



**The ENGINEERING CAREER COACH PODCAST
SESSION #48
Five Strategies to an Innovative Engineering Career**

Show notes at: engineeringcareercoach.com/rocketscientist

Anthony's Upfront Intro: In this episode, I'm going to interview a rocket scientist and he is going to give you five strategies for being more innovative as an engineer and explain to you why they can help you to be successful. Let's do it!

Episode Intro: Welcome to *The Engineering Career Coach Podcast*, where it's all about helping real engineers to overcome real challenges and get real results. And now for your host, who is on a mission to inspire as many engineers as possible, professional engineer and certified career coach, Anthony Fasano.

Anthony: Welcome to the show today. This is the show for engineers that want to create extraordinary careers and lives. And I'm really excited because today, for the first time, I have a rocket scientist on the show and I will introduce him momentarily and bring him in for very interesting interview on how to use innovation in your engineering career.

And before I do that, I just want to mention real quickly, registration is open for The Engineering Career Success Summit. This is an event I'm putting on in Washington, D.C. at the end of April and it's the only event out there that focuses a 100% on trying to transform engineers into powerful leaders. The event is designed to help you improve your communication skills, become a better networker so you could build relationships in your career that will yield opportunities for you and your company and also to become a leader. It's important that you can lead in today's world, and that's what we want to help you to do at this event.

And we just added bonus session during lunch on Friday where I'm going to kind of hold an open forum on what credentials are the right credentials for you in your engineering career because this is kind of an intimate setting and we're going to keep the event small. You'll actually be able to ask me questions on your career specifically. And I added the session because I've been asking a lot of engineers on how the event looks, how the schedule looks, what should we do to make it even more interesting to you, and I kept getting the idea of helping me figure out what credentials to get, and so I've added that bonus session in. All the information about the event can be found at www.engineeringevent.com including a quick video summary and a video of our keynote speaker kind of a preview, which is really, really inspirational. So check that out. And if you have any questions, feel free to email me at afasano@engineeringcareercoach.com.

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With that, let me give a formal introduction to my guest today, Brett Hoffstadt. Brett is an aerospace engineer, a.k.a. rocket scientist, project manager, inventor, music composer, innovation catalyst, and also author of a book called *How To Be A Rocket Scientist*. When he thought about what career he wanted to pursue, he thought about the hobbies that he loved the most, building and flying radio-controlled airplanes and playing the piano. Being practical, airplane won. And obviously, he became a rocket scientist.

Brett got two websites I want to mention to you. One is focused on his book howtobearocketscientist.com, and he's got one that he's going to talk mostly about today, innovation, and that website is engineeryourinnovation.com. And just so you know, Brett kind of gave his story in the beginning of the main segment, which is coming up, but there were some technical difficulties so I summarized it and then brought him in to jump us right into the five strategies that he is going to give you to become more innovative as an engineer in your career and these are pretty powerful strategies.

So to bring us into the main segment, I'm going to give you a quote from Brett himself that really stuck for me when I did this interview, which is: "Think safe to fail not fail-safe." Let me say that again, "Think safe to fail not fail-safe." Let's do it!

Coaching Segment:

Anthony: Let me take all the listeners right into it here and just give them a quick overview. So basically, you grew up loving airplanes and anything to do with flying and then you also love playing the piano and writing music. You had your two passions and you went to school. You got your bachelor's and your master's degree in aerospace engineering, which is awesome. Then you also have this passion for music, playing piano and making music, but you didn't really push it. And you always wanted to have a record label, but then it didn't happen and then until you were able to publish your own music with CD Baby. So then when CD Baby came about, you put out an album, correct?

Brett: Yes, right. It's called *Preludes & Reflections*. If you like piano or instrumental music, then you can find it and I'd be happy to recommend it to you.

Anthony: Awesome. So that's *Preludes & Reflections* by Brett Hoffstadt, and you could check that out. But what that did, Brett, is it opened up. It sounded like it opened up your mind to innovation and

then helped you now really to focus on how you can marry your love of engineering and your love of music together through innovation. Is that accurate?

Brett: Exactly, right, and how can I help other people accomplish the same thing and take their passions, their interests that might have a channel or a focus outside of work. How can I help them bring it all into their career to make their career more successful and more rewarding, too?

