

#167 - Cybersecurity Apprenticeships (with Craig Barber)

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[00:00:00] **G Mark Hardy:** Hello and welcome to another episode of CISO Tradecraft, the podcast that provides you with the information, knowledge, and wisdom to be a more effective cybersecurity leader. My name is G Mark Hardy. I'm your host for today. And we're going to be talking about the increasingly critical topic of cybersecurity apprenticeships.

And I got a special guest on today's show, Craig Barber. You're going to love to hear from him. Craig, glad to have you on the show.

[00:00:34] **Craig Barber:** Great to be here.

[00:00:35] **G Mark Hardy:** So before we do that, we're going to do a quick word from today's sponsor, which is CISO Tradecraft. So we're sponsoring ourselves. As you know, we create these weekly podcasts and help our listeners increase their knowledge in cybersecurity.

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If any of these things sound good to you, give us a contact either through our LinkedIn profile or email us at gmHardy@cisotradecraft.com and we'll be happy to get in touch. Okay, so enough for the, the sponsorship message here. Again, welcome back to the show. And, let's, Craig, introduce yourself a little bit, tell everybody who you are and how you got to where you're at,

[00:01:30] **Craig Barber:** Sure. Yeah. So, I'm Craig Barber. I'm the chief information security officer at SugarCRM, and my background is, is kind of primarily in, in engineering. So I kind of worked my way from the beginning, the technical side of security, installing firewalls, routers, working for a

telecoms company and, yeah, just kind of, always wanted to be a CISO and, and, and got there.

[00:01:57] **G Mark Hardy:** Be careful what wish for. Right.

[00:01:59] **Craig Barber:** yeah, [00:02:00] absolutely. Yeah. but, but yeah, I mean, one of the, one of the things that I think really helped me was an apprenticeship. I don't think I would be where I am right now. if I, if I took a more traditional route.

[00:02:15] **G Mark Hardy:** So you're actually speaking from a position of experience here, because what we're going to be trying to talk about on the show is for CISOs and other security leaders, how do you go ahead and is it worth establishing an apprenticeship program? What are the benefits to your organization? What can you expect to get? But also if you're mentoring other people, how would you encourage them to line up for, or even identify a type of a mentorship program?

And so these are the things we're going to get into today. And this is why I think this episode is particularly important. Now, if we go back and we take a look at the concept of mentorship, Back in the 16th, 17th, 18th century of a guild. And we think of the guilds that might've existed for whether it was a, metalsmith or a watchmaker, or some of the skillsets were made back [00:03:00] then.

they had apprentices. And the guild model, essentially you'd apprentice out almost kind of like a Charles Dickens novel, where you hand over your nine year old son and they go work for this crotchety old guy. And he teaches them over a period of years, how to do whatever that trade is. And because the guild manages and supervises themselves, you don't advance because you want to, you advance because the more senior people said.

This person's ready. And eventually you can become a master and then you train others. So in a way, as we look at this apprenticeship model and being able to come up with ideas to say, how do we do that? The cybersecurity industry can kind of learn from this historical path. We also find out that there's a lot of other things that are similar in the trades, a trade school.

If someone says, I want to be a plumber, I want to be an electrician, I want to be a carpenter, you don't just necessarily sit there and download a course on YouTube, but rather you'll participate in some hands on type of a training, go to a trade school, probably get a license, gets a certain amount of [00:04:00] work experience, and ideally work with a master.

If you want to become a master carpenter, you have to start out as an apprentice and work your way up to a journeyman and other phases as well. And a lot of this is going to be Applicable to our career. I know as a private pilot, if I ever said I wanted to fly commercially, I have to get my hours up. I have to have a certain number of hours.

I have to have dual engine time. I have to have pilot and command time, all these things, instrument, etc. If I ever want to go to the airlines and say, pick me, pick me. And again, very similar, there's that type of an approach. So if we look at Other things that are out there. Now the US government did something similar a few years ago called the Federal Cyber Defense Reskilling Academy. There is a Federal Cyber Defense Skilling Academy, but in 2019 they created a program for people who were not even in cyber careers to go ahead and Try it out, see if you could do that and work over there.

