze market, how you think about relative competitive positioning and a host of other things that would be important. A fantastic early start with the career, thoroughly enjoyed it but I was recruited next by a company called American Hospital Supply.

It's a company that was acquired in 1985. So, it doesn't exist today in its current form. But back then it was an amazing place to start your career. They took young, aggressive talent and train you extraordinarily well, the best of academic programs. But then, you made the decision, you made the call. You had PNO responsibility typically very early in your career. It was an organization, it was growing 30 to 40% per year. So, it wasn't uncommon that you were in a different position every six months, every 12 months, every 18 months. And it was an environment either people did really well in or they tended to wash out in. But it was the ultimate meritocracy and it was a great place to invest time.

We had an opportunity to launch several lines of what are called hematology analyzers. They do a complete blood counts, looking at things like red blood cells, white blood cells, etc. Also have opportunities to do some other very interesting things, including work on my first turnaround on a product line level. The company have launched a series of instruments. There were \$125,000 instruments sold 75. 25 were on their way back based on performance issues. I was in Boston at the time as a region sales manager but the company called me and asked if I consider coming back to Chicago based on what launch experience we had in the hematology line early on. And it was a really interesting assignment because it afforded us the opportunity to get really close, really fast to issues or issues that weren't really that clear to start with. There were symptoms. There were vague areas of dissatisfaction.

So, we looked at every placement in the country, all 75. We looked at which ones called red, which ones were yellow and we deployed somebody to visit with everyone of those accounts, express our dissatisfaction as they weren't happy with the purchase, try to better understand what were the issues, what were the root causes. And within a period of about two months, we were able to dissect about eight different issues that needed to be remedied really quickly to be able to bring that product line further forward. As it ends up, we kept all but one of those 25 sites and systems. And it was a great experience in communicating, digging deep, reach conclusion, but reaching them not too quickly. A few years later, I had a second opportunity to be involved in a turnaround. And this was in the hematology venture with some issues that come to play and senior management was looking at shutting down the enterprise. So, with another colleague, we argued the case for how we could do some things in the near term to turn around the performance, put it on a solid footing for the future, in the long term. It was a very interesting meeting as I recall with the division president and a couple of executive vice presidents. They listened to our passionate appeal and our 20 slides or so.

And then we no comment excused us. About 50 minutes later, I was asked back in the room and in the category of being careful what you wish for, they said, "We're going to give it a shot. You got six months. You run it full time. If it's successful, you keep running it. If it's not, there's no guarantee as for your future." It was a fantastic opportunity, one I'll never forget. We worked every single part of the PNO. We looked at every different way that we could generate increased earnings and top line performance in that business. And there's a lot of things that we had to do in that time period but the bottom line, the bottom line was we're able to get it through break even the profitability in six months. And within 12 months, it was to double the division operating margin.

It was a great opportunity. Along the way, we became part of the backs to organization. Totally different cultures. They acquired American in 1985. So, those of us that were used to highly decentralized, this was an organization which was much more centralized, commanding control and to some extent frustrating if you wanted to make the call, move things further

forward. Well, following the experience I had in running that business unit for a couple of years, we had that opportunity to assume that VP of Marketing position for the scientific products division. That was the discussion that I just went through a few minutes ago that lead to my ultimate leaving the organization. And I want to share some thoughts about lessons learned in those first two or three company experiences. So, back then, as well as American Hospital Supply and at Baxter, early in the career, what were the things that we try to focus on? Things that seem to matter make a difference as it relates to preparing me to jump out into the entrepreneurial world. The first one was, take initiative.

So, we didn't play it safe. Where there were challenges, where there are issues, where there are things that failed or people didn't want to pick it up, we love picking up those kinds of assignments. And there's always the risk of failure but there's always the prospect of success as well. So, that was one of the things that was very important to me. The next was this, get in the field. Learn firsthand what's really going on with customers. How are they thinking? How are they processing information? There's something called intense observation where you're really trying to discern what they're trying to accomplish, or a different or better way to accomplish that. Learn how things really work. Map them. Analyze them.

