



Stanford eCorner

Entrepreneurship Gives Life Meaning [Entire Talk]

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David Friedberg, CEO of The Climate Corporation (formerly WeatherBill), discusses the startup process and the challenges faced during the development of his innovative technology company that is changing the insurance sector. Friedberg explores essential components in the entrepreneurial experience, including the need to solve real problems, making meaningful impact, and the value of embracing the grind required in reaching success.



Transcript

Without further ado, David. Thank you. Hi. Thanks for coming in the rain. You know the weather can have an impact on how things turn out and I'm glad that we had a great turnout here today. I start it out with a picture of the greatest entrepreneur that never lived, Willy Wonka, so we have a fond appreciation for him. When I was asked to give a talk about entrepreneurship, it sort of got me thinking along the lines of, you know, well, I've never thought of myself as an entrepreneur. People sort of use that term a lot and it's bandied about that entrepreneurship is like a career. It's like something you decide you're going to do. And a lot of people say, I'm a serial entrepreneur, I'm going to go do entrepreneurial stuff and so it got me thinking about, well, why do I not feel that way and what is it about what I do that makes me say I'm not an entrepreneur.

So I tried to sort of put together some of those thoughts and put together some of the things that I feel I've learnt in starting this company and I hope that it helps frame things. So just by way of - important to have an agenda - I've learnt over the last couple of years, it's important to be organized. So I've tried to - Greg works with me, so he knows it's something I've had to work on. So I'm going to talk a little bit about my background, a little bit about the company that we started about five years ago called WeatherBill, and then there are sort of some learnings about entrepreneurship and some ways that I like to think about entrepreneurship now that I thought I'd share with you. So I was born in South Africa and Cape Town is where I spent my youth. When I was six years old, my parents and my sister and I moved to United States. At the time in 1986 when we moved, a partite was ending in South Africa and for those who aren't familiar with the history, a lot of folks left the country. My parents' family, all - both sides of the family, everyone seemed to move to London. It's a popular place to find oneself after South Africa. And my parents set out on what I would call sort of their entrepreneurial conquest, which was to become big filmmakers in Hollywood.

So they were filmmakers in South Africa, work for the public television station there. And they wanted to go in and have a shot at making it big. So they took my sister and I, and we moved to Los Angeles when I was six years old. When we moved, in 1984, my - the first Macintosh computer came out and my dad had bought one of the first Macs made available in South Africa and he used MacPaint and old ImageWriter printer to print up a sign that said 'Go for Gold'. And he took the sign and he put it up in my mom's editing room where she edited her films and that sign is out there as sort of a reminder that they made this big change in their life when they were young with two young kids in tow, and no money to make it happen to come to LA and try and go for their dreams, and try and make a new life for themselves. And I'm assuming I haven't really delved too much into it, but I'm assuming there was some sort of relationship between my parents' attitude towards making life decisions and what I ended up doing in my life later on. So when I grow up in Hollywood, you know I went to the school with all the Hollywood kids, but we didn't have a lot of money and there is a lot of unemployment and my parents struggled in Hollywood as a lot of independent filmmakers do over the years. And I was always sort of the kid at school who didn't really have the ability to afford

all the things that the other kids could. I always thought a little bit constrained, a little bit as an outsider and not very socially well adjusted. And it was sort of when I was 16 years old that I got my first opportunity to leave and get out of there and try and change my life.

I've realized looking back that was sort of why I ended up leaving. I went to Upstate New York to a school for a year where I actually got a job working in a pool hall and the owner of the pool hall was really big into playing poker and I started playing poker with him and a local bookie that ran the books for all the sports betting in Upstate New York, it was a really funny experience at 16 years old to go through with this. I ended up coming back to California and starting a program at Cal, I majored in astrophysics. And since I was a young kid I always said when I was a young kid, I want to understand the secrets of the universe. I want to unlock and understand why things work the way they do? And I know there is a lot of engineering students in here and I've got to imagine there is a hint of a motivation in each one of you that says why are things the way they are? What makes them work? And for me the biggest problems, the biggest questions that had never been answered are found in cosmology and in astrophysics and this is what sort of drove me to go get my degree in astrophysics. And while I was at school, I got a job as an undergrad doing some work at Lawrence Berkeley Labs and it's sort of like getting inside the sausage factory. When you work at these Department of Energy labs, you really see sort of what is it about the scientific breakthroughs that people win Nobel prizes for, how does it all work? And I know that there is probably some folks here who might work at SLACK or might have some experience similarly. But I always thought as a kid fantastically like Albert Einstein sat in a room and with a piece of paper and a pencil he solved the secrets of universe and wrote the general theory of relativity. That's how it works, right? No, there is a machine and it takes forever and there is thousands of people involved and the degree of impact at which and the pace at which things progressed, I found frustrating and I realized it's not the life I wanted to live. While I was an undergrad in 1998 to 2000 there was this dotcom bubble going on and it might be read about in the history books nowadays, I'm really surprised because I walk in I feel old.

And so like this was 10 years ago when I graduated, but - so at the time the dotcom bubble was going on and I'd start to read the Wall Street Journal. I thought it was really interesting, like these crazy ideas coming out of Silicon Valley and people are doing crazy stuff and they're seemingly changing the world. The world is changing before my very eyes and around the world in which I live and I read these stories in the Wall Street Journal, I remember I love the marketplace section because it was like profiles of people doing cool stuff. And I thought this is what I want to do. Rather than sit in the dark room and just be part of a cog in a machine that was going to take forever to output some theory that may or may not be disproven 50 years later, I wanted to be able to go out and do something that was impactful and would have lasting change in the world and I could control my own destiny, I could make that happen in the time that I live on this earth. And it was really exciting to me. Towards the end of my undergrad career, so I said I want to go and do technology stuff and I want to go do the Silicon Valley stuff. So towards the end of my career, it became clear this dotcom bubble was blowing up and there were all sorts of problems in Silicon Valley and around that time I got a job in investment banking when I graduated. Because that was like the one thing that seem like oh, it's a good job, you can actually make a - that's The Secret of My Success, Michael J. Fox.