And what we find out then is that everything from the real world to science [00:05:00] fiction, or if you want to be a Jedi Knight, you have to start out. It's a Padawan to get there. let's take a look at that as how it pertains to cyber security apprenticeships and, you had mentioned you've been part of an apprenticeship, tell me a little bit about your experience there.

[00:05:16] **Craig Barber:** sure. Yeah. And I think the examples you gave there are very, very strikingly similar to what an apprenticeship really looks like. it. It's really about the kind of the, the, the skills that are learned outside of a traditional learning environment. So, you know, you, you learn, you learn at school in the classroom and, and things like that.

And then there's, you know, there's, there's things that you learn by doing and, you know, being hands on with things. And there's things where you learn the theory, it's kind of a mix of the two. and that, and that's the thing with an apprenticeship is it's kind of. More weighted towards the practical elements of a career versus the theoretical elements of a career and you do still get [00:06:00] both, but the weighting is, is slightly different, in terms of, you know, maybe 20 percent or 15 percent would be, would be theory based.

And then the rest of it is you're learning by observing others and by doing the job kind of from day one, basically. And, and, you know, learning through your mistakes and, and, you know, sometimes in the real world, things are not very structured, things go wrong. companies do things in different ways and implement things in different ways.

and that's the, the kind of the, the thought process behind what an apprenticeship is.

[00:06:33] **G Mark Hardy:** Well, got it. I think you go back and you read the Chinese philosopher Lao Tse who say, I hear, and I forget. I see and I remember, I do and I understand, and that's been true for a long time and probably will be for the foreseeable future, which means things like this type of a program and apprenticeship program makes excellent sense because you say it's hands on.

Now as I think people have picked up from this point by now, you're from the UK, and so we think, as I mentioned, Charles [00:07:00] Dickens, and perhaps is the culturally different over there now that you're living here in the U. S., have you seen the approach toward apprenticeships any different here in the U. S. or is it, is it more traditional over there or, or not?

I mean, I just don't know.

[00:07:15] **Craig Barber:** So I think yeah, I think you're right. So apprenticeships in the UK have been around for a lot longer I think than than they have in the US now Obviously as you mentioned kind of a plumber and you know, there are those trade schools and things traditionally Both countries very similar like, you know, you'd get an electrician's apprentice you apprenticeship You do a plumbing apprenticeship and it was very much kind of trade focused I think the, the way that it differs in the UK, it kind of moved on into the technical space a lot earlier.

I mean, I've, I've worked with some people that are, that were originally apprentices, you know, 25, 30 years ago and working for telecoms companies, for example, in senior leadership. [00:08:00] And, you know, they've worked their way up and they, they started in a, in a technical apprenticeship position, wiring and doing, you know, installing routers.

And. and, and working at a telecoms company. I think where the U S differs slightly is that things are slightly further behind that, but they are changing. Things are moving in the right direction. what, what I think we need to do is, you know, promote this as more of an option in cyber security.

And, and as an example, I did my apprenticeship in 2008, and that was in, in network engineering. Cyber apprenticeships weren't available then in the UK. They've now been available. I want to say maybe. Six or seven years, maybe slightly longer than that. Whereas in the U S things are still, you know, it's happening now.

You can see AT& T, you see Google, Google do apprenticeships. a lot of the big employers now offer it. it's just slightly further behind, I think at the moment. And that's why I'm eager to promote this as an option for [00:09:00] the, you know, the, the benefits employers and individuals.

[00:09:04] **G Mark Hardy:** Yeah, it's always good to be 1. 1 or 2. 0 because somebody else catches all the arrows, so to speak, at the 1. 0 and, and so, but here's the interesting thought that I think a lot of Americans look at as we say, hey, The idea of having employment for life is sort of kind of vanished with the prior generation.

my mother had three brothers, all three of them had the same employer for their 40 plus year careers. And today you go, are you kidding me? Most of you, if you're still in the same place after three or four or five years, then people think that maybe you've stagnated. And yet that brings up the question, if I, as a CISO or as a business leader, say I'm going to invest in somebody through an apprenticeship as compared to some other thing, like go off to a SANS course or go to a conference or whatever, do I, does that create a stickier relationship with the employee?