Develop the models. I remember near the end of my Becton experience, I've taken a room of my apartment and turned it into a wardroom. There was nothing but flip charts, strings and other ways of mapping through different issues to try to figure out how something was done today, how might it be done in the future. So, a little intense. But this is something that I really believed in and serve me well over a period of time. The other one was problem solving skills. Always, always important. And there's so many so different ways to attack a problem. To think about how to come out the other side. Think about criteria waiting, what's important, whose view, whose perspective.

But being known as effective problem solver is really important. Collaborating, taking into account the idea of others. Sensitizing, moving those forward in a very productive fashion. Always being known as someone who's trying to pursue the best possible answer. Not looking at individual agendas or what's best for one group or one department or another. It matters over the long term. Broadening the experience base. The things that were important to me as I learn the strategy side, the marketing side, sales. There's something about being in front of a customer and when you think as a strategist or a marketer that this plus this should equal this. You find out in front of the customer, that often isn't the case.

So, broadening the responsibilities, thinking strategically always but then delivering tactically consistently. And a point I'm a really big believer and which is just tenacity. And the difference between success and failure is often in the last 10% of effort. So, things learned in the larger company experienced it, allowed me to move to the next phase. Let me go to that next phase, the early journey as an entrepreneur. The company UroCor was a venture backed company based on a check transfer, out of the University of Oklahoma. And the goal was that this technology would allow physicians to be able to, not only detect bladder cancer but a wide range of cancers. But the company had missed all their product development milestones, market development milestones, financial milestones and had terminated the founder CEO and was involved in three sets of litigation. So, the board was looking for a CEO to come in quickly determine what's the lay of the land, what's the path forward. This was no doubt to be a challenging assignment.

And thus far, there were no takers. We took the plunge and what an interesting challenge it was. What we thought was interesting was the opportunity to build a company, to look at a field like cancer where there were clearly a wide range of unmet medical needs. And the fact that it was a turnaround wasn't necessarily a negative to me, given that we've had experience in a couple of other areas where that was kind of an exciting aspect to be probed to pursue as well. First thing we did was evaluate the technology and we found that it wasn't something you could build a company around. So, now what? Company had nine months of cash remaining, was a technology based company that didn't have a technology. So, we began an intensive analysis about what could we do, what could we build? So, we looked at markets. We look at physician types. We looked at unmet medical needs. We started in the field of urology because the company had started in the field of bladder cancer.

We found some really interesting things. This clinician was trained as a diagnostician and a surgeon and an oncologist. So, when you think about certain cancer types, there is continuity of care between a physician and a patient. Next, they had really specific goals at every stage along the way. They wanted to detect cancer, diagnose it, prognose it, stage it, determine if they should perform surgery or deliver therapy, monitor the effect and then look for long term evidence of cure or recurrence. They accessed services from disparate sources. So, to each of those goals I just mentioned, they make it, one of those accomplished by going to local hospital, in other case to local pathologist, in other case to regional setup pathologist. And nobody was bringing all these information together. Nobody was focused on delivering levels of service or quality or advanced information that could conceivably be brought forward. It was a finite audience 7,500 docs manageable to access.

These docs made the wrong decision on what services they access. Interesting. And we went through a large stack of publications on advancing technology in the field. And we found there was some really interesting things going on and a number of academic medical centers. So, here's what we decided. We were going to build a business focus on the urologist as a specialty. Look at a range of diseases. And with the goal of working with a physician to every step of the disease process.

Bring you forward the best of existing technology and then augmenting it or supplementing it with the best of advance technologies that we would license from leading academic centers. Well, that was the strategy and it got unanimous buy in from our investors as well as the board.

So, we began the execution phase, recruited new management team that could execute that vision, build the services platform, build the laboratory at the same time. This took about another six months. While making progress, behind the scenes, litigation was advancing and had unfavorable outcome to the company. So, we had a long discussion with the board and our investors. The consensus was winning strategy, teams in place, first products launched, first customer secured. But very difficult to fund the company to the next level until the question of legal overhanging was resolved. We chose to address this collectively via financial reorganization. Address the issues, recapitalize the company. Well, this is not without risk. And so, we thought about what happens to your customers, what happens to your employees, what happens on a whole range of fronts if you put a company into a chapter 11 reorganization.

