

Participants

Doug Blakeway, CEO of Nanotech Securities ([NTS](#))

Nate Abercrombie, [The Stock Podcast](#)

Interview Transcript

Nate: Doug, thank you so much for joining us. Could you just give us a feel for what your background is, where you came from?

Doug: I have a background in high level security. I'm an entrepreneur, investor, technology junkie all wrapped up in one. A little disruptive in doing it. Looked and put together companies from high tech to service oriented, with helicopter services, things like that, helicopter logging, also have been in the technology field pretty well all of my life.

Doug: And as we were chatting a little earlier, the background in [inaudible 00:00:36] labs was when we were doing radio frequency testing and had to isolate all the tests, and go in a screen room, et cetera, so building up surveillance equipment for that, mainly in surreptitious, so you can't see it or find it. That's my background, and with that I have been an entrepreneur in residence of Simon Fraser University. It's got to be 10, 12 years now, and that's where I found this technology that we're presently developing.

Nate: Where is that university, and what did you do ... So, were you in business? Were you working for a company doing sort of R&D for that company, and then you went to Simon Fraser, or how did ... What's the timeline there?

Doug: How it worked was, with myself, is I sat on the advisory board for Simon Fraser University, which is located in Vancouver, British Columbia, and has several field campuses. I sat as an advisor to the Surrey campus from when it started and up to present. So, that would be about 15 years ago.

Doug: During that time they asked me to be entrepreneur in residence for the university, and what I did was I looked at companies, and I looked at technologies that were in the university that got presented to me, and I tried to match them up. And putting my investor's hat on, it gave me always the latest in technology to look at, and seeing it, I could invest in it, prior to it, I could put it together with another company, put the two entities together, and I felt that was really beneficial for the university and so did they.

Doug: So, that's really how I started out in it, and I found this technology, it was presented to me by Simon Fraser, and a professor and her student. And they showed a nanotechnology, which I was always in love with, the technology that I mentioned earlier, and I had never found a way that you could make money at it. If you looked at it, it was great, it was world beating technology. It really blew your mind when you looked at it, but again, far, far too expensive and impractical to take and commercialize.

Doug: This technology that we saw ... that I saw and went over, I felt, had great applications in the bank notes biz, as a secure feature, and that's what was promoted to me. I sat down with them, being a professor and a student, and worked out a deal. Then went to the university, and with that, worked out a deal where I could

buy the technology and then pay them an ongoing royalty. I subsequently put that into a public company, which is Nano tech Today, and we started developing it into a commercial aspect.

Nate: So what is it, exactly? So, nanotechnology, nano means small, technology means technology, and you're talking about security, so kind of makes sense at a high level, but what is it, exactly, that you saw that you thought would be a great commercial product?

Doug: Okay, well, first of all nanotechnology, in the size that we work with, is smaller than the wavelengths of light. So, light is about ... that you see visibly, about 650 nanometers down to 300 nanometers in wavelengths, or light, or nanometers in scale. What we worked at is down between 150 nanometers in scale, so you can see we're far, far smaller than a light wave in the room.

Doug: So that makes it a very secure ... If you can do something with that light, and populate it with nano embedded indentations, which we were successful in doing, you have something that you can't photocopy, or scan, or take a photo of. So, you have a very secure means to authenticate something.

Doug: So, how this technology works is you have an algorithm of holes. The algorithm of holes, or indentations would be a better way to put it, indentations and pillars, and you place it on an object by compression, basically, and you get a playback, because all the light that's visible comes into play with those indentations. It's manipulated, compressed, compiled, and sent back out in specific waveforms that you can adjust.

Doug: So, you can actually see an image that is in full color, high def resolution, and when you tilt the object away from you, whether it's a piece of cloth, or it's a magazine, or it's a piece of metal, you get a bright, brilliant image that you've designed coming up and showing out of that structure. And yet, if you put it on a photocopier, it would be static, and you may pick up some of the colors, but that would be it.

Nate: What is a nanometer? What is ... How big is that?

Doug: A billionth of a meter?

Nate: A ... Okay, wow.

Doug: In scale. So, one billionth of a meter in scale. Let me describe it easier. A human hair, if you put the hair of, mainly, a Caucasian, because their hair is a little thinner, we are about 1,500 times smaller than that piece of hair.

Nate: Wow, that's tiny.

Doug: So, it gives you sort of a relationship.

Nate: Yeah, and so, without revealing any of your intellectual property, how are the indentations made? Is it a laser, or is it a machine? Is it you have tiny little needles that make these indentations, or how does it work?

Doug: Well, it's very complex in how it is, but the simple explanation is we use a piece of equipment called a focused ion beam, or an e-beam [inaudible 00:06:30] machine, and what it does is it bombards a piece of material with atoms, and they create the indentations, and from the indentations then you build it up through a lot

of science and manipulation to have what we call a shim, and a shim is really the equivalent to a printing place. And you use that shim under very high pressure to press into the material, and it leaves the indentations, or pillars, and those are what give off the light.

Nate: Huh, that's interesting. And so, you mentioned the medium. You said cloth, you said ... I've heard you say piece of wood in a previous video that I watched of you. The shim, is that what you apply to whatever you want to provide authentication technology to, or can you apply this technology, can you apply ... And I know we'll get into pharmaceuticals in just a minute, but can you consume it?

Nate: Can you ... Is it a specific medium, or is it something that you can just take whatever license technology a pharmaceutical might license from you, and they just put something on a pill? Or is it ... does it have to be on the wrapper, or the piece of material that whatever the product is comes with?

Doug: I think the easiest way to think about this is the simply way, and that's a hologram. We refer to a hologram, you've seen it, and it's usually applied as a sticker. So, you can put it onto a piece of plastic material with adhesive, and then stick this onto the object to secure it, and you can have plastic that breaks away and goes void, or falls all apart as you try to remove it. So, once you've applied it once it's there.

Doug: In the case of ours, we can apply it to a label like that and do exactly the same thing as a hologram, but what we can do that is different is we can compress into the object itself, and that can be steel, or that can be aluminum, it can be plastic, it can be glass, and we compress ... So, we take what we call a shim, and think of that as a stamp, and ... but under very heavy, high pressure, we hit the stamp down into the object, and when you take it away you're left with an impression in the object.

Doug: That's all you're doing. There's no inks, dyes, pigments, so it's a totally green technology, and all you're left with is indentations and pillars sticking up after you've compressed or stamped this into the article.