The - that's the one job that everyone sort of say that's a good profile job, you will learn a lot about how technology works, so I was doing technology investment banking, we basically advice companies on acquisitions and when I started there was 11 people in my investment banking analyst class, and two years later there were only two of us left. It was like the great contraction, I'd call it, of Silicon Valley that I got to sit through and watch dozens of companies and I worked on about 20 acquisitions at the time, and I got to feel these companies and sort of the CEO that started these things and the failures that they went through and the challenges and they are selling these companies off because it's a frenzy and it's a disaster and so on and so forth. Then I did a little work in private equity and during the time I was focused on finding investments to make an online advertising company. So it was really cool, I got to see all these different businesses and how they worked and how they operated and I learnt a lot about Google at the time and how Google was doing when it was a growing-up company. There's about less than 1,000 people there at the time. There was clearly a future in front of it, it was still a private company, very secretive, but there is a good understanding of sort of what was going on there. And they were forming a corporate development team, and so I took advantage of the opportunity and joined because let's see how a business works. This is something that's interesting and exciting and I've never actually worked at a company and see how these companies work. And the exciting part about private equity was you could invest in these businesses and see them grow. Well now you could actually be a part of it, so that's why I made the move to Google and I learnt more in Google than I did at any other point in my career, in my life for that matter because there was so much going on, by the time I left Google there was over 10,000 people.

And I left Google to start WeatherBill. So let me tell you the story. In 2002 I used to drive past the - down the Embarcadero to get on the 280 to go to work. Sorry, to get on the 280 then 101 to go to work in Foster City. I mean it's a drive past this place called The Bike Hut, it's right next to AT&TPark on the Embarcadero. And they rent bicycles to tourists and they ride them around on the waterfront. And at the time when I was doing investment banking, you know, I was learning about finance and I was learning about business and how managers think about their P&L and their operating and their income statements and so on. And every day it was raining, The Bike Hut would be closed. So the guy wouldn't even come in and open up shop because tourists aren't renting bikes and riding around in the rain. So the dude didn't even show up to work.

And I thought that's a pretty crappy business, like whether or not this guy is going to make money in a given month it's based on how many days it rains. And so you start to think well that's actually a big problem. Do you ever go to the movie theater on a Sunday when it's raining? There's like so many people in the movie theatre and the coffee shops are packed when it's raining. No one goes to the ski resorts when it's warm and it hasn't snowed. So like you start to think about it and it turns out that - and I love the statistic, this is our big number, the 70% of businesses are affected by the weather every year. So years later when I was at Google, I came back to this idea about sort of all the world's businesses affected by the weather, maybe there is something they can do about it. And we can sell coverage to pay them if bad weather happens, making it easier for them to run and manage their businesses. 70% of the world's businesses, you know, \$4 trillion of the GDP in the United States each year and at the time I was working at Google, working on AdWords and this idea of sort of taking lots of data and being able to extract signal from it and determine some sort of fee or charge that one would make to a customer in the case of Google advertisers could apply here. We could analyze weather data, we could determine the probability of future weather events occurring and we could sell you coverage that would pay you if bad weather were to happen to your business. And so if you know that the bad weather is going to cause a loss of \$100, well then you want to get paid \$100 when that bad weather happens.

And so we will give you a price to cover that because we will be able to figure out the probable - the probability of that event occurring and we will charge you an appropriate charge to cover you. And there's no claims process or proof of loss because we can monitor the weather, there is all these data feeds available now. So choose a weather station where we have a data feed and we will monitor the weather automatically and we will trigger a check to you if it happens. So big problem, huge global market opportunity. The first step was building a basic sort of prototype. So this was our first prototype, can you see that okay? Yeah, cool. It's pretty good looking website. So I wrote a prototype - the first thing I did was buy some weather data. So you got to - we bought some weather data for about 200 stations and we got availability on feeds into those 200 weather stations. So we can now monitor 200 weather stations and we knew what the history was going back 30 years.

And so the first pricing engine was written in R. Everyone here are familiar with R, right, so it's like open source, you can thread a Java Connector and then you can write a front-end app, now you've got a website that uses R to price stuff. And so we were able to use the data that we had bought and so when you typed in the dates of coverage you wanted and choose your weather station and say what do you want to get paid for? I want to get paid \$1,000 every day it rains more than a quarter inch as measured at the Stanford Campus. So we would take the appropriate weather data, look at the last 30 years of history, get a distribution, fit a distribution model to the empirical data and we will be able to use that to calculate the expected loss on that product and be able to figure out what we should charge you to cover you against that occurring. So that was the very simplistic prototype and we could use that to then go and ask people for money to start this business. So the first guy to give us money was a guy named Danny Rimer who works at a venture fund called Index Ventures. He wrote us a check for \$300,000 which I then was able to quit Google and go and say comfortable enough to do this. And when I quit Google I left a lot of stock on the table and a lot of money behind and I didn't have a lot of money at the time and it was kind of like, well, you know, why not, like let's just take advantage of this opportunity we have in life and when you're presented with opportunities where you feel you can make a really big impact, it's worth doing it in light of the sort of comfort of not doing it. So the first step was to raise more money because \$300,000 was enough to get things going, but to hire folks to work for us and try and recruit them we needed to raise a Series A round or a seed round of funding from angel investors. So we went across the Silicon Valley, Sand Hill Road and all the VCs that we met with said no, including some who are now investors in the company many years later.

You can never hold a grudge in Silicon Valley. There is always smile and say I will take your check, thank you very much. So we completely failed at raising money. Because when we went to these VCs they were like, we are going to start this business that pays people for bad weather and they can choose the weather they want to get paid for and we will figure out the probability and we will cover them. Like that is not an X for Y business. I call them X for Y, it's like Groupon for moms, like it's a lot easier for people to understand something in the context of how they're already operating when the context of other business models are in the context of how things operate today. So to sort of come at this from a fundamental problem with what we think is a good technology solution was sort of a little bit challenging to sell. And granted, we probably weren't doing a good job selling at the time and over time we refined the pitch and we refined the story and this is a completely greenfield, no one knows what's going to happen with what we're doing. So luckily I knew a lot of people that had a lot of money because I had worked at Google and company had gone public and people had done well. So I raised money from them.