So, we thought about each of those areas. We put a simultaneous petition of reorganization and plan of organization in place and then we would just work really, really hard to come out the other end. And in 120 days, we're able to settle all claims, recapitalize the company. We retain 100% of our employee base and we in effect grew our customer base by 30%. We are now in an unencumbered path to grow the business. The phases we next look after the company, after the turn on phase was emerging growth and then advance services platforms. So, for the emerging growth phase, with basic capabilities in place, what we now look out was, how do deploy ever more reps into the field, get access to more and more physicians. More physicians means access to more patients. And how do we drive more products in. So, it was really executing against the growth model for the company.

And then in the area of advanced platforms, we really, really wanted to make a difference with patient outcomes. So, one of the projects we pursue was something we affectionately called the scroll. It was a diagram of the disease like prostate cancer. We looked at how it unfolded over a period of years. What were all the branching points? What were the decision nodes. And then we looked at, what was important to a patient, to the process? What was important to a physician? What was important to a payor? And it was by each stage, from initial detection, all the way to ultimately what might happen to a prostate cancer patient. And we focus on that document month after month after month as we build the company. Where can we innovate? Where can we add new products? Where can we add services that would be of value to our customer base? We complemented that process with a program where twice a year, every manager, every member of the senior and middle management team would spend the day with customers. It was a great experience. And we spent the time looking at what were we doing currently? What was our business relationship like? What could we do additionally that would be of value to clients.

And the day coming back and the thinking through further what were next steps where we could do were profound. We learn for example that reports that we provided the physician which were really graphical, they might show, here's a diagram of the prostate. Here are the regions of the prostate. Here's where cancer was found. Here's a photo, micrograph where the cancer cells and tissue look like. It was a bibliography to tie to the literature base of similar type cases. Very information rich. While they were sharing those reports with their patients. So, we said, "Why don't we develop a second page of the report that's written in patient language that you can share?" It's a tremendous advancement and I'll never forget one of our top physicians said, "Your reports make me look brilliant in front of my patients. They absolutely love the care and attention that they get and the specificity." So, examples of listening to your customer and thinking carefully about the disease and where you can leave are a difference.

Try to fast forward over the next several years in our business, we grow from 10 to over 400 employees. We provided services ultimately to 40% of all urologists in United States. We were Inc. 500 company, 1992, 1993, 94 and 95 for our growth rate. And we transitioned from four rounds of private capital to public company in 1996. Great learning experience. Absolutely loved it. Incredible journey. But I thought I would do that for maybe five years. Five years become six years become seven years becomes, maybe close to eight years.

I had the feeling that I wanted to do something new, something different. And there was also this constant assessing of one's skills, the contribution, what impact they could have on the organization. There was something very distinct in the context of company lifecycles and where are you in that overall process. And as the business grow to \$50 million and there was a lot of focus on systems, processes, control versus some of the things that I was much more interested in. There's this great article in Inc. Magazine that caught my attention from serial entrepreneur, and it said, "There comes a time when you realize the business needs something you can't give it. At the same time, you need something the business can't give you." Maybe it's that energy. Maybe it's what it was like at the time of the startup. But in any event, to me, it spoke loudly to, I want to be transitioning on to the next thing. That meant putting a plan into place such that within 12 or so months, I could leave, I could move on.

And so exactly 10 years to the day of when I walk to the door of my first entrepreneurial experience, I announced I was

leaving. And reflecting back on that company experience for 10 years, there's a lot of things to think back on. There's a lot of things to maybe be proud of. But I think the things that were most impactful were we believe we helped transformed a field by providing more insightful tools and capabilities to physicians to improve patient outcomes. And as a result of that, there maybe patients alive today that wouldn't otherwise be. And to me, this was a cause, this was a crusade we're signing onto. So, let me take a couple minutes to talk about things learned in that first 10 years as an entrepreneur. So, there are things we learned in big companies. And you'll see really different things when we talk about this slide. And you'll see really different things when I get to my third slide later.

It's just integration of the strategy. How it ties to a business model, the efficiency of the business model. What your growth matrix are and financials. They've got to be ultimately extraordinarily integrated and all work together to spell success. There's great complexity in this field tree. You've got clinical or medical dimensions and considerations with advance scientific insight. Biology, let's say it work in patients and then a wide range of technical dimension that come into play. And it's especially critical for the CEO to understand what are these concepts and how this concepts integrate. You can't just delegate these things. You've got to have pretty good understanding at your level.