Doug: It's very simple. It's an extremely simple process. It requires ... It runs on traditional printing equipment that you can make a hologram on, so it's called roll to roll, or platinum ... platinum technology, or printing plates. Or you can put it in a hot stamp machine, and you can stamp it with a hot stamp or a cold stamping machine and do the same ... get the same results.

Doug: The rougher the surface, the less the playback is when you put it directly onto any surface. And so, what I mean by that is if you put it onto your fabric, or cloth, or onto a T-shirt or a suit, something like that, well, you may think it feels rough to your hands, it's not, it's coated, and so that's very fine, so it goes on that very well. But, if you were to take a craft product, like a brown paper bag that hadn't been treated, that would be known as a rough surface, so the playback on that would not be as sharp or as bright as it would be on a piece of plastic, say.

Nate: And when you say playback, you're talking about the image that you would see as you move it around, and-

Doug: That's correct.

Nate: Okay.

Doug: That's correct.

Nate: Okay, and so, what are the applications for Nanotech Security's products?

Doug: The applications are multifold. We're concentrating on banknotes and tax stamps to put a authentication mark in them, or an image, that can't be removed, that can't be copied, and can be easily seen by the public. That is, on the one side of the company, is authentication. It goes also on tax stamps, you can do the same thing, and a tax stamp is a validation, an article that the product inside is authentic, as well as the tax has been paid to the government entity.

Doug: And both of those are authentication devices, or systems, that you're using it for. What we can do us we can take it ... It's a very beautiful product because of this bright image that comes back in beautiful colors, is we can apply it to things like a cosmetic line, or a pharmaceutical line, and we can embed it directly into a pill, or we can put it on the side of a box for cosmetics, say. That way it's sealed the box, and it's interactive, you can pick it up and it will have movement in it. So you can see movement in the article.

Doug: So, you can use it as a branding tool, and that is a big difference than anybody else. And with the branding tool you can create motion inside it. So, for example, you could have a woman on a cosmetic product, have her hand close, and open her hand, and there's the product in her hand, and you see that on the side of a package. So, you literally have movie framed that you're creating, and then you can visually see them on a flat substrate.

Nate: How many frames? Is it appropriate to think about it that way?

Doug: We've done about 250 frames at present time.

Nate: Oh, wow.

Doug: With success, with normally running around 120 frames, but we're looking at doing upwards of six or 700 frames.

Nate: Oh, wow. What is ... Well, I guess maybe we can talk about the next steps a little bit later on in terms of where you can go with the technology, but-

Doug: Sure.

Nate: So, you mentioned the applications, who are your competitors right now?

Doug: Those markets are generally covered for a security product using a hologram, and holograms are old, they started off, were invented in 1947, 1968 was the first time they were used commercially as a security feature, and that was on MasterCard's, the little logo on the back, and you can see them on everything from your Kellogg's Corn Flakes boxes to memorabilia, to saying that the team that you support's, it's an authentic piece of merchandise.

Doug: So, they're used in multi ways. Back of your Visa card has a little dove, that's a hologram. So, those are the ways, and that would be our competitor. In the nano tech space, in the exact space, we don't have a competitor at this time. We're the only ones that do it. So, we have first mover advantage, and we're very disruptive.

Doug: And as somebody sees a hologram, they're very easily counterfeit. So, you can buy ... Like, right now you can buy the security feature of a hologram that's put on a bank note, you can buy it in China as a knockoff and sort of make your own kit, and that's why banknotes, or tax stamps, using the same ... They use holograms as the authentication, are going away and wanting a new technology.

Nate: Yeah, how much would it cost for me to go buy one of those hologram kits?

Doug: Nothing, less than \$20 dollars for a roll of ... a small roll of holograms.

Nate: Wow, sounds like a business I need to be in. Could you give me a name of somebody I can talk to?

PART 1 OF 3 ENDS [00:26:04]

Nate: So, the hologram manufacturers, who are they? Who makes the holograms that are going on the banknotes and the ... You know, for me, when I think hologram, too, the first thought that comes to my mind is baseball cards back in the day. Those were, like, the best ones, yeah. But-

Doug: That's correct, yeah, that's-

Nate: ... who makes them? Who ... Is there a company that has the vast majority of market share, or is it pretty ... Are there a lot of players in the hologram market, and then could you just talk about the overall market? How big is it?

Doug: Sure, the area of holograms at putting them on secure devices, so, the major manufacturers in the bank note or the tax stamp space are going to be De La Rue, who are located in the UK, there is going to be Kurz, that is located in Germany, and the largest one is GNB with a subsidiary called Louisenthal that's also located in Germany. They're the largest ones, with Hueck Folien of Austria making more holograms and supplying them, getting into the industry, and more near home in the US there's Crane that makes the MOTION, it's called, that sits on the front of a \$100 US banknote, it's the little purple thing that has motion, and looks like it has a stripe across the banknote.

Doug: Those are really the largest companies, and there are thousands of smaller ones making holograms. But, in the authentication business for banknotes, those would be the ones that are the large players in the industry.

Nate: It's oftentimes difficult to break into a new market, especially with an incumbent product that is so widely recognized and used. So, what is it that you say or do in a sales pitch, as it were, to highlight how differentiated your product is? And what I mean by that is how do you demonstrate that your authentication product is better than a hologram, and if the person whose job it is to say whether or not something is authentic or it's a knockoff, do they need a microscope to really tell the difference? Or are the differences between a hologram and a nano tech product visible with the naked eye?

Doug: I think the area that you would look at is what's called in the industry the security triangle. A level one feature is something that you can see with your unaided eye, so it's visually ... Anybody can see it right off the bat.

Doug: And level two is a covert device, which means that you have to have something. So, if you looked at your banknotes with a UV light, that would be a level two, and you would see things on it, an image may come up that you couldn't see before, but when you put the UV light on it you'd be able to see it.

Doug: And then level three is forensic, and forensic is at the bottom of the triangle, the wide space, it is something that you need electron scanning microscope to see the information, or something to play back.

Doug: So, a bank note or a secure document of high level needs all three of those levels of authentication in it. What you see as a normal consumer in a bank note is going to be the glitzy thing on the front, a thread that's woven in the banknote, and we make those as well, with a unique type of material.

Doug: And when you look at ours and, you know, going back to the first part of the question, or, ask there, how do you basically different than a hologram. What ours does is ours turns off. So, as you tilt the banknote away from you, or left to right, you will have an image that looks like an old negative film. It's gray, no color in it, model-ey sort of effect, and that was based on the blue morpho butterfly.