Does the apprentice feel Perhaps a little bit more gratitude or more willingness to stick around. Or is it, Hey, so long and thanks for all the fish.[00:10:00]

[00:10:00] **Craig Barber:** Yeah, I mean, I, I think, looking at, apprenticeships in general, they, the apprentice generally remains more loyal to the company because they have kind of trained them and, and I know there's this thing sometimes in companies where people will feel like if I train my employees, they, they're going to go and work somewhere else or earn, earn a greater salary somewhere else.

we, we don't really see that in apprenticeships. They are, generally far more loyal because of that kind of, you know, you, you, you, they've stepped into the door day one, you've offered them training, you've shaped them, they fit in with your culture. and, and generally the, especially with the larger employers as well, you know, there are lots of career paths for that individual within that company.

And once they're in there, they have the, the, the culture nailed, they have the. You know, the, the kind of knowledge around the business and how it operates, it kind of means that generally those are, or can become many of your kind of top performers in a team because [00:11:00] of that. and you know, you're shaping them and you're training them from, from scratch.

So,

[00:11:05] **G Mark Hardy:** Well, that's, that's pretty good insight. Now it sort of asks a question. I mean, again, I'm trying to think of questions that if I were in the audience, listening to the show, I might come up with is, Hey, well, I've, I've heard of apprenticeships and I've heard of interns. are that, is that the same thing?

And if not, what's the difference?

[00:11:19] **Craig Barber:** so generally an internship is, is unpaid. an apprenticeship is, and then the U S department of labor support, apprenticeships as well. There's, there's kind of. Structured training involved. There's a certificate of completion at the end of it, which the U. S. Department of Labor issue. and, and they are, you know, I, I think there's a lot of work going on in the background to make that widely recognized as a, you know, a recognized certification at the end of it and it being structured.

In the UK, it's, it's probably more structured in the sense that the, the government and an organization called IFATE. They, and other, [00:12:00] businesses like the British Computing Society have worked to develop structured standards for different cyber roles. So for example, there is a cyber intrusion analyst kind of apprenticeship.

There's a, a risk management apprenticeship, and then they've kind of structured these roles with, large employers. So large employers have worked with them on that and said, okay, what would I look for in an intrusion analyst? What skills would I need them to have? And of course, the beauty of that model is that when they finish their apprenticeship and they get their certificate of completion, it then is recognized to other companies.

As you know, it meets that level of standard for, you know, somebody who might want to work in a SOC or somebody who wants to lead a GRC program, for example.

[00:12:46] **G Mark Hardy:** Of course, the idea was you don't want them going to another company to do that. You did mention something along the way though, that was sort of surprising to me. You mentioned department of labor issuing a certificate. Now I've hired. interns, before. And in fact, I remember [00:13:00] when I hired someone, I was doing some work on blockchain a few years ago, building educational programs and a young lady from Cornell asked her, how does internships work?

She said, well, most of them are unpaid. I said, what do you, what's the best deal you ever get as an intern? She's like 15 an hour, like 15 an hour. So I'll tell you what, I'll pay you 15 an hour after taxes. So whatever it happens to be, I just want you to be highly motivated to work on this project because, this is something that was very important and I think it's creating value beyond what you're paying for as an employer, you'd like to do that, but you, but for me, it was not so much about how much value can I squeeze out of somebody, but rather can I make it an educational opportunity, something This person would say, Hey, I got paid to learn.

I got paid to practice. I got paid to grow. So the question is, in that case, I just set this thing up as somebody literally I'd met on a plane. And then we worked out a business arrangement. but you'd mentioned department of labor. If I'm going to do an apprenticeship, do I have to, does that have to be formal register of the government, or can I just.

Put out a sign and said, Apprentice Wanted,

[00:13:58] **Craig Barber:** Yeah, I mean, so from an employer's [00:14:00] perspective, there are organizations out there that will help you seek out, a kind of pool of talent for, as, as apprentices. So, you know, there's loads of companies out there that offer that. There is guidance from the department of labor and there's a, there's a website apprenticeship.gov that has a ton of information kind of both from a, from a business perspective and a kind of individual perspective, you know, what the benefits are and how it can improve productivity and bottom line and, you know, reduce turnover and. You know, again, from a, from a business perspective, like devout, like demonstrating investment in the community, for example, and hiring people that maybe aren't so fortunate, maybe they can't afford to go to college or university, or, you know, it's, it's all about, I guess, in that sense, diverse thoughts and views and experiences and things like that.

yeah, it's not, it's not really structured from a, from a, you know, a government perspective. It's more that there are, there are tons of [00:15:00] companies out there that are offering opportunities and kind of link up with employers.