Anthony: Awesome. Alright. So tell us how you did that, Brett. Take us into that. Are you thinking about how you can bring these things together? Give us some of the things that happened for you to do that.

Brett: Alright. Well, these get into what I – I think we will talk about more about the strategies about how anyone can be more innovative. And so what I did was... I'll tell my story. I had a friend and colleague, who worked in the same company. We actually we're on different cities but we're just soul mates in a way we had just similar attitudes. We both said to ourselves, "We need to unlock more innovation here in our company. We need to figure out how to do things better and how to let ourselves be able to do better also like, "What are the things that are holding us back here in the company, how can we work on those things, and how can we help other people realize their full potential here, too," so that by doing that, we'll all be better individually and our company will be more successful, more prosperous also." Does that make sense?

Anthony: Yeah, that absolutely makes sense. So you guys kind of teamed up on this innovation thing and bring to fruition?

Brett: Right. So we basically started our own independent study program. We read books together. We shared the books. We compared notes on the books so that we could learn with each other. We shared a lot of TED videos, TED talks, which are great. And we figured out what are some experiments we can do here within the company that can help us move forward to some things that hopefully won't get us in trouble. And that was part of the fun, to figure out what can we do without permission or little bit under the radar to learn from.

Anthony: Wow!

Brett: And what can we do to push the envelope a little bit and, you know, just see what happens? But that was a lot of fun so I can tell you some examples.

Anthony: Yeah, let's jump into it. But just to be clear, so this is colleague of yours in the same company at a different geographic location?

Brett: Yes, right.

Anthony: Okay.

Brett: So I think – and one thing I recommend and it's easier now – in our company, we had our own internal social network that was private kind of company.

Anthony: Yeah.

Brett: So I think a lot of large companies have this, which is great, and that's a great way to find people with common interests. But you could also use LinkedIn if you, you know, have people in your company that are on there, or maybe it's somebody outside your company that is interested in innovation or creativity and it's a great part of our world today as we can find these people and connect with them, right?

Anthony: Absolutely. Absolutely. I mean that's how you and I met on LinkedIn, so 100%.

Brett: That's right.

Anthony: Brett, let's do this because I know you're going to give the listeners five strategies for becoming more innovative. Why don't we go through those strategies? And as we go through them, you can tie it into what you did with your colleague. I think that might work well. What do you think?

Brett: Sure. Great.

Anthony: Let's go through number one, which you have, as and I'm looking at them here is, know thyself, your SWOT and passions and goals. Take us through that a little bit.

Brett: Okay. So this is really about understanding yourself, the SWOT, and it stands for Strengths, Weaknesses, Opportunities and Threats, and that's a pretty common thing to do in business or in engineering when you have a project. But it works with yourself also, so it's great to take inventory of yourself. And I know you recommend this also in goal setting.

Anthony: Absolutely. You got to know where you're starting so you can know, you know, where you're going to go or what you need to get there.

Brett: And included in that, I'd say you need to know what your passions are and then, what are your goals? You need goals, of course. So how can you put all that together? And then basically, it's a matter of assessing your current situation, look for the gaps, and then figure out how you can work towards your goals.



Anthony: Hey, Brett. Let me ask you a question around this topic here. Would you define innovation? I'm an engineer in my career, would you define innovation as taking a risk?

Brett: Good question. We did and we meant to define this earlier I think. So I define innovation as creating a new product or service that has a value in the marketplace. So it's different than an invention, which might be a new device or idea because it actually goes into the marketplace. It interacts with other people or customers. But that marketplace could be an internal marketplace. It could be within your company. And it could even be something that you use yourself that improves your own value as a person or as a professional. That's how I define innovation.

Anthony: And maybe would you say that to being innovative, you might need to take some risks?

Brett: Sure. I think a key part of innovation is that they were probably be failure. There will definitely be learning because there's uncertainty.

Anthony: Right.

Brett: So that's one thing that, you know, we, I think as engineers, have to get more comfortable with is the idea of failure or learning. And so -

Anthony: Absolutely.

Brett: - that's what I think I said that that's very important to have an experimental mindset and figure out how can you do something that is not necessarily fail-safe, but safe to fail and then safe to learn from.