Doug: You have this image that is clearly seen, no color, and it's sitting there, but you can see that there's an image there. In the case of a hologram you'd have something that's glittery, and as you moved it back and forth it will rainbow. A hologram is made with prisms, and we all know if light comes in one side of the prism, comes out the other side in a rainbow of colors. That's how a hologram works in just simple forms.

Doug: And so, what we do is we take that image that's gray, or ghosted, is what we call it, and we tilt the article, we manipulate the way that we put the holes on there, and you get this very bright, vivid, high resolution image that comes back to you. The image, just to give you some details is about 250,000 times brighter than a retina display on an iPad.

Nate: Wow.

Doug: So that gives you sort of resolution. It's not comparable to anything that's known today.

Doug: And so, you get this image that is very bright, looks back, and does something. If we want, we can combine that with motion or movement, and the movement is in steps. So, we can make it sort of jerky, or we can make it smooth in transition. We can make it do something. You can't do that with a hologram.

Doug: Again, the way that you're going to sell this product to high end users is in front of them. You can't do it ... You can send a video, they can see it, but when they see it with their eyes, and they see how it goes away, and they try to photocopy it, which they would take and try to do right away with it, and they find they can't do that, they know that they are seeing something that is pure.

Doug: If you think about something like ... And I'll go away from banknotes for a second, but putting it into a brake pad. When you buy your brake pad, you know it's authentic, it's embedded directly into the brake pad itself. So, when you've bought it you know it's authentic, so you use your brake pad and get into an accident, and somebody analyzes to see if that brake pad is there. It no longer is there because it is worn off, but because it was authentic when it was purchased, and they take it and analyze it, they would find it was still the authentic one, so they can trace it backwards.

- Doug: Whereas, if you had a sticker on something, and saying it was authentic to start, and not embedded directly into the material, and it wore off, and you went and analyzed that after the fact, you would find that it was fake. So, there's no way of knowing.
- Doug: So, this protects somebody's brand, and that's the other reason that they want the protection, for authentication.
- Nate: Yeah, wow. How much does it cost to make ... or to imprint a piece of merchandise, or a brake pad, or a bank note, with your technology?
- Doug: As you can see from the way I was explaining it, it is indentation or compression only, no inks, pigments, or dyes, so one thing is, as a comparison against any other technology, you don't have all those attributes going into our product. So that is a huge saving in the industry.
- Doug: Giving you a direct price, we are comparative to a hologram, a simple hologram, in manufacturing, and in most cases less costly. That's how I would describe it. We charge for a master plate, and then we have a licensing arrangement with whoever is doing it.
- Doug: And so, normally in the banknote industry it goes around a dollar and a quarter per thousand, or a hundredth of a cent, per bank note. So, you can see it's very inexpensive. That's applied, and as a licensing model, we receive 100% of that, and we have basically zero cost involved in it. So, we're very much like a SAAS company.
- Nate: Yeah, so, you went after the currency market first, and I would like to know why going after, you know, something that ... I mean, we'll always have cash, but there are things like Visa and MasterCard, Bitcoin, whatever, other forms of payment. Why go after the currency market, and could you just talk about kind of some wins that you've had over the years, and how you're thinking about that business going forward?
- Doug: Sure. The reason we went after the currency market is for validation, number one, as we felt if we could make it, it's the hardest security market, or authentication market in the world. It's the one that is seen ... Every technology in the world, all those issuing authorities, which they are called, the banks of the countries, they get presented every type of security from all over the world every day, so they know what's going on. So, that's the hardest market to get into, and we felt if we were validated there, that was the highest level we could get, and we can capitalize on that into all sorts of other markets
- Doug: We were successful in doing that last year. We had small contracts ... When I say small contracts, for the size of company that we are, they're significant contracts. They're in the neighborhood of one to three million dollars, and we had those with the top ten issuing authorities ... with some of the top ten issuing authorities in the world for ... over the last three years.
- Doug: But, last summer, we secured a \$30 million dollar five-year contract with one of the largest issuing authorities in the world, and that really showed the validation of our technology, and it was for the design and development of a specific security feature for their banknotes coming up in the future.
- Doug: So, once we had that, we felt then it was time to look at other markets, and we looked at the tax stamp first ... And to give you a size of both of those markets, there's about 165 to 170 billion banknotes produced every year, and there's about 130 billion tax stamps produced every year. Well, you have a banknote, its life is

somewhere ... Depending on the denomination of the note and the type of note it's made on, is around four years is its life, whereas a tax stamp is once somebody has purchased the item it's gone.

Doug: So, both of those are huge numbers, and if you look at a dollar and a quarter per thousand on a licensing fee, if we were to get them all you're talking about a \$200 million dollar licensing fee a year for banknotes, with no costs associated. So, extremely profitable for the company.

Doug: Same figures, only about half of those in size, so around 70, down to 15 cents per thousand when we talk about tax stamps. They're a lot smaller and are not as complex. So, again, you've got 100 million in revenues coming in.

Doug: So, if we take those and apply them, we can be extremely mid size company, I'll say. Let's say that in licensing fees we had \$300 million dollars in revenues, most of it goes to the bottom line, so we would be one of the most profitable companies per revenue in the world, and that is our strategy is to go after the licensing revenue, where we supply a master print head, is what we call that, which is a shim, and you go off and do it, and you pay us a royalty payment or a licensing fee.

Nate: How long do you those licensing fees typically last, are those contracts? When you go to, you know, somebody who's producing a banknote, do they just ... do they agree to pay you for a certain number of years, or it's open ended, and when they see something else that ... a new technology, they can just move on to the new technology?

Doug: Most often in banknotes they tend to stay with the security features they've taken down during the period of time, or the year, and gradually phase them out, but that generally is over somewhere near an eight-year program on average. So, you're in it for eight years, and if it starts to go down after the eight years and they're using other technology, you hope that you've been able to offer a technology that is an add-on to what you have. So, going-

Doug: ... technology that is an add-on to what you have. So going forward, doing the same thing. I would say, we call them eight and eighths. Eight years to design and implement that you're being paid for something, and then eight years longevity of it after it.

Nate: I see. Okay. That's helpful. Doug, do you have any ... you mention the 1 to \$3 million contracts and then the big \$30 million contract last year. Do you have any stories that you could tell about how ... without providing any of the details about who it is, but anything interesting or funny that happened along the way that got you to the point where you secured the contract, the ink was on the paper, and anything you think is interesting and worth sharing.