[00:15:05] **G Mark Hardy:** Got her. And so as an employer, potentially I could contact some of these government organizations, say, Hey, I got job openings, if you will, in the apprenticeship. And someone who is interested in becoming an apprentice can use that almost as sort of a clearing house. And that's, that's really good to know.

now a question here from sort of the. Business perspective is how can implementing apprenticeships benefit someone's cybersecurity teams?

[00:15:28] **Craig Barber:** We talk about the skills shortage and whether that is a thing or whether that's not a thing. And, and, you know, there's, there's kind of a, there's, there's a pool of talent out there that I think has been untapped in the cybersecurity world.

regardless of how you feel about whether there is a school shortage or not. and, and that is that, you know, diverse, experience and thought and, and having people with different experiences on your team is always going to be beneficial. And that's where I think an apprenticeship program would help, because, you know, the, the example I use is that years [00:16:00] ago I did an ITIL change management course and it was a, it was a thing that everybody in the, in the tech team did.

And you learn the course, it's very structured, and then you leave, and you've got your ITIL completion certificate, and you go into the, into the kind of the real world, and you find that almost No company in the world follows it exactly how the standard is written. And, and that's where I kind of see, you know, people with the, you know, if you have a degree in cybersecurity, you're learning in a very structured way.

And there's absolutely value in that. But what an apprenticeship program gives you is it kind of gives you more of a kind of hands on and a kind of more. I guess more, a more flexible method of learning where you are learning in the real world, where, you know, things don't always go to how they are, you know, documented or how they're, they're portrayed in a, in a more structured learning program.

And I think as a, as a, as a result of that, that's where, you know, it benefits teams because you are getting a, a range of people with different [00:17:00] experiences. And they are learning on the job in the real world and, you know, learning how to deal with a catastrophe or an incident or learning how to deal with an upset business stakeholder, for example, and some of that you're just not going to get, necessarily in a degree program.

You're going to have to get exposure to that after your degree, as opposed to earning while you learn and, you know, learning, in a, in a workplace.

[00:17:25] **G Mark Hardy:** And I think I like your idea of the kind of the new perspectives and seeing things a little bit differently. I'll give you a real life

example. So last night I was talking to some members of our homeowners association. They're updating the documents. The original documents were scanned in from a typewritten document from I don't know how long ago and they're faded and they got stamps on them and they've produced this brand new Revised document, which is all nicely set in PDF and all the fonts are great.

And somebody asked, I said, well, what's the difference between the two? And their answer is, well, the old ones were scanned. We can't really do a comparison. Now you and I would look at that and hopefully come [00:18:00] up with the same solution. So I just opened up that old PDF, turn on OCR and I got to probably 94, 95%.

I then opened up ChatGPT and I said, Hey, I've got a document that I've scanned that it's a homeowner's document, but the scan may not be accurate. And so please use your knowledge of what homeowner's document should be to fill in those grammar errors or those things that like a four instead of an A and come up with it.

And it came back at 99 point some percentage correct. and so just that one, two step was something that I looked at it being an IT guy. That the entire board never thought of. And so the advantage there is to be able to say, Hey, we've got people who are just coming into the field who may see some of the latest and greatest or have been experimenting with stuff that they haven't tried before, and that's pretty cool now, but one of the concerns that I might have having worked with sensitive information over the years, and a lot of businesses as well as governments, and even military jobs.

So the question is, how does an organization balance the need for skilled professionals and then the potential risks associated with apprenticeships [00:19:00] in a sensitive field? Because, for example, I don't think any organization wants to hire somebody who, like an Ed Snowden, who is very well vetted, yet still went ahead and as a custodian of government information, kind of stole the children and run overseas with them.

is there any. Risks really associated with doing apprenticeships, or do you think that that could be covered within our normal processes?

[00:19:23] **Craig Barber:** Yeah, so I mean, yeah, the risks with with apprentices are mostly no different to any kind of workplace hiring, so there's still going to be interviews involved, there's still going to be background checks, and any kind of, you know, if there's any kind of, the, sort of government clearance involved or anything like that.