Anthony: Got yah. And then the reason I'm asking is because the listener being an engineer, they may not be too keen to innovation as far as, you know, many engineers are limited in the roles to their companies as what they can do and what can't do. And even what you said that you might have to take some risks. You might have to do some things that aren't normal to be innovative, but I want our listener understand that you can be innovative. And if you become innovative in your career, we're going to get more deeper into this as Brett take us into steps is that you can do something groundbreaking in your company that can set you apart and have made your ramifications for your company and for your career. That's what be innovative is about. From my perspective, it's pushing the envelope.

So Brett has given us the first step to doing that and you have to know yourself obviously. I mean you got to know your strengths and weaknesses if you're going to be able to try to do something like this because you have to go in the direction that's going to give yourself an opportunity to succeed at least to my opinion. So...

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Brett: Yep.

Anthony: Sorry about that, Brett. I just kind of want to lay that out there because I want the listeners to understand that this information that you're giving them, this could really be helpful and really be a big deal in their career.

Brett: Right. Great. And I think I believe so. It's definitely been a great help for me. So shall we move to the next strategy?

Anthony: Yeah, go ahead. Jump in to number two.

Brett: Okay. So to be innovative, it is a constant learning process, constant process of improvement. And so a lot of that comes with yourself so I really encourage and recommend that people need to make it a constant habit of reading and listening and learning from other people from innovative thinkers, from thought leaders, and the examples in the industry throughout history who have done innovative things. So again, I'm talking about there are a lot of great books that are out there and TED talks are excellent. And one author in particular I'll tell you I know you're a fan of this is Seth Godin.

Anthony: Absolutely. Linchpin is one of my favorite books.

Brett: Linchpin is great. And so I got exposed to Seth Godin from this friend of mine I mentioned, who is my wingman in my company. So he turned me on to Seth and then we could say the rest is history in some ways. So it's very important to give yourself some positive brain food, I call it.

Anthony: That's a good point. And we're going to link to all the resources that we talked about here in the show notes for the show which will be [@engineeringcareercoach.com/rocketscientist](https://www.engineeringcareercoach.com/rocketscientist).

Brett: Great.

Anthony: Let's move to number three. We got know thyself. We got constant learning, reading. Let's jump in to number three.

Brett: Number three is, find at least one person who can be your innovation buddy like a swim buddy or if you're on a diet program, they recommend somebody to do it with you, right, for the emotional support and encouragement. So I really recommend that. And again, think about maybe it might be some weak signals or occasional or circumstantial acquaintances you have in your company. But think about, is there somebody who you resonate with who you've had conversations about things like – well, I wish we could be more innovative here," or, "why don't we do this this way," or somebody

who is curious, asks a lot of questions, then that could be the person who you can team up with and then start to brainstorm with, you make some strategies with, and be supportive with each other.

And one point I'll make, Anthony, is that probably it's good for not to be a manager or executive at least in the beginning because this is where it's better to be safe to fail an experiment because what I found was when you actually do have some success or some notoriety, and it could be good or bad. Hopefully, it's good. But when you start getting the attention of executives and leaders in your company, you might lose in a way some ability and freedom to be innovative. So there's an advantage to working under the radar or -

Anthony: Yep.

Brett: - a little discretely in the beginning.

Anthony: Yeah, that makes a lot of sense, flying under the radar, being able to take some risks and do some things without anyone knowing about it in the beginning so you can kind of flex your muscles and see what works a little bit.

Brett: And that also... I think I've seen that either prevents a lot of people from starting or at least or gets them off on the wrong start when they think they need to get permission or get picked for something like a big special project. And what I found, Anthony, is there's a lot that you can do by picking yourself and just say, "I'm going to try something," and it takes some time and thought to think about what can be that doesn't need permission. But if someone thinks about it even in my case, I was in a defense contractor. We have a lot of regulations. There's, you know, federal laws and contracting regulations that we have to follow. So it took some time for me to figure out what can I do that is outside of all those constraints. But there actually were some things. Some of it involved with doing things on my own time so it involved an investment on my part but that's where it's important to go back to your passion, what are you passionate about, where are your strengths, and what can you do that doesn't need permission from anyone else.

Anthony: And I think that that kind of leads us right into number four, Brett, which is, what experiments can do without permission or authority. And you also say, "Think safe to fail not fail-safe." Talk to us about that last statement.