Doug: Where we're going is probably the relative one that is extremely interesting. If you can think, there is hundreds of trained tanker trucks filled with ink to print banknote a year used. And we're talking thousands and thousands of those tankers. In doing that, our goal is to make a ink less, printable banknote. So that's where we're heading with our design and overall concept, is we can put it on paper, or we can put it on polymer, which is a plastic banknote, or we can put it on a hybrid, which is a combination of all those features. But if you think about it, we could eliminate all the ink that's being used in the world to go on banknotes.

Doug: We're driving our technology towards ink less printed. And if you think of that, think of our ... we're launching a new product called M Squared. The banknote conference in Dallas, Texas, it's a 2018 banknote conference, and it's world forum on banknotes. That technology will lend itself into print, into the print medium. If I had an insert into a magazine, I could have that little video clip running and show somebody what it is like.

Nate: Yeah.

Doug: That's the type of technology and where we're heading it, which is something that you can't copy. So again, it can be used for authentication. But more importantly, it could be used as branding or explaining something. And the markets are far vast above what we're doing.

Nate: Yeah, and so what are the next step change in terms of applications you guys are targeting, you want to be next in. Is it pharmaceuticals next? Or is it ... could you talk about any successes that you had in securing contracts, or at least just successes even if it's not a contract.

Doug: I would say our two areas to highlight is back in 2013 we did our first production run, and we made the security features on the tap badges or [inaudible 00:28:46], that was our first foray into it that was to prove that we could do volume manufacturing. We then picked up in 2016, the UEFA tickets for the world cup, so we put the security features on and their mascot and used that as the UEFA tickets. So if you looked at that there was an icon on it that was about an inch and a half in diameter and they had the icon was what they call Super Victor. Super Victor as I said it turned off in to this gray modely effect and as you tilt it over you got a vibrant little mascot feature kicking a soccer ball. Very unique, it went over very well, it was extremely successful and there was no counterfeit tickets.

Doug: Those are the two indications that you had known about, we're also launching onto luxury brands and so there'll be more news on that, sort of the end of the summer being on a luxury brand article. And again it's ... so if you can think of a clutch or a purse or something like that, and a logo on the outside of it. Think of Louis Vuitton, Gucci, those are the couple that come to mind, and think of those clutches as if you had it, our technology can also be viewed from a long ways away and if someone was carrying the bag and you were across the sidewalk from them, and they walked by you, you'd see this flash and it'd change on and on, you know high detail or you could make it subdued so it's not so prominent, you don't have to have it flashy but most would have flashy, that would be brand recognition and so your brand recognition, your brand enhancement would come into play. We're going in to that luxury, commercial brand market.

Doug: The one that follows that is cosmetics and cosmetics were in that, I'm doing some things with proposals right now, that also is billions of units marketplace. So those are the high levels that we want to go in and penetrate first.

Nate: Yeah. As an investor, how should I think about the volatility or the variability in the top line but then also with the respect to margins and cashflow, so you get some wins here and there, the big contracts are what ... I get the sense you're really trying to pursue those more than maybe the little wins here and there, but could you talk about just the variability in the top line and then if you could talk a little bit about the business model. Are you pursuing more of the licensing types of contracts or the development contracts? If you could talk a little bit about where you would like to be three to five years from now and how we should think about the variability today.

Doug: We break down our revenue under basically three categories. One being licensing, one being product development, and one delivering products. So we do all of those three things. At present time development is our largest contract or largest segment of the revenue source. With product delivery being number two and licensing being the last or lowest amount. We see that staying in this avenue through 2019 to 2020 basically in that relationship and by the way even though that is the structure and we consider this the least area that we wanted to stay in as a structure for revenue. That right now is gross margins of 70 plus percent.

Nate: Yeah.

Doug: So extremely high in the industry. Then we move in after 2020, so for the next year and a half or so to two years, we look at the structure of the revenue changing, and we see product becoming more as number one, so the revenue source will be more centered around product. Number two will be development, and number three will be licensing. And the reason they were in that structure and that way is as you do your development contract, it starts to move down, and you start to fill your pipeline from the development contract. So you always want those in place and then two years after that going out into 2024, 2025 you have us going into a way that we want to be and that's licensing revenue goes to the top and that's the largest number, then product is number two, and then development is number three for revenues coming in. And you still always want, as I was saying, that development because those turn into product delivery and into licensing revenues.

Doug: So when we're in the end, we'd be looking somewhere between 75 and 85 percent gross, and the reason for that is the licensing there're no costs involved with it. It's just straight licensing coming through and flowing. So that will flow to the bottom line. As we start to move forward we're not something that our infrastructure grows on our cost line as our revenues go up, and that's very important to know that because we're about at the point and time in the company where EBITDA positive for the quarters, for the last three quarters we're about to release our financials on May the tenth so I won't talk about this past quarter but say all indications were on the same track and moving forward, and with that you'll see more and more licensing revenues and they'll flow to the bottom line. It's a very profitable looking company that way. So great for investors.

Nate: Yeah. I did see a slide in a video that I was watching yesterday and it showed your revenue going up in 2020 to, I can't remember what the number was, but there was a 35 percent EBITDA margin associated with 2020.

Doug: Correct.

Nate: So you mentioned gross margin but I'm just curious, what are the puts and takes with the respect to 35 percent EBITDA margin 2020 and what are the puts and takes with respect to revenue growth over the next several years?

Doug: What am I going to do? On estimations or where we're doing on our projected growth because of that licensing and product our gross margins are high which are going to fall down into our EBITDA or bottom excluding taxes. I think the best way to look at it is the product mix as it moves forward. As I was saying the licensing starts to come up through the chain and the product starts to come on, and those numbers are extremely profitable. So your bottom line or EBITDA goes up proportionally to those, and I think that's why you really have to look at it. If you look at it at the company with having a base that's growing, we'll say at 10 percent for costing, our revenue would be growing as we get out of several years at 100 percent per year.

That's probably going to level off when we get up to a few hundred million but at that time our costs on the bottom side will only have risen over where we are now probably 25 percent. So you can see that it becomes very profitable bottom line.

Doug: I gain it's that software delivery systems that you're looking at, it's the same type of system where you give somebody something and they pay up front, and then they pay a yearly charge to have use of the software. We're giving them for a charge up front a master shifter or printing head, and then we're charging an ongoing royalty or an ongoing license fee on a yearly basis for those articles.

Nate: Yeah and how ... I guess another way to ... maybe using puts and takes isn't the best way to frame it up from my end. How certain are you with the respect to the revenue growth over the next several years? I mean is this all based off of contracts that you know you have or are quite certain you'll have?