And so we raised about \$2 million from what I would call angel investor friends and we started this thing and later on Index Ventures and NEA gave us another \$2 million note and we sort of - we are able to start hiring people. So this was our launch. We launched in January of 2007, this is the best picture I could find. I did a Google image search for phone booth in the middle of a field because that sort of what it felt like, right. We did this great big build, right. We were like 24x7, no sleep for months before we launched in January of 2007. And the idea was we would put that great website you just saw, made it available to the world and the 70% of businesses that had problems with the weather or were exposed to the weather would all show up and they would finally say, finally I'm a lemonade stand owner, I've always wanted to buy this product, I'm still glad you put the

WeatherBill website up. Let me pull out my credit card. And they would start buying stuff. So no one bought.

At the time we also had to do a lot of learning about regulatory stuff. So we met with the CFTC and lawyers and we're like we didn't have insurance paper, that's a whole another multi day lecture about how insurance works. And it's a painful lesson we have all had to learn, but we wrote these products as derivative contracts. Over the counter derivatives, the thing that blew up the economy, that sort of what everyone calls it now. But at the time it was like efficient stuff. So we used these over the counter derivatives, and we had to figure out how to make all this stuff work. So there was a lot of plumbing involved in pulling this whole business together with a big sort of launch out to the world. We moved from 200 stations to 400 stations. So, now you could measure the weather at 400 different places, it's amazing. We went to industry conferences and learnt about what was going on in the weather-derivatives market, which is used by energy companies and so on and so forth.

So, in that first year, after no one came to the website to buy coverage, I was sort of along with the rest of our early team of endeavurers, pioneers, cold calling businesses in all these different industries, like why aren't you buying, so, hey, Mr. Construction Company, doesn't it cause delays in your operations when it rains or hey, Mr. Farmer like if there is a freeze, you're going to lose your entire citrus crop, right? And you start to end up in these consultative dialogs with these potential customers. And cold calling was something that I would say is sort of a critical, something you shouldn't be afraid to do if you're dealing with customers because you're going to have to do it to understand what your customers want. So, through this process we realized, well, there are people that want this and we're able to close some sales, but every single one of them we're having to say, well, tell me the weather that affects you, and then they'll give you whole story, then you do an analysis for them and then you run the price. So, we were using our own website to sell products to people that wouldn't go to our website because there was a whole bunch of handholding and positioning and the technology work, but at the end of the day we hadn't productized yet. We clearly just had a proof-of-technology. So, the next year we ended up being - what was the guy, that Yahoo! Peanut Butter - we were like spread very thin. So, we were trying to sell into all these different markets, travel companies, energy companies, how do we make this thing work, like can we get travel companies to give rain free guarantees to all their customers you know, negotiations getting on planes flying back and forth, meeting with all the online travel agencies. We almost got a deal.

We're almost there. That's not really going to work. So, we've got to back off of that market. Ski resorts, you know, can we get all those ski resorts to buy, well, we make snow and people will show up, we'll make money other way as well. So, we learnt a lot about customers in different markets, but we didn't get deep enough to provide a solution to a customer at any given market. So, in 2009, we made the decision to focus the entire business around agriculture. And we're really lucky that we raised a ton of money in our first year of business. After that first year, where I was cold calling all those businesses, we were able to close a couple of million dollars of sales. And so for a startup during the Web 2.0 heyday to actually make a couple of million dollars in their first year of business was a big deal, despite the fact that a lot of people didn't fully understand or comprehend or care about what we were doing, just you made money and you are a Web 2.0 company, you can get a big check. So, we raised money.

And that money afforded us the ability to make a lot of mistakes. And a lot of mistakes were really required for us to figure out what could work as a business. 2009, we were seeing our cash go down. And we hadn't yet built a model in any market where we could scale the business. So, we said, let's make a bet, the bet is we're going to focus on agriculture. We're going on focus on farmers, because if we do this the right way, we'll be able to build a product that we can sell to farmers over and over again. And this is the market that we felt at the time provided the best opportunity for us to build a scalable business. And Greg Smirin, our Chief Revenue Officer, joined us around this time and helped lead this effort for us. Big learning was when Greg came onboard and really made us diligent about this approach, just how little we knew and how little focus we had at the time in solving the right problems. And so, in 2009, we started selling the specific products to farmers.

We moved to 14,000 grids as opposed to 400 stations because we realized no one cares about the rainfall 150 miles away, they want the rainfall to be measured at their location. That was a big reason a lot of people weren't buying. And so that's really where we understood at that point the focus of the technology that we build as a company. Measure the weather more and more locally. And today, we measure the weather using Doppler radar and satellite imagery and all sorts of things that can pinpoint the weather to your exact location and the technology scale at which we operate has become pretty substantial, but at the time that was a big move for us. And so, the ag products started to work and we realized that we needed to provide full season protection to farmers. So, none of us came from an agricultural background, none of us came from an insurance background, but it turns out, farmers won't buy your product unless it's written on insurance papers. So, we had to figure out how do we build an insurance company. And that was a lot of fun. Like I said, I'm going to leave that conversation off for another day, but we had to get all the regulatory approvals in all 51 jurisdictions in the United States for doing this, where you're not actually sending an adjuster out to measure what happens to your farm we're actually just writing your policy that says if this weather occurs, I'll send you a check and how do we get that approved and how do we get an A rating on the product and how do we get the money and the reinsurance to back us and this all became a big hustle, but it worked.