There's just extreme need for multitasking. Unlike anything I saw in the larger company experience. I've got my big three, four, five raises for the year maybe in a big company and staff of 80 people. So, here, we're a group of 8 to 10 people and there's an amazing range of things that have to be happening. And if anyone of those fall down, it might mean death of the company. And at the same time, there's very limited margin for error. So, you've got to be right on almost all the decisions that you make. Particularly when you are really under the gun as we were, 60 days to find whether there's business here or we should shut down because the technology didn't get us there. The importance of culture, focus on patients is something really, really important. There's all kinds of things you could try to gear people towards.

And that can range from, "Where going to build a company. We're going to take it public and people are going to make a lot of money." To me that doesn't cut it. The fact that we're going to build a company that's going to change a field and we're going to improve patient outcome survival, that's something to sign on to. And in fact, I recall that the deciding factor for me in hiring the chief medical officer, I did was, this was a person who lost his father and his mother to cancer. So, it was personal. It mattered to him. We have a lot of people like that. Power of team interactions, collaborative impact, removing barriers along the way. This is great exercise we did one time. We had about 20 of us sitting around the room and each of us were given 21 questions to solve or problems to solve.

Nobody got more than 10 or 12 right. We then broke into teams. Not one team got more than 18 right. It wasn't until we all got together, we got 21 right. These were some of the brightest people, MDs PhDs, MBAs and otherwise. But in last week, let our barriers down and really worked together collectively, we wouldn't get as far as we could. Leadership needs to be acted out and not just talked about. This is a lesson I learned really after the fact. We went through those dark times of putting a company through a financial reorganization. And I commented that not a single person left in that period.

I didn't know till later when someone told me, "Because you were confident, because you didn't waiver, we didn't leave." So, that was something you had to act on because you really, really believe it. It wasn't something you could just talk about. The importance of vision for the long term balance with deliverables. This was something I had to learn on more than one occasion. I love vision and the strategy side of things. And if you don't have a vision, you don't really have a future. But if you don't deliver in the near term, you never get a chance to live out the vision. And then this understanding of company lifecycles. Different things need to be in place at different stages. You recruit certain people.

At some stages, you won't get other stages. Or some people want to leave once it gets to a certain stage. So, understanding that's important. So, to the path of the current. Because I'm running tighter in time than I thought. I'm going to skip one section and then go right to more recent. So, about four or five years ago, with a colleague, I formed a group called Alpha BioPartners. And our goal is to look at promising science and technology. Really early stage science and technology and try to decide which of those have a promising commercial pathway. We would do a really large body of work.

We look at markets. We look at existing products. We look at technology waves. We would look at additional proof of concept studies that were necessary. If it was a drug? What kind of studies were required to get it to IND stage? What kind of clinical trials will be required? If it was a drug compound, what would it take to make it? How much was it like to the cost to make it to scale? What would be human dosing? What would be cost of goods? What would pricing look like? Just a wide range of things with the idea to make companies that will ultimately form as strong as possible by answering the right questions upfront as opposed to learning about things further downstream which we would have seen time after time after time. So, we have the opportunity to work on things and the microbial as well as diseases like ulcer or Crohn's disease. But the company I'm running right now Crescendo Bioscience, came out of that effort as well. And that's where I'd like to spend the next little while. The founding scientist spent five years at the National Institute of Health, Arthritis branch. A very knowledgeable disease pathology.

Biomarker technology applications was at the Oklahoma Medical Research Foundation which is a powerhouse in autoimmunity. Mike was passionate about his desire to transform that knowledge, that insight, those biomarker insights into products that would make a difference with patients. And for him, it was personal. Mike is an autoimmune patient from an autoimmune family. So, what we do matters. So, success is measured a little bit differently. So again, when I would think about what was something I'd be willing to sign on to that really would make a difference, Mike's approach, Mike's commitment mattered to me. By after about 12 months of work. This kind of exhaustive process that I went through, I would show the company to three VCs here in the Bay Area and we're pleased that three of them liked the deal and worked the deal. And while all three were working the deal, Moore David our MDV was really fast.