Brett: Okay. I'll give you my example. Hopefully that will help. It was back in, I'd say, right after my music album came out, so it must have been 2011, and we didn't have any 3D printers in our company, at least in my location. And this was something that my friend and I had talked about and saying, "We need to get one of these 3D printers here and it's just an incredible technology. It will speed up our prototyping. Our designers can use it. We can bring a part into our meeting room and hold it in our hands. So we figured, and how can we make those happen. And so I basically took it

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upon myself to say, “Alright. This is going to be my project to figure out how can we get one of these machines at our company, and I started talking to people. I talked to the facilities person. I talked to people on the labs. And one thing I learned, Anthony, is that a lot of innovation is not about the technology per se. It’s about the business. It’s about navigating the corporate bureaucracy or the politics or just the procedures, but that matters. That’s important because remember what I said, innovation is about creating something new that has value in the marketplace. So understanding that marketplace is very important and that’s actually what I think people need to expect as a big part of the learning process, big part of the experiments. So, for instance, with the 3D printer, I eventually got one in the company. It was a great success story. But my initial plan for who would own it and where it would sit within the company was wrong. I just had a good estimate, a good guess in the beginning but it turned out not to be the right thing. And so I had to experiment and test and talk with people along the way, and be prepared for those things to learn.

Anthony: Yeah.

Brett: Does that make sense?

Anthony: Yeah. It makes a lot of sense. And that, you know, when we think of it that way and then you say that statement again, “Think safe to fail not fail-safe,” I think it’s a great approach because you go into it basically, expecting that there’s going to be some mishaps but that I think allows you to, like I said before, kind of flex your muscles a bit, try some things, throw them against the wall see if they stick. And if they don’t, you try something else. But when you go into it thinking that you want to be fail-safe, you’re going to be more conservative and then you’re going to lose that innovation.

Brett: Yep.

Anthony: So take us into step five, Brett, and let’s close it up here and then we could summarize the steps for listeners.

Brett: Okay. So step five I recommend is to think like an entrepreneur and use the Lean Startup principles if anyone listening here. How about yourself, Anthony, are you familiar with the Lean Startup?

Anthony: Yes, I’m familiar with the book. I’ve just read the book recently Running Lean, which is another great book. And I like the idea behind it, which is essentially allowing fans, followers, customers to help build something for themselves, not just saying, “Okay. I built this product and I hope you like it.” It’s more like, “Listen. I built the part of this product. What do you think?” How can I refine it? What can I add to it?” And then you continue to build upon it with their help. Is that accurate?

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Brett: I think that's good. That's a great part of it. And in fact, that reminds me of one technique I learned from, I think it was a book, one of the ones I read, is that if you ask someone for money, they'll give you advice. If you ask them for advice, they could give you money or funding for it. So if you need to approach a manager or an executive with an idea, let's say, you have this idea for a new innovation in your company, and instead of going to them and saying, "Here's my idea, will you fund it? Can we do it," instead you can go to them and say, "Here's an idea, I'm wondering if this would be good for us or not. What do you think?" And then you get their mental gears working on your behalf, you can hear their objections or concerns. But if they get persuaded that they like it, they'll feel that it's actually part of their decision and they then will have more support for it.

Anthony: I like that. And, yes, I've heard that a lot and I actually do that myself on a regular basis. And I found it to be a successful approach and really not just successful but it's really more enjoyable because the people you're working with are very bought into the ideas and the project as well.

Brett: Right. And actually, that reminds me and now it occurred at quick book recommendation. It's by John Kotter. It's called Buy-In: How to Prevent Your Good Idea from Getting Shut Down.

Anthony: Great. We'll list that in the show notes.

Brett: But let me say one more thing about the Lean Startup. Again, that's another great book I recommend for people. But the point of that is to do a constant iterative process that involves building something in order to measure the effects or the reactions in order to learn what to do next. So it's a build, measure, learn and repeat cycle. And it has a lot of commonality with Six Sigma and Continuous Improvement. But the key here is that you're doing it with people, with your company like your internal marketplace. And so if you take that approach, realize that not everything is going to succeed. Innovation involves failure and learning. But if you go into it with that mindset, then you'll be able to accept the failure and learn from it and understand that it is part of the process.