And last year, we launched a program called Total Weather Insurance and we figured out a sales model that works, that scales, where people will buy the product every season and we can go out and close sale after sale after sale in a given day. And so, we raised a bunch of money earlier this year based on the fact that our business was growing very quickly and we had a product that every farmer wanted to buy. There is 160 million acres of corn and soybeans planted just in the Midwest of the United States. Our product costs \$40 an acre. There's \$6 billion of revenue we're going after and our close rate is very, very high. More than half of the farmers that are offered our product actually buy it because it's something that we finally figured out to make a lot of value and makes a lot of sense for them and we can scale this business pretty substantially. So, we're less than 30 people in Q1 of this year, and we're now over 100 people, Eli our recent addition to the team, Stanford undergrad, joining in a couple of months. And we've a revenue number now that's in the tens of million of dollars per quarter. And the business is growing very quickly and the technology that we're building is exciting. We've probably one of the largest - we're probably the largest user of the Elastic MapReduce service at Amazon, which is basically Hadoop in the cloud.

We're simulating the weather on a two-by-two mile basis for the next 730 days, 10,000 times, covering the entire United States and then similarly on a grid basis covering the entire globe. So, the scale of the data, which we operate, we monitor that weather and we update the simulations twice a day as new simulation models come out, has become pretty substantial and it gives us the ability to better service our clients and there is a whole sort of product mission around what we do. We're renaming the company. I was going to say it, but Greg has asked me not to. We are doing the renaming announcement next Tuesday. Five years later, we're renaming the company, it's crazy. So, I was perfectly happy doing this. This is one point because I think it speaks to how nimble one needs to be and how sort of brutally self-honest and self-aware you need to be as you go through this process. We've had to change what we are doing and how we are doing it many times over in the course of this - the development of this business. And it came to a point recently that the company may or may not be appropriate for what we are doing and the scope of the things that we'd like to do as an organization.

And so, let's change the company name. Well, okay, that's not off the table and we've found a great URL and we're going to launch it on Tuesday next week with this great new company name. So, we didn't hold any sort of personal, sort of, you know, I'm stuck on this name because it's what I always wanted to build, it's my business, it's my baby, I can't let go of it, you know, like every day is a new challenge and everyday there is a new solution to that problem. And as long as you keep living every day like that you're going to progress and at some point you're going to have success in your mission, but you cannot hold on to the things in the past and I tell my VCs and so on, you know, they introduced me as sort of the founder of the company. I'm like, founder isn't really a role, it's not really a title I like, I'm the CEO of the company today and I may not necessarily be the best CEO of the company tomorrow, and a lot of founders it's for them, it's very much like they cling on to that title because it's what they're doing, but it's important to avoid it. So I want to talk a little bit about some of the learnings of the last couple of - I'm just checking your clock here, the last couple of years. So first one, doing a startup, I might alienate the - I don't know, but I might alienate people with some of the things I'm going to say, but I'm just going to speak from the heart. The first one is, I hear a lot of people in Silicon Valley say, I'm going to go do a startup and similar in the vein of, I'm a serial entrepreneur, doing a startup has about as much meaning as saying I'm going to jump out off a plane. What I mean by this is that doing a startup is really an activity or a way of organizing a group of people around a problem that they are trying to solve. You don't get a bunch of people together and say, hey, let's all grab a couple of guns and maybe we'll go find a dictator to kill.

If there is a dictator to kill, you put together a team that's most appropriate for taking that dictator out. Okay? It's a terrible analogy, but I wanted to wake everyone up. Okay? And be controversial. So, the process of starting up a company to solve a problem is exactly that, I'm starting up a company to solve this specific problem. So, the way I'm going to go back doing it, the people that are going to help me do it, is really dependent on the problem. It's not an exercise in an activity stream that I'd like to undertake of getting my ass-kicked every day, not getting paid enough, suffering through years of misery and maybe you all find a problem to solve. And that's why I say it's a candid thing, I'm going to go jump out of the plane. The second one is that I hear or there is a sense in my limited exposure to the sort of - what I call the rock star motif of what entrepreneurship is, in - especially in Silicon Valley, and it's good. I mean there is a culture of taking leaps and doing big exciting things here and you're an important person if you do that. But just being an entrepreneur does not make one a rock star.

The odds of the guy - or being the guy on the left are according to a study and I put the URL up there, 0.0006%, that's the odds of - I'm starting up a company and having the company be worth more than a billion dollars. However, all of the press coverage and all of the attention at Silicon Valley goes to the guy on the left. The person on the right is the status quo, your typical entrepreneur, your typical Silicon Valley startup team looks like the person on the right. There is a reason I look like I'm 50, and I'm only 31 years old, okay? The probability of being the person on the right is greater than 99%. And so, I would say, don't do a startup and don't try and solve a problem via a startup, if your goal is to have the status of the rock star entrepreneur because it is a false premise. The financial reward or the opportunity cost of doing a startup is very high. This is from that same study that I just used. There are a lot of engineers here, I'm assuming 100% of you will have the ability to interview for a job at Google when you graduate, and if you were to get a job at Google when you graduate, the anecdotal evidence suggests that your first year salary would be about \$105,000 this year. If you were to start a company and raise money from a venture capitalist and you were then able to sell that company or take that company public, your median time to doing that will be 49

months. And assuming three founders, your median expected payoff to the founders will be about \$300,000 each, which works out to an annualized salary equivalent of \$73,000.

And the probability that you actually make no money is 67%. Okay? So, the reason for being entrepreneurial and the reason for forming a startup to solve a problem should not be for the financial rewards because the financial rewards, if that's your motivation would indicate that you are better off going to Google, going to a hedge fund, going to some other career that has stable income potential. If you were to get a job at an existing company, you would have the ability to make an impact. There would be lots of people there. There would be lots of resources there. There would be a platform upon which you could build something that could affect a lot of people. If you were to get a job at Google, they have 100 million users, if you launch the products to their 100 million users, you would have 100 million users. If you were to try and launch that product on your own, you would have zero users and there would be a big, big, big challenge trying to get to 100 million users. So, my point here is that it's not necessarily a bad thing to go work at a big company. You can still have the potential like growing companies and succeeding companies and successful companies to make a big impact on the world, to make a big impact and have a large number of customers use something that you build or do something that's a result of your effort.