First meeting the term sheet in eight weeks. Great negotiation on the terms. The only two that were particularly interesting to take about were that I would do this full time and we will put the company here in the Bay Area. So, those were kind of interesting considerations but I love the opportunity. And the more I kept looking at the opportunity, peeling through it, the market, the opportunity I might need, the more we really, really wanted to be involved. And the fact that Mike would be a key part of that as well, on the science side was a real positive. So, we close the Series A in early 2007. Mid 2008, we close Series B. And that was led by Kleiner Perkins. So, great couple of investors.

Both really experienced in molecular diagnostics and personalize medicine which is the field that we're in. So, I'd like to talk you through a few points of what we're up to. These are some things that Anna, Rob and others had an opportunity to see when they came by the company. So, we be considered in the field of molecular diagnostics. We're solely focused in the field of rheumatology. And you're going to see some parallels to some other things. And in fact, when I meet Michael Goldberg from MDV, I said, "Here's what we want to do. We want to take the best of what we learned and the specialty specific play where we got to understand the disease really well. Combine it with the best what we seen, with technology driven company on molecular diagnostic side and bring those together." So, autoimmune inflammatory diseases. There are wide range of those.

But the ones that we will focus on initially, rheumatoid arthritis. We'll be technologically agnostic. We're trying to solve a problem. What need does a physician have at a given point in time in managing a patient? So, we have several forms of technology that we're working with. And then we'll build the technical specialist organization. We'll call directly on rheumatologist, all across the country. We'll deliver our products as a service. So, a doc has a patient in their office. He had there a serum specimen, send it to us. We do an analysis.

We send back the test result. So, the area that we focused on rheumatoid arthritis. 500 individuals per day are given a diagnosis of RA. There's 1.4 million patients with this disease. This isn't regular arthritis. This is rheumatoid arthritis. It's an autoimmune disease. The body is attacking itself. It's a disease marked by systematic, longstanding inflammation with accompany damage and most frequently erosions that led to structural damage and disability. Four out of five patients, 10 years after diagnosis of RA are the workforce.

It affects a population that's 75% female and average age of onset is 47. And there are significant comorbidities cardiovascular diseases and complications among others. So, to that opportunity, what are the tools? Well, they're pretty terrible. They're none specific. They don't provide inside as to what's happening with the biology. They're really more based on signs and symptoms. The physician really wants to know, what's happening with that inflammation? Is the patient heading towards clinical remission? What's happening with erosion and joint space nearing? Is that patient heading towards radiographic remission? And because the tools are so insensitive and inadequate, you get back to this age old statement, "You cannot manage that which you cannot measure." So, what's our solution? We want to transform the field by turning the lights on at the individual patient level to reveal their underlying disease biology. And we'll do that by integrating a large number of biomarkers with algorithms that tell a physician more what's going on with the patient. It's clear that in a disease as complex as this, one biomarker, two biomarkers whatever won't provide the answer. And as we do that, we can deliver quantitative objective reproducible tools and tell a physician, well, what's going on with disease activity trajectory erosions, etc.

Another mind boggling aspect about this marketplace is that there are over \$6 billion dollars worth of biological therapies being used on these patients. And no doc would say that they have a tool that tells them which patient, which drug, which dose is 12 months of trial and error. So, the opportunity as we see it. Look at multiple products over a period of time that can be delivered for that physician to access, to dial in what's going on with the patient, get them into clinical remission, get them into radiographic remission. To do that, we have some really efficient ways of screening through mass of numbers of biomarkers determining which ones have motility, which ones provide the most information as we go forward. There's a lot of complication capability. It's a very strong bioinformatics aspect in all of what we do. And biology modeling is very important as well. I'm thinking about clinical pathway model which was something that we had a very special project to work on recently. So for us, it's not just about delivering a product.

We want to understand the biology today and longstanding. We want to understand what's happening clinically with patients and how we can gather more and more information, present that back to the field. So, the business itself is extremely efficient. You call on 3,500 docs that manage 1.4 million patients that are being seen up to four times per year. It's highly

leveraged. Very effective business model. So, that's a little bit of what we're doing at Crescendo Bioscience today. So, lessons learned. Now, is the serial entrepreneur. So, this gets a little longer, a little bit more dense packed as we go further forward.