Doug: We're confident, I guess would be the way to put it, that these will materialize. We do not have specific contracts in place.

Nate: Yeah.

Doug: You have a development if we go into the banknote space. You have a development contract and you're developing a security feature for a banknote that is to be made in the future, and with that you have criteria and the design that you're developing for that issuing authority. So you've done all that and you deliver them a product that they're going to put on their banknote in the future, and the closer you get to the delivery date, the more stringent that banknote feature is or specific that is to the banknote.

Nate: I see.

Doug: Now naturally they could go to everybody in the world and say bid on this, and make it. Everybody in the world, we don't have any competitors at this time, so it will be very hard to solicit other contracts for it, is number one. Number two would only be seen to be a natural fit, that if we've done all the development, made it, produced it, given the sample figure at the end, that we would be producing it in the future and so the likelihood are going to be extremely high that we would get the order for it.

PART 2 OF 3 ENDS [00:52:04]

Nate: So you're licensing revenues and your revenue growth is predicated largely on the development contracts that you currently have in place today. Is that a better way to put it?

Doug: It works for the current contracts we have today but we're doing other things as well. Correct.

Nate: Okay.

Doug: Particularly what you're referring to is the banknote space, and yes.

Nate: Okay.

Doug: Yeah.

- Nate: Alright, now that's very helpful. So could you talk about the barriers to entry. So you're the only one whose doing this today, what would it take for Nate Abercrombie to go out and you find somebody who is very good with nano technology to do what you're doing.
- Doug: The first thing at trying to compromise our technology is you're going to have to have the availability of the class 100 clean room and the machinery associated with doing nanohole construction. While they're around, there is their facilities in the world, there's not very many of them and they're very restricted. The equipment that we make for our e-beam for embedding or creating those holes and fillers, that's around five million dollar piece of equipment that you would need to do that. On top of that you would need all the technical knowhow that we've developed, the algorithms, the modeling, etc. to be able to do that. Then you would have to process it in the clean room itself, after you've created those holes, you'd have to create what we call a metal shim, metal shim is made of hard nickel, so you'd have to grow that in a lab as well.
- Doug: So if you think of the semi conductor industry, somebody making chips, Qualcomm something like that. That is the type of equipment you need to be able to make our technology, and then on top of that the algorithms, they don't have those type of algorithms that give you the image that plays back, turns on and off and plays back. So you would have to develop those, manipulate them, and if you got all through all of that commercially you would then either be doing it as somebody on the sideline, but you couldn't do it as a government or one of the large hologram manufacturers because we're covered by patents. And on top of the patents, what we like to do is we have a great IP portfolio, it's growing substantially as we go along here. But we wrap everything, our technology and our processes are patented, and we wrap both of those with trade secrets.
- Doug: So we don't expose everything, when you have a patent you expose how you're doing some of the things, we're not exposed to that same area and if somebody does stumble on how to use our trade secrets, we're protected by our patents because they are use in conjunction with the patent. So they'd be useless to them. So again somebody could do it with enough time and money but by the time they spent their time, we'd be on to new things and they'd be having to figure out how to do those as well. So we're always on the watch if anybodies coming along in our space and we haven't seen anybody today. What we have today that we're releasing and showing, it's backed by something that we have for tomorrow that we already are in the process of developing. So our ability is to have a technology today to market it, to gain sales on it, and bring out a new technology as we move forward in the future, so we always are showing something new and everybody will be playing catch up with us.
- Nate: Yeah, I did see another video of you giving someone a tour of one of your facilities where you're walking through these doors and it's sealed doors. You go in first, something ... I don't know if they're spraying you with something but then there's another sealed door you got to go through and it just seems like you have a lot of security measures just to protect your IP which is encouraging to see.
- Doug: Yeah. On top of that we're accredited by the banknote association and so they come in and they audit us on our secure facility. So for example, if you came and wanted to be in our office we would lock up any recording device, whether it was video or audio, so if you had a phone, it goes into a locked box. If you're going into our secure facility you'd have to supply us with a passport and we do a background check before you came and were allowed into the facility. So background, very secure in those aspects.

Doug: When you talk about our lab, our lab is the same as what you'd find at Qualcomm or a chip maker and so you're suited up, you're in a class 100 clean room, you can't take other people in, you're ionized sprayed as you're going through it, you get rid of dust, you're on tracking maps, you put on a suit with boots and gloves and face shields, and that's probably what you saw in the video, but it is that complex. You have to know also how to run those machines and we run all those with our own scientists. We don't farm any of the work out, everything is done under our controls.

Nate: The machines, who make the machines? Do you make them internally or do you-

Doug: Some we have, we make some of the machines internally, the big ones when you talk about e-beams or fibs, focused ion beam. Any of those type are bought off shore and they're either from German, Korean, Japanese, or even some come from China. But the machines, they're very sophisticated and they require the user of them, which is the side to be trained in, it's all complex. That's what's unique and what everybody likes in the authentication world about what we're doing, it is extremely complex and expensive to make up the master in. With the machinery, the facility, the area like that, and it is extremely inexpensive to apply it to the article.

Nate: Yeah.

Doug: So you have the best of both worlds. You've got making the master is very technical and very expensive, and applying it is very inexpensive, so when they put it on a billion banknotes it's as they say a hundredth of a cent, a banknote. So very inexpensive and to make the master maybe a quarter of a million dollars which in the case of a banknote is not expensive but it's expensive for the hobbyist to go and try and forge that banknote.

Nate: Yeah, wow okay. Just so I'm even more clear on the development process. So if you have a development contract, first of all how many development contracts have you had that have not resulted in a recurring revenue type of contract?

Doug: Well some of them have not been for recurring revenue, some of them are experimental work only.

Nate: Okay.

Doug: And so any of the contracts that we've had since it's so new, and recurring revenue comes basically after about a 5 year process that you're going through the contract and we have not been five years in any contract.

Nate: Okay.

Doug: So we have no recurring revenue coming from any of those contracts at this time.

Nate: Okay.

Doug: But those are ... but in those contracts we are confident we will be getting some out of them.