However, you need to be forewarned that at a big company, there can be a problem with misalignment. So, the big company has to make money by doing X or Y or Z and you want them to do A or B or C because you think that would be a good idea. And so the big company's decision will be to continue doing X or Y or Z and say, sorry, you can't do A or B or C. That's misalignment. And so your personal ambitions, your personal interest or your personal product idea or solution idea for a problem is not an alignment with the big company. Scale can constrain a big company's ability to do things. So, big companies might have several people involved in the decision-making process and that can make it that much more difficult for you to get a decision made that what you're trying to do is worthy of resources and worthy of showing to the 100 million users and so on and so forth. And finally resources can't be recruited within a big company. You don't own your destiny. Resources are granted to you.

You were told, here is how many people can work on your team and here is how much money you're going to have and here is how long you are allowed to apply your time for which we're paying you to do X or Y or Z. And so, there are challenges to doing things in a big company and they all need to be sort of taken into consideration. And I wanted to highlight some of these points because I don't want to say, be entrepreneurial, I want to make sure that everyone in this room walks away from this discussion today and is completely reflective about what it is you want out of life and then making a choice that's based on some of the things that I'm trying to tell you about today. And that you think and are self-aware about whether or not the decision that you're going to make is going to best help you achieve what it is you want from life. This is my L. Ron Hubbard Dianetics cover slide. So, actually, what was that movie, *The Tree of Life*, it's a great film. In 40 years, none of your failures will matter. And none of the small things that you succeeded doing will matter, what's going to matter are the big things that you achieve in life. And for some people that's about having a family, for some people it's about leaving kids behind, for some people it's about writing a great book, for some people it's about changing the lives of a few people.

For me, I want to know that I affect the world in an impactful way and in a meaningful way that lasts, and that it is going to last once I'm gone. So, the only way I'm going to be able to do that is through entrepreneurship and that's why I call it existential entrepreneurship because for me, I find meaning in life by doing what I'm doing, because for me, my life is - when I look and say, what is it I want from my life, I want to leave a lasting impression on the world, I want to leave a mark on the world. And the only way I can think about doing that and having a big enough impact is to be entrepreneurial. And so, I want to be able to look back at every day and say that I made the effort to do that, even if I fail, that's the decision that I'm making every day to live an entrepreneurial life. So that's sort of some discussion about the premise, why one should be an entrepreneur. And I want to talk a little bit about the process. So, the first process - the first thing, I'm going to talk about is called getting rid of luck, this is sort of the strategy of entrepreneurship in my mind. And the second one is grinding. It's like a poker term, if anyone plays poker here, I used to play a lot of poker before it was big and I only played limit holdem. And the difference between limit holdem and no limit is you got to grind to make money at limit, you cannot get lucky when you go all in and make a bunch of money on a pot.

You actually have to sit there for hours and days to make money. It's a very painful undergraduate lesson. And so, the second piece is what I call, the grind is the tactics of entrepreneurship. So, I equate these things to be the same, luck, risk and the unknown. When you say I got lucky, you got lucky because you didn't know what was going to happen. So, the corollary is if you know what's going to happen, there is no luck, there is no risk and there is no uncertainty in what it is you're doing. Therefore, shouldn't your objective be to know what is going to happen and your pursuit should always be to remove the unknown from the equation. And that's sort of the fundamental premise of how I think about building the business. Figure out what you don't know and then know it. And at the end of the day, you'll be left with truth or facts and you know exactly what's going to happen and your business will achieve what it is you are setting out to achieve.

I had to throw a formula in. This is sort of a very basic, like this kind of cash flow analysis, the value of a company. So the

value of the company is their near-term cash flows, plus what's known as this terminal value, this perpetuity value. And the perpetuity value is the cash flow in the out year, divided by the expected risk, minus the long-term growth rate. And so if there is no risk or if the risk approximates the growth rate, the value of the company is infinity. So if you know exactly what's going to happen, your business should be worth infinity. Every business has some degree of inherent risk, so I'm sort of taking this to the extreme, right? If you understand all the risks, and you know all of the risks and you take them out of the business, then the business is worth infinity dollars. It's the greatest business ever. It's effectively the universe. If, however, you are constrained by a lack of knowledge about where the markets are headed, a lack of knowledge about what competitors might do, a lack of knowledge about whether a product will succeed, a lack of knowledge about whether you can get the product sold at a particular price point or about whether you can keep your operating costs low enough to sustain your profit margins.

These are the many uncertainties that exist in later-stage businesses and there are similarly many uncertainties that exist in early-stage businesses. Will people buy my product? It's a good first question. Do users find my value proposition valuable? Is this something that's engaging? Do people - people come back? Can I build the product? Can I recruit the engineers to help me build the product? These are the risks and uncertainties in the early-stage business and the more of those you can identify, the easier it's going to be for you to take them off the table. So identify the unknown, mitigate the unknown, and then you are enabling certain outcomes. And that's how you increase the value of your company and that's how you move yourself towards achieving the mission. And it requires - this one, tell me if you heard this before, you don't know what you don't know, anyone heard that before? Couple of people. I heard this all the time when I was starting up a business. And I didn't listen. This was the biggest thing that I missed out on when I was starting a company and it's basically become the premise of how I think about the strategy of entrepreneurship and the strategy of what we are trying to do, because it's not until you get hit in the back of the head with something that you weren't thinking about that you wake up to the fact that that should be what you focus on, what do I not know? Because the rest is tactics. So this is how I think about the general strategy approach to running the business.