So, this was a really interesting preparation for this talk because some of this had really focused on as much. But they're really interesting. So, now when you think about these things, you architect it much more deeply upfront. You think more about all the variables that could come into play. How are you going to have them all linked together, this market to model to financial to capital formation to capital efficiency. There's a lot more thinking you do before you actually start acting or executing. And you think about, how can that model be even tighter, even more efficient as you move further forward. And you think about risk a lot. Risk is a good thing to think about. A lot of people have the perception that entrepreneurship is all about taking risk.

In actuality, it's about how to minimize the risk. You do that by thinking ahead, having really smart people, going through your work two or three times. So, it's looking at risk early, where it's going to come up midstream, where it's going to come up late, redundancy reflexive pathways etc. Really, really important. And the culture, still patient, still focused on the patient. The patient matters. The physician matters. That's what we really here for. And then thinking in terms of excellence. We did a survey on our culture recently.

And there's a great statement somebody made and said, "Everybody in this company thinks like a scientist even if they're not." With people in the commercial group, advance statistical analysis and how to think about market penetration models and so many other parts of the organization, I could go on. But I was thinking about the best techniques, the best approach that could be brought to their collaboration, best idea. Biased towards new approaches and innovation. And then even more, the focus on talent. A plus talent, whose been through the drill before? And I really like the one of, whose lived through new paradigms? We're dealing in the field of medicine, when you're trying to change physician behavior, doing something different, it's great to do that with people that have been through one paradigm, two paradigms, three paradigms because this where companies oftentimes fail. The other thing is we think much more now about, not just the top level of the organization but two levels and depth and breadth being really well addressed as early as possible. Leadership that's more based on direction and empowerment. So, there's different leadership models so-called level four, level five, servant leadership, transformational leadership. So, I think about those things differently now than I did back when I was just trying to fight my way to live another day and building a company like UroCor where it look like there might not even be a tomorrow. So, thinking about leadership differently.

Programs. They're broader, with greater impact in multiple waves. See, architect more, you muscle build it, more talent. And then your programs are stouter by why of what your advancing simultaneously. So that you have greater impact. You have multiple waves right behind it. And then, not just being able to sensitize, as I was describing it before, clinically, scientifically, technically, at all levels of the organization. But it's building a cadre of experts. Three, five, seven or more in each area that's going to be important too. And the last thing, it seems pretty obvious but building enough time to think, to reflect, to not have things moving so quickly that you're missing important opportunities as you're moving forward.

So, a full talk, a long talk. My goal has been twofold really. To describe the journey of an entrepreneur through multiple stages, large companies, first time through the cycle, second time through the cycle on a full time deal. And I wanted to emphasize as we go forward that what you focus on, how you approach it, matters. Thinking about more than just signing on to something but signing on to something that's important. Something that's a cause, something that you can define as a crusade makes a difference. So, with that, I'll say thank you. And I'll open it up to questions. So, William thank you for coming and as some of you know, I'm Steve Blank. I teach the MS&E278 class, the Spirit of Entrepreneurship that surrounds the ETL lectures.

And our class gets to ask the first couple of questions. And we're lucky today to also have William, is going to be able to join us in our classroom as well. So, William, the first question that just kind of struck me, as you were kind of going through your history, can you think back to the day you realized you were an entrepreneur? Was there like a light bulb? That's a great question. So, that first line of hematology system, I had the chance to launch was from a venture backed company in Mountain View and I was in Chicago at the time. And the interacting with the management team and just the rush of what was going on there and the pace and the intensity, I was definitely intrigued. So, what was it an endorphin actively? It's hard to fully describe but endorphin was certainly part of it as well. I just love making things happen, making them happen quickly in a really efficient process. And bigger companies have their own, kind of plotting aspect to them. Great. And then next question I'm going to get wrong because I'm not a biotech kind of guy, I'm a computer hardware guy.