Anthony: That's great, Brett. Well, let me do this. Let me summarize these strategies that Brett gave us for becoming more innovative as an engineer. Number one is to know yourself, and especially what your strengths and weaknesses are but also let your passion and goal come through. It's important that you know who you are before you start to try to become innovative and to try different things.

Number two, read, listen to, and watch innovative thinkers and doers on a regular basis. There's plenty of books. There's TED talks like Brett said. There's lots of content out there that help you start to think in an innovative way. In fact, one of the things you can do is you can go to engineeringcareercoach.com and click on the Podcast tab and go to Episode 19, which is called How to Work Smarter as an Engineer by Utilizing Both Sides of Your Brain by Stu Walesh. He was my

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guest. That is a piece of content that I'll help you start thinking kind of more whole brain, more innovatively.

Step number three, find at least one innovation wingman, wingwoman, or "swim buddy" as Brett referred to the person that's there to bounce things off of, to give you support, to give you accountability. I mean this is really a critical step as I see it because being innovative requires you to be different, which means there's going to be ups and downs and there's going to be struggles and you need someone there to help push you through those kind of those values and get you back up to the peaks that you want to experience.

Step four, figuring out what experiments you can do without permission or authority. Think safe to fail not fail to safe and I love this one here. Listen, if you want to be recognized in your industry as a standout, you've got to be innovative. You got to do different things. A lot of people do the same thing these days and they get the same results. So try to figure out what in your company you can do to be different and to standout. And I'm going to give you a challenge in the Take Action Today segment of the show, which is coming up here in a minute.

And the last step that Brett gave us, the fifth step or strategy, is to be a Lean Startup entrepreneur. Build, measure, learn, repeat. Build, measure, learn, repeat. You want to do something, see what happens, learn from it, and then adjust, which is an awesome advice. A lot of engineers think that they have the answers and they just go out there and try to put an answer up and see if it sticks instead of taking more of an iterative approach and I think that that's the key to be innovative.

So with that, what I want to do is ask Brett if he'll just stick around. For a minute, Brett, let's do the Take Action Today segment of the show where we can give the listeners a little bit of the innovative challenge. What do you think?

Brett: Great. Okay. Thank you, Anthony.

Anthony: Let's do it!

Take Action Today Segment:

Anthony: So, for today's Take Action Today segment at the end of this episode, this is where I try to challenge the listener or push you to do something that you might not have done if you didn't listen to the show. And what I want to do here, building on what Brett has told us and I still have Brett here

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with me, is I want you to think of one thing that's extremely innovative that you can do in your company and I want you to try to do it. And I want you to do one or two things, either one, you can go to engineeringcareercoach.com, on the Contact tab, and put an application to come on the show with me and get some coaching and advice. And maybe if Brett's available, he can come on, too. And either both faster I can help you come up with a plan to become innovative knowing kind of track and have you back on the show, or just try and do something innovative in your company. Try something. Try to test. Try to sample. And then, again, go to engineeringcareercoach.com, Contact tab, and put an application to take us through the process come on the show and take the listeners to the process of what to you. I want to challenge you because the only way that we're all going to do it is if we see other people doing it and other people having success and that's why I wanted to have Brett come on. I mean he had success with this.

Listen. He pushed the envelope by putting out a record, which is amazing to begin with, and then he did some really creative things within his company. And we didn't even get to go through all of them and maybe we'll have them back on another show, but I just want to thank him for coming on. And Brett, first of all, do you have any last remarks you want to say about innovation, maybe how it's affected you and what it can really do for someone?

Brett: Alright. And thank you, Anthony, because I would like to say that a lot of us have grown up in the traditional environment of needing to get a job, to get hired, and to get picked for assignments. But we're really in a new era today when you can pick yourself and you can take initiative and that is really what leadership is and that's what innovation is, and that's what we need from I think every engineer and every professional. So, if people want some advice or have ideas, thank you for offering your website and you for that. I'll also recommend or invite them to my website. It's engineeryourinnovation.com, where I give more stories and examples of what I have done or strategies and techniques that you can use to be innovative in your career.

Anthony: Excellent. Thanks so much, Brett. And please, take me up on the challenge. I want you to go out there, be innovative, come on the show, and tell us all about it.

Until next time, I hope that you continue to engineer your own success!

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