You try and put as much stuff as you can in the left column and then you try and move it to the right column and then the rest is just tactics. Figure out all the things you don't know about the business, know them or solve them or ask the questions or build things to test them in a scientific way and you can move them into the known column. Will people buy my product? Is there a positive ROI marketing model for what I am trying to do? You can build a test for that, you can build a product for that and see if it works. There is a lot of different approaches for the tactics and that's all nuanced around the kind of business you are building, but in general, if you focus on knowing what it is you don't know, you are taking the risk out of the equation and you make it known, you've figured out what to do next. This is one of my early slides from when I raised a Series A for WeatherBill in August 2007 this slide is from. So when we first raised money, we said here is all the stuff we don't know and then we started to know it, and then it's like oh-oh now there's all these other things. And we added those to the list. And the more you are transparent about this, the more your team will believe in your mission, the more everyone in the company will be aligned with what it is you are trying to achieve and the more investors will believe in you being the right kind of person to execute on the opportunity you have in front of you. Because this is total transparency about what's working and what's not, and it makes it very clear to everyone about how you are going to succeed. How do you succeed? You got to grind.

This is the Wright brothers' example, I have a couple of slides on this. I got to visit Kitty Hawk in July. Was it July? July 4, pretty cool. Anyone ever been? Really awesome. I was inspired. I spent the day walking around by myself. And they had their shack there, I will show a picture of the shack in a second. This guy Otto Lilienthal - aviation at the time was sort of like the cool engineering thing to be thinking about in the late 19th century and Otto Lilienthal was one of the early sort of aviation pioneers and he wrote this in the aviation - in the Aeronautical Journal, it said: "While theoretically no difficulty of any considerable importance precludes flight, the problem cannot be considered solved until the act of flying has been accomplished by man, duh. In its application, however, unforeseen difficulties arise of which the theorist can have no conception." And this is really highlights the fact that it's the grind that's going to end up making the difference. He died a few months before this was published, because he got on a plane or a glider that wasn't built right and crashed, irony.

Around the same time, the Wright brothers, who had a background working in the printing industry, they saw this cool new thing. The Internet of the day was transportation. And so the Wright brothers saw that all consumers rather than getting on Facebook and doing social sharing stuff, consumers at the time were riding bicycles, that was like the cool new thing to do. So they bought a bicycle shop in Dayton, Ohio, and they started building bikes and they've started building better bikes and they started to engineering them. And then they read this Aeronautical Journal and they wrote to Smithsonian and the first step was learning. So when there is something you don't know, the first thing you can do is, is you can start researching and learning. I didn't know anything about weather, I still know very little about weather. I didn't know anything about insurance; I'd had to learn a little about insurance. And along the way the needs of the mission, the problem we were trying to solve mandated that we learn stuff that we didn't already know. And so the first step was these guys sort of writing to the Smithsonian and they got, they requested - equivalent to a FOIA Act Request nowadays, government request, send me all the information you guys have on aeronautical research has been done.

And they started reading through all these documents, they started learning the engineering of the day. They then came up

with an idea for a flexible wing and they built a prototype and this was the prototype kite/glider that they had and they tested a couple of them. So this was the first step. And they figured out, what do we not know? Why are these gliders failing? And they said well now we've got to tactically implement a solution that can allow us to very quickly identify all the things we don't know and know them. So they invented something called a wind tunnel - actually I think it was invented before, but they implemented a new sort of wind tunnel, I don't know what the nuance was, but it was some sort of more advanced wind tunnel. And it allowed them to test over 200 wing designs and they recorded the coefficients associated with each wing design in a very detailed way that no one had done before. And that gave them the ability to systematically go out and build a better wing that they were then able to use to build a plane and eventually fly. And it was that grinding process, it wasn't a breakthrough. There wasn't some sort of moment of genius with the Wright brothers. There wasn't some discovery or penicillin thing that, whatever, mythology, these are, what I call, the sort of black swan outlier, rock star motif equivalent events that occurred.

These guys literally just took the principle of we need to get into the sky, that's a problem, we need to solve it. They found the thing they didn't know. We don't know the drag coefficient, we don't know the optimum wing design and they solved it. And to do that who knows who's on the right, this is the Oracle from the Matrix because she tells Neo you got to know thyself. And the one on my left is from Ray Dalio, if you haven't read Ray Dalio's, The Principles, it's an interesting read. I am not going to critique it, but it's on Bridgewater Associates website. But he says there is two Yous. There is the You, the designer. And then there is the You, that's effectively the actor. So the designer is the one who gets the people together to accomplish a task of X or Y or Z and You as an actor are good at something, you're either good at writing code, you're good at selling, you're good at operations, who knows.

But in order for you to succeed, you're going to have to recruit people to help you do these sorts of things that you're not going to be able to do on your own. And in order to do that you have to be self-aware about what are the things you are going to be good at and do you have the right people helping you to accomplish them. There is a lot more that could be said about this grinding notion and I don't want to - I know we have limited time now, but I know there's plenty of books written. Steve Blank's book is a great book. There are a lot of books out there about - how do you optimize that process of figuring out what you don't know and then knowing it. Innovation is the only sustainable competitive advantage any company can have. I think we can probably spend an entire hour talking about all the companies that have failed for lack of following an innovative path. And you can say, well, RIM didn't innovate because Apple innovated with a better OS and so, the iOS is a better OS than RIM and therefore it beat the BlackBerry. Okay? Easy to say that, but innovation at scale as the company gets bigger - and this is a later-stage problem that I think is probably appropriate for thinking about early-stage stuff, but innovation at scale is challenging for couple of reasons, it requires perpetual change. So the concept of taking risks all the time on new things and having them not work out is sort of counterintuitive to what successful people considered to be success, because when you take risks, odds are you're going to fail.

When you're trying to do something new, odds are you're going to fail. And successful people don't like to fail. They like to be successful. And so, the challenge with innovating at scale is that you have to get people on the mindset that failure is a process, it is part of that iterative process of grinding. The Wright brothers didn't consider themselves failures when the first 199 wing designs didn't work. They considered themselves successful at the end of the day because they accomplished their mission and failing is part of the mission. It's part of the process of getting to that mission. So people tell me all the time, well, you're running an insurance company in San Francisco, you're running an agricultural insurance company, yeah, you're running an agricultural company. We're not an insurance company or not a company, we're an innovation company. This is how we think about our business, is that we're focused on solving a big problem that doesn't change.