So that, that is no different regardless of whether in terms of any kind of hiring in an organization, and that would include apprentices, and interview, you know, you're going to be still wanting to look for the right person for your organization. So do they fit your culture? [00:20:00] Are they going to fit in with the team?

Do they have, suitable knowledge and so forth where it, where it differs with. An apprentice is that you're probably going to look more for kind of technical or soft skills. And I think the example that I used was that I built a PC, and I talked about how I built it and, and what was involved. And the, you know, I clearly demonstrated I was into the tech stuff, which as a.

Apprentice network engineer is going to be, you know, you have the right kind of aptitude and you have the right, the right kind of background and that was just stuff that I'd done at home at the time. That wasn't, you know, in a formal workplace or anything like that. I didn't have a degree and that's where the hiring I think is slightly different is that you would, you would generally look for things like that and like the application of skills rather than, you know, do you have a certification?

Do you have a CISSP or do you have a Yeah. You know, do you have some kind of CompTIA, for example, certification and, and, you know, one of the big ones for me actually is kind of a willingness to learn because if you can [00:21:00] demonstrate that you can learn new skills, that is, you know, you're going to be a great apprentice because that's exactly what you're going to be doing.

You're going to kind of apply probably some of the knowledge that you have from a, from a technical perspective, maybe, but then you're going to be, you know, there's going to be a lot of learning involved.

[00:21:15] **G Mark Hardy:** And that's, that's very good insight. So I think, as you had said, in the apprenticeship approach, we're not looking for someone to say, show me your CIS SP and all your, your GIAC certs and things such as that. That's just not going to occur at that level. However, what it is, is somebody, and what I really like what you said is a willingness to learn, because what I've told people over the years, I try to hire for attitude, not knowledge.

If someone says, I don't know that, but I will figure it out and then they go figure it out. All right, great. As compared to somebody says, I know that, but I don't want to learn anything new. And so what we find then different organizations have different cultures, but an ideally a learning culture. And I say

this like every fifth or 10th episode, G Mark's Law, half of what you know about security is obsolete in 18 months.

And we see that being [00:22:00] pretty much true. In the example, as of right now, 18 months ago, who is really talking about ChatGPT? And 18 months from now, this windows 10 device that I'm on will be considered obsolete. So this constant need to retool and relearn is what keeps our industry interesting and refreshed and also should be kind of a way to dissuade people who aren't.

I'm not interested in that because what an apprenticeship program does is it says somebody said, Hey, we're going to get you a chance to roll up your sleeves, do some hands on work. And at that point in time, you're going to see, is this what I want to keep doing? If it's not engaging, if it's not rewarding, it shouldn't be your career because it just requires an awful lot of effort to stay there.

It's not learn it once and then you do the same thing over and over again with no and, and I'm sure is we look at some of the trades, but from a basic thing, a hammer works the same way when you were 18 as it does when you're 58 years old, but technology changes. If you're an [00:23:00] electrician, there's a lot of new things that have come up that you need to be able to understand, understanding the codes, et cetera.

So yes, our, our folks will learn as well, which then brings up sort of a. The how do we go forward question, if you're our audience, who many of whom are in large cybersecurity teams and they haven't had an apprenticeship program before, how would they go about creating something like that within their organization?

[00:23:26] **Craig Barber:** Yeah. And I mean, that's where, so that's where, the, the guidance on the U S department of labor office of apprenticeship may help. And the, the resources available in line, as I said, there's, there's companies out there that will kind of work with your business to set up a program, of an, an apprenticeship program and, and start looking for your pool of talent and what you're looking for and what you need.

I think from internally within the company as well. you know, your, some of your top performers may, may be excellent mentors for apprentices and, [00:24:00] you know, you can help, they can kind of help shape them in a way that they're going to benefit the wider team. and, and that's really, I think where, where things can, can kind of start.

[00:24:09] **G Mark Hardy:** Got it. So what we found out is, you know, of course you've come from the U.K. And in the U.S. We do things a little bit differently, but we're learning and we're coming along. And yet we find out that the concept is what we're talking about is not just, training. it's not just about teaching. It's creating a system where the learning continues, where we have knowledge sharing, collaboration.