But to me, diagnostics sounds different than a therapeutic drug like a cancer cure, is there a major difference on how you interact with the FDA for something that's a diagnostic versus something that will go in your body? And if so, what's the short version of ...? Yeah, it's very different. There's definitely a long version but the short version if you're dealing with a drug, there's pre IND package that needs to be submitted. What's an IND? Investigation New Drug application. So, the IND goes on, allows you to do phase one testing which is looking at safety. So, is the drug safe? Next thing you're doing is looking at first test of efficacy, that's phase two. And then you're powering up further to phase three to test efficacy at a higher level. That could be a very long process. It can take somewhere between 5 and 10 years depending on the drug. What's the end point? And a

whole host of other things. And diagnostics, it can be much quicker.

There's something called the 510(k) process where you show substantial equivalents to something else that's out there and you might be through the overall cycle in 90 to 120 days. Conversely, if it's something brand new, you might have to go through a PMA, a pre-market authorization and that can take one to two years. So, there's very different paths, very different parts of the agency with a lot of different considerations. Well, thank you. And so, with that I'll open it up to the class and the audience. And you can just take questions from people who ask them. When you're interacting with the doctors and getting their feedback on this new diagnostics, did you find it was difficult to put in the new methodologies. Like teaching an old dog new tricks or are they very willing to change at how they've been trained through diagnostics and oncology and ...? Great question. And so, the question was, when you're looking at new test for doctors, do they accept them or do they sometimes have some skepticism? And it really varies by specialty. One of the things we love about rheumatology was the specialty was so open to new approaches and that the field was so far behind others.

And they had to rely so much on gestalt as opposed to having specific tools. We just found it to be a wide open audience, willing to collaborate, willing to look at new ideas. But that's generally not the case, that's the exception. Yes? So, I saw in your bio that your degree is actually, I believe Business Management? I'm wondering, how did you learn all this tech bio stuff? Just brute force more than anything else. So, yeah I had undergraduate Business Management. I wasn't trained in the Life Sciences. So, this clinical, scientific and technical aspects, these are just things that we committed to learn in whatever venture we were involved in at a level of proficiency where we could be conversant with scientist or MBs or whatever the case was. Maybe not always something that somebody in a leadership position does. I would have to say, I just also really have a passion and a love to learn. So, it didn't feel like work a lot of times either.

Question. Was there an element in the status quo that felt threatened by your innovations? And how did you interface with that? So, the question is, are some threatened by innovations? And it really depends, I think that's an important part of trying to understand what somebody is trying to accomplish and what can you do for them that takes a little further down the path. For example, in this rheumatology venture, we noted that they were going through these really thick folders. These are patients they've seen many times. And you can kind of see they're visually trying to construct different data points in a particular order to get a complete picture. And so, if you said to them, "Would you like a report that characterize everything that's happened up to now and everything is going on right now etc?" You'd probably get a, "Wow. That's great." Based on, if you can show how you're trying to maybe solve a problem. If you push something on them like a healthcare medical record, from the perspective of they do the work to get the benefit, you probably have a very different response. So, I also try to find ways where you could help them accomplish something in a way that's painless and might add another twist or two on top of even what they were thinking about. Yeah, in the previous question about learning the field.

Do you have any advice for those seeking to get into the health care business? And, but moreover, how do you learn how what to do better than the actual doctor themselves? So, the question is, for those who want to get into the medical field, how do you learn it? And also, how do you learn to do these better than the doctor themselves? That one is really tricky one. So, let me tell you some of what we did. So, we first framed rheumatoid arthritis out clinically. We construct kind of this care and medical practice model with experts in what's called med extraction from the literature. And then we talked to docs about, "When you have a patient right here, what are you doing? What are you thinking? What tools do you have? How do you feel about that need being satisfied? Do you feel really confident?" When you hear things from them like, "I need a tool to give me confidence to do such and such where I need a test to allow me to convince a patient we need to take a particular course of action." You know you're kind of on to something. So, we do the one on one to try to tease these things out. We'll characterize them a little bit further. Maybe then, we'll do focus groups, 10, 15 physicians in a room. We'll boil it down a little bit further, tighten it up. And then we might do quantitative market research.