Our mission is what it is. And then you don't listen to that how is this done? What's the model for doing that? Someone still has got an interesting model, why don't we tweak it a little bit? Solve the problem that you're setting out to solve and be smart about how you're solving it. That's it. A lot of people nowadays are trying to use the business model mould, think about innovation, it's the opposite. You should be innovating to come up with the new business model mould. And so, when people say you're an X company, you're a Y company, you're doing X for Y, or Groupon for kids, or whatever it is? You're probably going down a path that's very likely going to result in you being upset, at the end of day and not having a lot of money. So people say, well, where are all these problems? That wasn't the line, but I adjusted it because I love this - this theme. The - I think it goes without saying that a lot of people are doing a lot of similar things in Silicon Valley nowadays. And there's a lot of people - outspoken people talking about, there needs to be more innovation in Silicon Valley. Trying to be like, well you know, I can do photo sharing for students at Stanford and we can do photo sharing on our iPhone for students at Stanford, like X for Y for Z.

There are problems in the world today that are more substantial than we've ever faced in the history of humanity, you can look around. And it's not just in software and it's not just in California and it's not just to your peers. If you look at all the markets in the world today, you can probably break it apart market-by-market and say, here's something fundamentally flawed with the way businesses in this market are operating. You can probably break it apart by saying, what are businesses in general doing wrong today? You can probably say, how are governments not operating efficiently today? There's 100,000 different ways that

one could break apart the opportunity set that exists for you with big problems to solve today. I'm the kind of guy that when I drive up - when I drive through traffic, I'm highly stressed. I'm highly stressed because every time I'm driving on the freeway or I get through a traffic light, I know someone is driving inefficiently and it drives me nuts. And I see the way that anyone else have this problem - there's got to be engineers in this room. Right? So you see how people are driving and you're like, they could be driving better. This isn't a tough thing, just look around. I mean, there are so many opportunities.

And so, to the point of like, what should I be doing? Where are the opportunities to innovate? I don't think it takes more than a weekend in the library or on the Internet or whatever to see the global opportunities that exist in the world today. And it's actually a critical time to do this, I think one of the most exciting times to do this ever, because there is sort of a global stagnation in economic development and innovation is the only way out. And I know you've heard this from other folks and I know Aneesh Chopra goes on about this all the time and I think it's really important for people in this room to take heed. If you're thinking about doing something entrepreneurial, think about solving a really big problem, because it's going to be great not just for you, it's going to be great for everyone. And it's really needed now. And there's really a lot of problems out there that can be solved, that can result in lasting meaningful impact in the world. So in summary I would say, having a premise, know what it is you're trying to do and whether it's the right thing, the strategy is to know what you don't know, the tactic is to grind and there's a plenty of places for you to innovate. And to wrap up, again, it's this pursuit of entrepreneurship that gives me meaning in life. It's why I wake up every day and I have a smile on my face about what it is I'm doing. I don't always have a smile on my face by the end of the day.

But it is for me what I've decided is going to give me the most meaning, when I look back 40 years from now. And I'd say, did I try make the biggest impact I possibly could in the time that I was on this earth? And the answer is, yes. There is an op-ed piece in The New York Times by Neal Gabler and I can't read all my notes. He said, we live in the vaunted Age of Information - this was in August, 2011. We live in the vaunted Age of Information, courtesy of the Internet. We seem to have immediate access to anything that anyone could ever want to know. We are certainly the most informed generation in history and he goes on. If information was once grist for ideas, over the last decade it has become competition for them. We prefer knowing to thinking because knowing has more immediate value. It keeps us in the loop.

It keeps us connected to our friends and our cohort. And the implication of a society that no longer thinks big are enormous. And I would encourage everyone here that is considering entrepreneurship as an activity to think big because now is the time to do it and there's never been a better time in the history of humanity and that's all I have. Thank you. That was a fabulous way to kick off the year and we can open up for questions. We've got 10 minutes. This isn't really a question but you aren't going to hear this until later. Ironically, and unfortunately, while you're talking about rock stars, one of the biggest rock stars in Silicon Valley history passed away, Steve Jobs died. You're kidding. Wow.

Wow. That's incredibly sad. I'm sure we'll have lots of opportunities to remember him and everything he... Everyone's seen his commencement speech, right? It's a must watch, right? If you haven't seen it, you got to watch it. Right. That is your homework to watch Steve Jobs' commencement address. In 2005, it was totally... And so - look, I mean it's not the right time but that is - Steve Jobs said I want to leave a dent in the universe. Who here doesn't use an Apple device? I mean there is literally no human being in our lives that has made more of an impact on more of the world than that man. And that's what he always said he wanted to do, and he set out to do it and his achievements speak for themselves.

Wow. Certainly, it's a sad day. And does anyone have any questions that are actually related to this talk? Here. For your business, what's the competitive advantage and why can't other insurance companies analyze the weather, are they then offering...? Yeah, so insurance companies are generally not... Can you repeat the question? Yeah. So the question was what's our competitive advantage and why can't other insurance companies do what we do? It's a little bit nuanced. Insurance companies generally aren't technologically-savvy, insurance companies like to underwrite risks in a static way and go out with a static what's called rate sheet and so there is a pre-underwriting process. The customizability of our products is what really gives us the ability to sell them because people need to customize them to their - in my farm, I plant between May 1st and May 15th. And so the dates, when you change the dates for weather coverage, the risk changes pretty dramatically and so the risk profile changes pretty dramatically and you have to re-rate it in real-time, is how we do it. Secondly, the automated sort of processing of claims of understanding what weather took place and then sending a check, it's sort of a data feed, right? You're taking it and you're processing it.