We're fostering that type of a culture. you know, as a career Naval officer, I know that we used to do that in our environments where individual sailors would get. career specific training as they went along, which you need to learn as a seaman recruit in a bootcamp is not what you need to know as a master chief petty officer, where you are the senior enlisted leader on a very large command.

And so in our leadership programs, which I had the privilege to [00:25:00] run as the commanding officer of the Center for Naval Leadership, what we did is we would train people at different career gates. Hey, you're a work center supervisor. You're going to be a leading petty officer. You're going to be the chief.

You're going to be a division officer, a department head, an executive officer, a commanding officer, and all those different career gateways involved having a different career set that we can do. So here, what we're looking at for apprenticeship is that sort of the sourcing engine. We're going to get people in there at the beginning with the understanding that if you have an effective career.

development and training program. In my opinion, you're going to get people who are going to want to stick around a little bit more. They don't say, Hey, this is just a one and done. We learn how to do it and then after that you're on your own, but rather this organization invests in my skills, my training, my certifications, et cetera.

And that creates that more permanent relationship because there's always more money out there. Someone will probably pay a little bit more than what you're doing, but it isn't about trying to [00:26:00] close that margin to the 99. 999% Income stream. So gentleman I used to work with in the federal government years ago said, all jobs lie on a continuum.

If you want no risk, work for the government. If you want a lot of money, go sell drugs till you get shot or arrested. You're making a ton of money over here. But reality is we're somewhere on that continuum, and this is an opportunity. to

balance that out. So from your perspective, what's sort of, what's our future of cybersecurity apprenticeships?

Where do you think this is going to go?

[00:26:28] **Craig Barber:** Yeah, I mean, I do, I do really believe that this is going to help us address, much of the need in cyber security because of the fact that, you know, the, with it being a, as you kind of put it, with it being a very hands on kind of career and with it being very fast changing and moving and, you know, 18 months ago.

As you said, with ChatGPT, nobody really heard of it. Now look where we are, like, who knows what it's going to be in 18 months from now. And I think by nature of it being a very fast moving industry that's dynamically changing, there's a lot of [00:27:00] talent out there that we're just not taking advantage of. I mean, I use the example of somebody, for example, that maybe works at McDonald's right now, or maybe is in a career that they don't like.

or they're not enjoying it. there are skills in what they're doing right now that could benefit an organization, you know, McDonald's, an example, customer service, things go wrong in, in a restaurant, things go wrong in that space in the same way as they would in, in any kind of, in any kind of role.

And those skills are very much transferable and useful. I think in the world of cybersecurity, you know, remaining calm. When something goes wrong, when you've got an incident that's ongoing, for example. And that's just something that there are, there are people out there that have that skill and they maybe do some, you know, work on technology in their spare time or as a hobby or something like that.

And I think those are the people that we really need to get into cyber security. because they're going to benefit the industry as a whole. They're going to move it forward and they've got the right aptitude. But [00:28:00] like I said earlier, maybe they can't afford to go to college. Maybe, I mean, in my case, I just didn't really want to, that wasn't how I learned, and it wasn't the optimal way for me to learn.

So there are, I think it's really going to benefit the industry as a whole, really, if we can kind of get things moving more.

[00:28:17] **G Mark Hardy:** Now you probably know better than I and whether this story is true or apocryphal, but I think it was about five years ago, plus or

minus. In the UK, they had sort of an aptitude exam or a hacking skill test or something like that, where people could go ahead and say, Hey, I want to explore a career with it.

And the person who finished first was something like a parking lot attendant. It's like, are you kidding me? He says, yeah, they couldn't get a job in cyber, didn't have the degrees, didn't have the certs, but had the aptitude and spent his evening working on a lot of stuff. And when they had this thing, this person kind of, kind of like a walk on all of a sudden like, wow.

So sometimes our Resources, our best people could come out of the blue. And if we get so focused on a very strict career path, [00:29:00] Oh, you need to have this, four your degree and you need to have this and this and that, writing all those things down and a lot of job requirements have them. But the reality is, is that, you know, when I did my computer science degree, I was using punch cards.

Okay. Yeah. I get a little bit of gray hair, but none of that, the theory is good. The principles are good. but my COBOL and Pascal and programming language skills, such as some of these archaic languages don't get used anymore. And so as a result, what you're looking for is somebody who knows current stuff.