- Nate: Yeah and then a development contract, the way that it's structured from a return on capital perspective when you got to a potential client and you tell them that you can do, you know that you can create a specific nanotech security measure for them, are they paying you for essentially you develop whatever it is they're looking for and do you just charge margin on top of what you think the total cost to develop that product will be? Or do you go out and bid? Is it a bidding process?
- Doug: No getting a development contract first of all is unusual by banking authorities or issuing authorities. They usually want to make, especially all the big companies, you would go with your latest technology that you spent years developing and you'd present to the bank and say "heres our latest technology, are you interested at putting it on your banknote?" And the banknote issuing authority would say "we don't like it" or "we like it" or "we would like to see it modified". In some cases they would go back to the company and say "we will pay you a development fee to add this feature to what you're showing us or change this feature in such a way that I can adopt it to my own banknote" but that's generally how it's done. We're a little unusual, we've gone to the issuing authority, showed them the technology and they have appreciated its value so much. They said "we will pay you to change your configuration to go onto our banknote" so that's what one of the things that makes us unusual.
- Doug: In doing that they will say to us "give us a proposal" so you could call it technically a request for proposal but it's not open to everyone, so you're not bidding against somebody else, it's just a technical proposal, and you negotiate a fee for the development of that security feature to be on the bank note, and they allow you to have a certain amount of markup in doing that. As you go through the process and you negotiate the price, it's based on a lot of information, very detailed information, hours work, machine time, materials consumed, areas like that and you negotiate a fee, they look at what your costs are for your scientist, what your management is, they allow you to markup as you're saying and once they say okay they give you a contract for a fixed amount.
- Nate: I see.
- Doug: And then they pay over the contract period, we'll say if it's three ... lets make it a year, simple. If it was a year contract and it was at one point two million dollars, they would pay you a hundred thousand dollars a month for that until the contract was finished. Now it's up to you to deliver the product on a monthly or quarterly basis depending on how it is, that satisfies the terms of what you've given them. If it takes you more time to develop that product or image then you put it in the contract that is your cost and the offset also occurs if you're able to make that feature faster because of something you may have developed or done and we'll say for an example 50 percent faster then you're going to be benefiting by a 50 percent margin during that period of the contract because you're going to deliver the product for a set price over a period of time, and that's all that concerns them. That's really how it works.
- Doug: If they change the scope during the period and you're delivering them articles to show them the progress and they change their scope of what they want delivered then you usually have an add-on to your contract that gets put into it as well, and then that gets added to the monthly fee that you're giving.
- Nate: I see. And so the most recent contract that you announced for 30 million, you said it was over five years? Am I correct?
- Doug: Up to five years.

Nate: Up to five years.

Doug: Yeah that means that if we could do it in a year, which we can't, but if we could do it in one year it can be done in one year they would pay the 30 million dollars in one year, and you'd move on. If you weren't finished the contract at the end of year five, they would have to re allocate funds to see whether they would want to continue or drop the project. So you have up to five years to be able to do it and so you'll make the proposal over a five year period and then hopefully be able to design so you can do that in a quicker period of time.

Nate: Yeah. Just thinking about it from where I sit, given where your technology is today and if you've been given five years to come up with something different, I'm really curious, I know you can't say anything but I'm really curious to know what it is that they've given you five years to develop, it sounds fascinating.

Doug: Well there's one part of that where you're on a true development contract which is more research based. The 30 million dollar one is based on what we call the big D, it's a development contract proposed to the big R which is a research contract. The big D means that after you've been in it for approximately a year, you'll have to find exactly what you're doing and it takes that length of time for an issuing authority to bring a new banknote out, so you are doing something that if I was to show you it today other than the image itself would be different. If I show you the technology it would be basically designing that technology and how you do production of it into a bank note. It's not going to be a new unique something in the future.

Nate: Okay.

Doug: It would have some uniqueness to the-

Doug: Something in the future.

Nate: Okay.

Doug: It would have some uniqueness to the banknote itself, but it's going to be centered around the feature and how you're doing it. The second part of the contracts we have is the big R, and the big R for research is technical stuff that you'd be floored at. Well we're doing it. Those we don't discuss, but you can think of in the technology and the nano tech space, you can think of images that are extremely small that you can't read, but if you used your cellphone and your camera in your cellphone, it would read it and do something for you. For checking an image that looks like it's floating above a surface. Those are all the directions of what we're putting together in technology into the future. So what you see in movies; those are the type of products that we're taking the technology forward on. And again it's the inkless printing, and the medium that I can give you something into hard copy, whether it's just that you pick it up, it's a business card and you saw for example, if we wanted to create your face, we can create your face with all the flesh tones, color your eyes--

Nate: Yeah.

Doug: And we could have you nodding your head, like you're doing right now.

Nate: Yeah.

Doug: Or we could have you turning your head. Or we could have a shot of you posed being static that has movement, or doing both. You can be nodding and then turning. Okay. And winking at somebody. Smiling, laughing. You can have all those attributes in it.

Nate: Yeah.

Doug: And you could do that in the print medium. So you go, "Well print medium is going away". It's really not, that's why you're seeing everybody's still around in books. But you can put it into a flyer, whether it was a newspaper, whether it was business [crosstalk 00:53:54]. And you could put an insert into it, or you could put it directly on the page. And somebody see it and pick up the book, and if they went to the website where they had video on it, you could match the video, and you can have it in print. So instead of going on your computer, you pick up the pamphlet and you move it back and forth, and it does something. You go to the website and you'd see the same image going back and forth on the website.

Nate: Yeah. First thought that comes to mind is Harry Potter-- all the newspapers in Harry Potter, how the images are moving because they're under some spell or whatever.

Doug: Correct. So you can use it in your advertisements. Again that is a branding exercise and the second part about it is, not only is it branded but they know nobody can knock it off and duplicate it. So you're selling the audience a brand.

Nate: Yeah. Kinda going back to barriers to entry. You're the only ones that are doing this. Do you think of your business as an acquisition target today, and at what point-- how much of the industry do you need to disrupt before-- so if the answer is no, how much of the industry do you need to disrupt before you start thinking of yourself as an acquisition target? And do you want to be thought that way, or do you just want to continue to grow-- remain a standalone business and just grow your business, and become one of the premier providers of authentication?

Doug: We have had several companies come and kick the tires, so to speak. And we're not ready for anybody acquiring us. When you get into the larger companies, they generally wait until you disrupt them. So when you take away one of their customers, or you take over one of their projects that's significant, that is the time that they start moving addresses. They tend not to buy technology companies for the sake of buying technology. They do from time to time, but that's not generally their format. Their format is wait until it disrupts their business, and when it disrupts their business then it's time to go after because they can see the foresight of what's gonna happen as it goes along. So as I said, we've had some tire kicking at this time, and it's something that comes up every so often, but at this stage we want the growth in the company.

Nate: Yeah. Makes sense. You've got a super solid balance sheet, you've got no debt, you've got-- what is it, 10, 12 million dollars of cash on the balance sheet. Can you talk about how you're thinking about the balance sheet longer term, and what are the needs, if any, in order for Nanotech to continue growing the business.