But insurance companies - there are very few insurance companies who have the bureaucratic ability to enable an automated payout program. They have a claims adjustment process and a loss adjustment team that does every sort of analysis of every claim that's filed. And so automated payouts based solely on data, is not in the lifeblood of how insurance companies operate. And to the point about innovation, it is very hard to get them to change how they operate and so for them to do this automated payout, 40% of our customers, our farmers that buy our products, get some sort of money back. So sometimes they get small amounts because we cover this sort of very little variations in weather that cause little variations in your profit as a farmer. Those small variations occur to 40% of farmers. So 40% of our farmers are getting some money back at

the end of the season or getting some deduction on the premium that they owe us. And that's called a 40% claims frequency. The typical claims frequency for insurance companies is like less than 3%. So for them to then scale up their loss adjustment program by 10 X would be untenable.

So there is a bureaucratic and then there is a couple of sort of - what I would call sort of core technology IP pieces that we have built that are - we would go head-to-head with a technology company and feel comfortable, so. I'd imagine the accuracy of your weather prediction algorithm is critical and something you guys are constantly trying to increase for your benefit and for your, the farmers and stuff. Where do you guys see the trajectory from your company providing insurance for farmers switching over to creating the best weather prediction algorithm or software that's out there? Yeah. So next week, when we announce our name change, I hope it will frame sort of the direction that the company's headed, which is a broader scope. We focus on farmers but there is more that we can do with the platform that we've built and the technology that we've built where we're predicting the weather on a micro-scale basis, 10,000 times for the next two years than we're doing today. Right now, we're underwriting insurance policies with that data. And in the future, we hope to use that data to build interesting new products that can enable new ways that people interact with the weather, plan their businesses, think about what they are doing, get an alert if it's going to rain and you should wear a raincoat or something. Right? I mean - like there is a whole slew of products and services that we could eventually build on this platform that we've already built the infrastructure for. And so, that's sort of where I think we're headed. Agriculture is such a huge opportunity.

We can scale into different crops. We're selling three crops today, it's an unusual talk but for us a product is a crop, corn and wheat and soybeans. We're going to launch sorghum and cotton and rice. So these are the products that we're launching. And then we can launch that in Australia, and in Canada and Brazil and in Asia and then India and so there is ways for us to expand our business in agriculture and then into different verticals. And then into data services and so there is lots of ways that we think about building on the platform that we've built today. Back there. So one of the things I took from your talk is this ability to be fearless or you know disregard the risks involved somewhat or at least think that you can go out there and take the risks. In China, however, where most of what I do is based, the idea of failure is so - like it will just totally take out your whole family, your whole community. You're not allowed to fail in other words.

So how would you help inspire those that are in places like China where failure is not an option? Okay. The question was how would one help folks in China to be more entrepreneurial, where failure is not an option? I don't know enough about that market or the cultural dynamics there or the economic incentives that exist. In the U.S., there are economic incentives. If you build a good business there is a flow of capital that will give you more money to grow the business and eventually you can make money by selling the business or taking it public or selling some of your shares or paying yourself a good salary. If the economic incentives are there and the bureaucracy frees one to innovate, I believe this should be natural human behavior to solve big problems and it will happen. So I would say like let's just identify what the bureaucratic problems are and what economic incentives aren't there and identify ways that maybe they could be implemented but I don't know enough about the market specifically to opine on to your point. How are you modeling climate change into your weather models? Climate change - how do we model climate change is the question. Climate change has a number of different factors. So there are changes in temperature over time, which global warming is a big sort of thing that people hear about all the time. Yes, there are trends in the average temperature everywhere and the temperature, on average, is going up almost everywhere.

More importantly, the trends in how much storm events are occurring or how frequently we're seeing droughts or how bad those droughts are getting. There are trends in those indices. And those are the indices that we care most about because that's what we're focused. And yes, there are trends across the board. The climate is changing. Whether or not the climate is changing as a result of manmade effects or we're going through a natural multi-decade or multi-century or multi-millennial cycle, I don't know. But there are changes underway and we model those changes and incorporate them in all of our simulation models. You mentioned the fact that you said you didn't know much about either insurance or about farming, like how did you get around that when you were starting up your business? Yeah - sorry, the question was, how did I learn about insurance and farming, given that I didn't have any background when we started the business? I mean we had to learn about a lot of different industries. So we learnt about our customers' problems and then along the way you learn about the customers. So we talk to a lot of farmers.

And then we hired people that know farmers and we hired people that were farmers. And those are the folks that gave us the insight that we needed to help us think about our business. And so, we didn't say there is no way we can do this because we don't know farming. And there is no way we can do this because we don't know insurance. I hired lawyers and asked them about insurance. We hired people with an insurance background to the company that help advise us. And so, along the way, you have to make the decisions to be - this goes back to the sort of two Yous, the designer me has to say, me the person with knowledge doesn't know shit about insurance. I need to find someone who does. And so you need to be self-aware and you need to be able to say like we don't have the right people on board. I didn't know how to scale a sales team, Greg does.

Greg is our Chief Revenue Officer and without him, we wouldn't have succeeded at what we're doing right now as a

company. And so along the way, you have to make those decisions to recruit and incorporate advice and people that are going to be useful to you, and that's where you have to be smart about those decisions. We have one more question, right in front. How does WeatherBill hedge itself against drastic events like Katrina? Yeah. The question is how does WeatherBill hedge against drastic events, like catastrophic weather events, I am assuming you mean. We actually have 100% quota share reinsurance arrangements. So we take no balance sheet risk on the stuff that we write. So when we sell insurance and there is exposure, there is a reinsurer that stands behind us and at the end of a season if we make a profit we keep some of that profit, we also take some money off the top. If we have a loss, the reinsurer covers 100% of the loss. And so, we've transferred all of the risk that we have into the guys that have billions and trillions of dollars and there is a big reinsurance market out there.

I mean venture capitalists don't want to be betting on the weather. They want to bet on a team that can help other people's capital bet on the weather. And so that's sort of what we're doing. I'm sure you'll agree this is an absolutely fascinating talk and I want to thank you for joining us today. Thank you.