And the nice thing about apprenticeships is it's hands on. So is there any prerequisites that you would recommend for someone applying for an apprenticeship if they don't have that formal background, they don't have the degrees, they don't have the certs, they don't have necessarily job experience, yet they have the aptitude.

How, how do we get those people, find those diamonds in the rough?

[00:29:54] **Craig Barber:** Yeah, I mean so as I was kind of saying earlier as well like it's looking for you know Do they if [00:30:00] they're gonna be in a GRC type position? What kind of soft skills can they demonstrate for example? Can they work with a range of different people and can they deal with? You know, can they deal with with conflicts of interest or conflicting priorities for example?

And I, I, you know, using that one as an example, like that be the case for so many different positions out there. And there are so many kind of unskilled positions or jobs that, you know, you could, you could have already learned that, or perhaps, you know, perhaps you're a career changer and you're a little later in your career, but you want to move into cyber.

We, we don't, haven't really spoken about that, but apprenticeships are another. a good option for veterans and for people that are maybe a bit later in their career. It's not just about people that are, you know, coming out of college or school and wanting to go in. but it's, you know, there are plenty of skills that people would know without, you know, they may not necessarily even know that they know that skill, if that makes sense.

and that's what we'd be [00:31:00] looking for, really, is that, you know, it's It's not just about having the piece of paper, it's about having the, you know, the underlying skill and what hobbies did they have and, and, you know, that, that kind of stuff.

[00:31:12] **G Mark Hardy:** Makes, makes very good sense. Now for an apprenticeship program, what's the typical duration? I know that when I had hired an intern and then also organizations I've worked with that had hired interns, they were like summer jobs, something like that, where you get them from May or June through August, September.

When they go back to work, maybe they extend a little bit longer, but is it two months, six months, two years?

[00:31:33] **Craig Barber:** Yeah, they kind of, they kind of vary. So it depends on country and depends on the program, really. I mean, some of UK are kind of three years. there may be some that are even four. a lot of the U. S. ones I believe are shorter than that. They're normally kind of, you know, six months to maybe a couple of years.

But it kind of varies based on, you know, the employer and, and the, the program as a whole really, like I said, the UK ones are generally kind of more structured because it's [00:32:00] slightly further ahead and more mature, than the U. S. model, but the, the duration kind of varies really.

[00:32:07] **G Mark Hardy:** Now, if you mentioned something like a four year apprenticeship program, now maybe I'm just an impatient American, but I'm thinking if, if I'm still there. Three some odd years later and don't have a full time regular job. Are they just extracting value out of me for no good reason? Or is it just the process says, no, we'll classify you as an apprentice, but someday you get to become full.

When do you make that transition? And is it based upon the clock? Is it based upon achievement or is it based upon. oop, Charlie just left and we need

someone to sit in that SOC seat tomorrow. So congratulations, you are now promoted. How, how does that work?

[00:32:42] **Craig Barber:** Yeah, and I think actually you've identified, one of the, the, a pro about the, the U. S. model compared to the U. K. model. I think with my apprenticeship it was three years. But after a year, I effectively became a full time [00:33:00] engineer at that point. So, you know, it's not that you would, you know, it's not that your job title is going to be apprentice for four years, or you're going to just fill in gaps as and where they need you.

It's still going to be very much structured. a lot of the differences as well are like the longer programs might be like a degree equivalent level. Versus like a community college level apprenticeship. There's kind of different levels involved as well. and the, I'm talking about the UK model in this case, but the, the kind of consensus behind it is that the longer program should be recognized as degree equivalent when you, you know, when you finish and then you've got that as kind of like a.

Yeah, kind of like community college in the US, I guess, versus a more, more standard college.

[00:33:43] **G Mark Hardy:** Yeah. And a lot of community colleges, I found out they'll have people not always at 18. They're going to, might be coming in their twenties or even thirties or beyond to say, Hey, I want to go ahead and reskill, or I want to formalize this. And as a result, those people tend to be a lot more motivated because they're usually [00:34:00] writing a check out of their own pockets.