Doug: The one thing that we like to do is have enough cash or war chest that we can do something and move quickly if we have to on it. Right now we're [inaudible 00:56:45] positive, and in doing so we see our cash building, except for as we would do capital expenditures that are large in size or significant size. We always have been headed towards the area of being profitable early for a small company, which is unusual for the size that we are and what we're doing in the research field, because we've been purely a research company and

technically until about a year ago, and then we moved more into the commercialization. And everyone will see that in the next little while. But keeping no debt is our goal.

Doug: If we were doing an acquisition, of maybe doing a funding round with the acquisition, something like that, so we'd use cash and stock in an acquisition. And we're looking at some targets that are various sizes right now that would enhance our product or allow us to enhance their product to make a new product. So those are opportunities we're looking for. We're always looking for technology that we can marry to ours, and bring it in, and accelerate our growth. But we're well capitalized the way we are, and we're not thinking of doing a financing or funding round at this stage. And we see the growth on a monthly basis of our cash.

Nate: And you mentioned capex obligations, and they probably have something to do with the development contract, but do you have any obligations on the horizon that you've talked about that might put you in a situation where you need to either go out and raise equity, or spend that cash on the balance sheet?

Doug: I think that we would look first at banking means, traditional-- of a loan, something like that. If we needed it, especially in a hurry, we would have operating lines to be able to be drawn on. So it would have to be something significant before we would dip into our cash reserves. At this time. And as I've said, we're always looking, but what we know that's going on-- the cash may go down by a few million dollars, three to four million dollars, but then it should be coming back up by what we have on our [inaudible 00:58:58].

Nate: So then-- and I'm looking around that you probably see me looking around here on my screen because I'm trying to find that slide that showed what your current projection is for revenues, and EBITDA margins in 2020, and just trying to-- [inaudible 00:59:14]-- figure out what cash flows could be in that year, and then get your philosophy on capital allocation and how you're thinking about whether it's returning cash to the shareholders or growing the business. How are you thinking about that today?

Doug: For the next three to five years we're looking at the gross stage. So just using the cash as a resource to be able to grow very quickly. I think that would be the fundamental areas that we would look for. After that period of time, should we be successful in all our goals and outlines that we've put in, then we would look to be paying something out to shareholders. That is the goal for the future. That can change very quickly as you start to go into these sizeable contracts, but at the same token we're also looking at a lot of small contracts. So that's where we've changed from just doing the big ones for validation; we've done that now. And while it's nice to pick up the big ones, and it comes in as large inputs into our revenues, the small ones are bread and butter that we'll pick up, and the profit margins are still the same, they're still large. Again it's because it's that licensing revenue.

Doug: So I always worry about a customer listening to this conversation, going, "Profit margin is high, we can go in and they should be dropping what they're doing." The reason our profit margins are so high is our expertise of doing things-- we're very inexpensive to do them and then we find unique ways to make it even faster, or we'll make a scientific breakthrough that allows us to create what was taking us before 10 hours in two hours. So all of a sudden we can't get to capitalize on that, and no one thought that we were excessive in the first place, so because we've been able to bring new technology into play to up our margins, that's basically our business.

Nate: Sure. Yeah. In your opinion, what do you think the market has wrong, or misunderstands, about Nanotech? Because I'm assuming you came onto this program because you also probably view your stock as being undervalued.

Doug: Yes we-- any CEO would say our stock is undervalued.

Nate: That's true.

Doug: But the thing is we're not known as a company. We're a little company in Vancouver, Canada. We've developed about-- we're playing in the big league. We are certainly known in the banknote industry now. We've been very recognized that way. And that's hence the contract, that we've got the contracts, that we've got from the issuing authorities. So well known there, six years ago when we went to our first conference, companies that I indicated first [inaudible 01:02:10] okay they're another startup company coming to the market, they'll go away. Six years later, they're eating in the revenues and seeing us grow. So that's the areas-- we're not known as a company-- we're known in the marketplace of banknotes, we're not known even in tax stamps or commercial goods, at all, all the players. So if we get into luxury goods or we get into cosmetics, we're not known at all. So we have to get known better and exploring out there. We haven't concentrated on that in the past, so that's coming into play.

Doug: So we've put a marketing and sales team in place to go after that type of work, and we've just expanded that in our last quarter. So we've added people here and we've added size. But again it's gonna center around not being known in the stock market, and getting that word out. That's gonna be the big area. That's the thing that we have to do, and do a better job of.

Nate: Yeah. And could you-- Just looking at a stock chart, your shares were trading back in October of last year at a dollar 70, close to it, and at a dollar 20 today. Not sure if that's Canadian dollars or US dollars.

Doug: Those are Canadian.

Nate: Canadian. So what happened between November and today?

Doug: I think that more of the announcement of 30 million dollar contract, or the announcement of contracts. Everyone noticed that in a small pool of funds and people in Canada. [crosstalk 01:03:52] in Canada, definitely been trading in the States. And some buying came in that felt that it was an opportunity on long term. The long term buying that's come in has bought, and they're not sellers. But they're no longer buyers, so their market has sort of drifted, and drifted away. We haven't had much in the name or size of news announcements during the time, and I think that you'll have seen in the last little while we've picked that up, we've rebranded the company because we're going to the commercialization and away from the research--

Nate: Mm-hmm (affirmative).

Doug: -- that we've bought some machinery that will allow us to do things faster and more economical, and expand our technical capabilities. And the contracts that we're working on, we can't announce what stage or what we're doing in them other than they're going along well, and you can see from our income statement that we're generating revenue [inaudible 01:04:52]. Those are the prime areas; this is just not known, and getting our name out there. You'll see more and more contracts coming on, and so you'll see the revenue's going up

and you'll see the bottom line increasing, and the [inaudible 01:05:09] line increasing before the bottom line, but increasing. And then I think people will start taking a notice, and [inaudible 01:05:16] this hasn't been discovered.

Nate: Yeah. In your opinion, what are the big head wins for your firm?

Doug: The ones that are always my concern is two parts. It is communications. That's always the thing that keeps me up at night. Communications across the company; we have locations in Thurso, Quebec and Vancouver, Canada. Thurso, Quebec is just about 30 minutes away from Ottawa, capital of Canada. So keeping two separate operations, the culture, all going together. Both have research labs and research facilities, and both have production. And then our corporate office is on the West Coast. So visiting those, keeping everybody as part of the team and nobody feeling that they're being fostered out there; that is the communications aspect that worries me [inaudible 01:06:06].