So, conjoint analysis. So, we define certain product attributes, degree of satisfaction and we try to really nail how you would need to build a product and deliver it to them and test it to see if that's something that they would adopt and adopt to what kinds of patients. So, it's a variety of steps that one would take. Yes? I was curious any specific diagnostic tool, how does this really plug into the cost equation? A lot more information and a lot more, I guess that could lead to some cost. But I was curious how this plays. Is this going to be an added cost or is it going to allow you to be sort of the doctor's offset? This is really important to look at. So, the question, are costs additive? Or how do you look at that in the healthcare system? I kind of paraphrase it. So, that's really, really important. So, some of the things that we look at were, if you have a patient that's relatively in control at the end of a 24 month time period. And in this disease, 24 months can really help set the trajectory for the long term.

A patient that's in control might cost the system only a few thousand dollars per year, longer term. Patient that's not in control 20, 25, 30,000 plus. So, to the extent that you can show that you can move percentage of patients towards control versus lack of control and then you run some cost effectiveness calculations, you can get there. But we do a better work on modeling health economics as well as serving payors for their thoughts and views. It's also interesting in rheumatology that

drug cost has gone from zero basically in 2000 to 6 billion currently. And they're struggling with that. So, which patients really need which drug, which dosage etc. It's something they're very desirous of better solutions for. Yes? So, there's lots of different types of entrepreneurs, both what they do and what kind of persons they are. So, what specifically did you do when you were first starting out in companies? And how would you characterize yourself as a leader? So, how did I get up to speed as an entrepreneur? I know I think of myself as a leader.

So, how do I think of myself? There are a number of ways that you can better understand your strengths and your skills. And I would like to have cover that and I did. So, there's these things like Myers Briggs. So, I study Myers Briggs and so I'm more of an INTP. So, I'm fairly intense. I'm more analytical. I'm more inward. I love to think about a wide range of different possibilities. That's part of my makeup. You can do something like strengths finders.

And so there, I would test high in vision, strategy, analysis, innovation and deliberation. So, there's a series of things that you can do but it's really important to know yourself because you can't force a style that doesn't work for you. And there is no one size fits all. So, I then try to accent the skill and strategy vision global thinking, how something might work, how the pieces fit together. I also am told I'm reasonably good at building team. So, I try to focus on building team with the best possible talent I can. And now it's set direction and empower them and make sure that they have all what they need to be as successful as possible. And of course, correct were necessary. But knowing yourself, knowing your strengths, knowing your skills, complimenting really important. I would say, it's not just your strengths, it's your passion.

There's something you would just love. I love innovation. So, if I'm not given a chance to innovate every now and again, I'm not going to be as happy. There's also that part of Mark Buckingham's work that talks about knowing your strength and how do you live, how do you look at time blocks and how much of the time we're actually living to what you're really good at. I think I guess the last thing I would say, is that at a certain point, you realize that I may never be good in a particular area and I could try to keep getting better there but I might be better off just saying, I need a person that can do that really well because that's there strength so I can just focus on what I'm best at. Yes? You mentioned in your third point, you said leadership based on direction and empowerment. What do you mean by empowerment? Yeah. So, early on, I used to get really, really down into the details of things. And so, how does this work, this program, this detail? How is it going to work etc? And now, I'll be more focused on finding somebody that's as strong or stronger in some of those areas. For example, I have a head of commercial that's absolutely fantastic.

So, the best thing I can do with Ted is give him my best thoughts and my experiences I've seen. And let him sensitize that and integrate it with his strengths, his skills and his experiences. So, that's an example. And if you can build a team where you've got a number of those kinds of individuals, you're really going to be moving fast. One more question? Last question. You a lot about how easy was it turning around for small business to buy and sell it? And how did you overcome the symptoms? So, the part I didn't mention was that the company we built in neurology was located in Oklahoma. So, I have a whole talk kind of I'm building businesses in a region with no industry specific infrastructure and it's really tough. So, we had to ultimately bring in 20 MDs, PhDs and members of senior management team. Recruited one at a time with relocation recruiting dollars. So, it was really difficult.

And compounding that was that there was a turnaround. And so, you had to really believe in what you're selling as it relates to, this is where we're going. This is what's going to happen. And people will assess whether you're really there or not. And they're going to factor decision based on that. So, your conviction, your passion, your ability to credibly tell a story is important. It's not to say, "Don't explain the rest" because you got to explain the rest of the people too. They got to be eyes wide open. So, William, thank you very much.