Doug: Second thing that always concerns me is somebody is developing something in the background, just like we were [inaudible 01:06:13]. And it's going to pop its head out and we're going to have a challenge. The other area is the length of time it takes to go into a banknote contract. It takes generally-- somebody doesn't change their bank notes for a period of about an average eight years. So you have an eight year development cycle, and some [inaudible 01:06:37] change in eight years. So you have to pick the right horse and do your development with them. So it's a slow process. That is a huge head win because an investor looks at it and says, "You're not going to be parading this big revenue for five years; I'll wait." So they stay out of the market or don't get involved in the company. Now we may add some things now that go away from that banknote market that gives us wins now that you see, and the investors can see something different. But up till now, head win is not being able to release data specifically so an investor can look at it and analyze it comparatively.

Nate: Sure. And just looking at the Bloomberg terminal, I see that there are four analysts, sell-side analysts that cover Nanotech Securities, and all four by-rated. Is there a bare thesis out there that you've heard from anyone on Wall Street, or I don't know what the comparable street would be in Toronto, but--

Doug: The Toronto Market. Our analysts our very bullish on us, and they're bullish on us because they can see that in the future we'll be picking up these licensing agreements. I think that the big thing is once everybody understands the licensing arrangement and the materials-- the materials can be very profitable because they're unique and nobody else can build them. So you have a first mover advantage. We can say that, although the movers that are coming up behind us I think are far away from us. But again, first mover advantage.

Doug: Our problems now are starting to come for head wins-- all of a sudden we broke them into this technology area for selling products or marketing products in the commercial aspect, is the amount that are coming at us and to be able to support that. It's like okay we weren't doing it, but we should get into it. Now all of a sudden we're getting into it and it's like another one, another, another one, another one. And your infrastructure to develop a product or to make a product for something is something that we're in the midst of changing. Right now the same people that are doing a 30 million contract would be doing a 20 thousand dollar contract, and eating up their time. And so we're adding people to be able to support the sales and marketing of the brands that we wanna promote, and how we want to do it. So that is a challenge; moving the company in that direction.

- Nate: Yeah, that's great. So for an investor that's interested in learning more about Nanotech Security; how would you advise them or how would you guide them to-- what are the appropriate steps for them to either get comfortable or get more familiar with the Nanotech Security story or investment thesis?
- Doug: I think the first thing that I would encourage an investor to do is take a look at our website and keep up with it. Our website will be changing. We've just changed it. It will have a lot of new things that will come onto it on a monthly basis, and so go to it and it explains fairly well how our two technologies work. We have two technologies; one in the nano optics and one in the optical thin film. So get an understanding of that, and then if you sort of surround the Internet you would find that there aren't any other companies you can sort of compare us to. So then you'd look at nanotechnology in more in-depth on the Internet, and see some areas like that. And then look at the security. Go to our competitors so you can compare a product. They're far more encompassing of a product line that they can do, but you'll see that there is nothing that competes with ours. And so you can see the difference. And you'll also see in the months coming more from banknote authorities as they announce their notes and their technologies, that you will see areas that were have incorporated our security features, and so that will be highlighted.
- Doug: Once that they start running and issuing authorities starts using your technology, it's generally-- they outlaw you to publicize that it's yours. Okay so those are the areas. The other things are-- there's things like commemorative banknotes that are legal tender, but they're made for specific things of countries. Those ones don't have the same cycle. They do those for events, they do them for commemorative events, things like that, and they put them out ad hoc. Those are areas that you want to yawn, and we're looking forward to seeing that in the future with our technology on it. So again it's understand the size; the banknote market in our type of security features is about a two billion dollar a year marketplace. So us being in it at a 100 million dollars in the future is small; it's 5%.
- Nate: So I like to end these interviews with a funny story or a memorable story that you have from meeting with investors, either at a sell-side conference or a road show, or something like that. So if you have anything that you would like to share, or a funny story, or again a memorable story that comes to mind, would love to hear it.
- Doug: See I guess the one that comes to mind-- first comes to mind is after explaining how the technology all worked and that you can put it on something, there was a lady that asked, "Could you put it on skin?" And we said well technically yes, we can put it on skin. And she said, "Well can you put it on fingernails?" And we're like, "Yeah, you can put it on fingernails." And so then she got really serious, and said, "I'd really like you to put it on." We said, "Well it's a little more difficult than just doing that. Technically we could do all those things, but we would have to make up a lot."
- Doug: She's like "I really want it." And I said-- it happened to be an investor-- it's an investor, very bright lady. And she said, "Well I wanna put it on so I could show it to everybody and I can promote you." And I said, "Well there's only one bad thing about skin; it's always falling off." So we only indent in a nanoscale, very very-- something that's very very shallow. So it's in that top layer of skin so I said, "After you'd washed yourself, you'd find it would be gone."
- Doug: This turned into something that became memorable for us because she said, "Well what about coloring my hair?" And we went-- there was two of us there, and one was from a technical side who said, "Yea we could do that." So we went off and we colored hair with nano, and we have this friend to show, and it's in some of

our presentations, I'm not sure if it's one that you've seen, but we show that and we show that you take a crimping iron and you can have red or orange or purple hair. We haven't been successful at doing a blonde or brunette, but if you want a wild color, we can put it. And it is permanent until it grows out. There is nothing that will affect it, including dye.

Nate: Wow.

Doug: So if you were to dye your hair overtop of it, it still would be red. So no take-up on 'yeah I'll have my hair done'. But yes, and that also brought up the secondary part about printing clothes or cloth with it, with the design. So if you think of the amount of pollution that goes into blue jeans; if we were to make up a printhead, and we've got it in small [inaudible 01:14:39], not in large, but we have one. You could print a piece of cotton or jean material in it, and it would come up with a color, but the color would shift; it wouldn't always be blue, might go off to the gray color and then back to blue. So you can think of designing a dress as a fashion icon for a year, and you make the top of it change all different colors as you walk across the stage.

Nate: Well Doug thank you so very much for sharing your time with Investing with a Buyside. It's been a pleasure talking to you and it's been a fascinating conversation, and it's been really interesting learning about your business. So thank you so much.

Doug: All right thanks Nate. It's been great to chat with you as well, and thanks for the opportunity to get our word out and talk about the company and our technology a little bit.

Nate: Yeah definitely. Well good luck out there and hopefully we'll talk again in the future.

PART 3 OF 3 ENDS [01:15:38]

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