They're not having mom and dad put them through there, but if we go through back to the apprenticeship model during this two, three, four year period, if we use one of those longer periods, do these people just sitting here slaving over a hot computer every day? Do you send them off to conferences? Do you say, hey, I'm going to send you off to a certification training program?

[00:34:18] **Craig Barber:** So yeah, there's gonna be, an element of structured training involved, and that is gonna be, you know, what, what you are aiming for to complete the apprenticeship. There's gonna be that, and there's gonna be the hands-on learning and the hands-on learning and the being in the workplace and dealing with real life.

Problems and so forth is probably going to be about 80 percent of the time that you spend during the apprenticeship. There's still going to be some theory that

obviously has to kind of back that up and learning in the background. And that's going to be your other kind of 20 percent and, and that's going to, you know, that from a, an apprentice's perspective at the end, they're going to get that recognized certification or, you know, the certificate of completion from the Department of Labor [00:35:00] or a, in the UK, like a, A certificate that is equivalent to something like a degree or completing community college, for example.

And, and with that, that's, that's then going to, you know, that's, that's the end of the apprenticeship, basically.

[00:35:15] **G Mark Hardy:** Right, you know, because I know that, I helped work on educational materials that we had to match certain standards, NIST 4011-4013, as we built out all the courseware. For cybersecurity degree programs that were appropriate for community college, as well as his four year degrees, which you had mentioned about 80 percent hands on 20 percent theory, and that suggests then that, you know, a classroom or some sort or whatever, where there's actually a more formal education component.

How does the apprenticeship program ensure a comprehensive understanding of these theories and fundamental elements?

[00:35:48] **Craig Barber:** And that, that's where generally you're going to, I mean, in the US, there are companies that will assist with structuring and setting up that training so that it's done in a, in a structured way and completed in a way that. [00:36:00] is going to meet the requirements for that certificate of completion. And some of that might be supplemented with some internal organization type training around, you know, the structure of the company or the way that the business operates and things like that.

And that is further probably going to be supplemented by You know, maybe apprentices learning from other members of the team that have maybe been there for a while and they know the processes and they, they understand, you know, what the, what the job entails and kind of learning what is expected of them in that position as they kind of move from being an apprentice into a, into a full time position.

[00:36:38] **G Mark Hardy:** Got it. So let's flip the script a little bit and let's say we've convinced our listeners to create a cyber security apprentice program. They do a little bit of research, the reference on it. They said we want to get going. What are some of the biggest challenges they might face in actually recruiting candidates for a cyber security apprenticeship?

[00:36:55] **Craig Barber:** So I think, obviously with, with hiring, you know, based on, [00:37:00] based on sort of, you know, Somebody might have no certifications whatsoever. There are obviously risks involved with, with doing that. And that's where I think a balance comes in. You know, we haven't really spoken about the fact that, you know, there are, there's a, there's absolutely a place for degrees and, graduates.

And I think it's about having that mix of, you know, people coming from different, different educational backgrounds and so forth. And that obviously you're going to want to keep that balance in place. You're not going to be able to rely on a pool or a team of apprentices. to run your SOC, for example, without any kind of guidance and that kind of thing.

And I mean, arguably, you know,

[00:37:36] **G Mark Hardy:** Kind of like a Star Trek movie, right? You know, where they say, the new, the newer ones. They're like, Oh yeah, you're a bunch of cadets. You can go ahead and run a starship.

[00:37:43] **Craig Barber:** yeah, and that's never going to work, right? You're still going to need people that can, you know, ensure that they are learning and developing in the right way. But if we use, again, we've been using this example quite a bit, but the SOC analyst position, you know, they're within, I would [00:38:00] imagine within a few days, An apprentice should be able to, you know, respond to alerts and start investigating and digging into things.

And I think that's where, you know, the training would need to be, you know, provided, but it's kind of something that they can get their hands on immediately with. And as long as they, you know, as long as they know that they can ask for help, if they're not sure, the learning has begun, but they're immediately from a business perspective.

They're useful and they're providing a value to the, to the function.

[00:38:30] **G Mark Hardy:** Got it. Are there any difficulties that you think apprentices might face during their training? Either motivational, financial, because I guess you're not paying them a ton of money. and so they got to eat though and have a place to live or anything else that could, we could anticipate in advance and try to head off those potential problems before we might lose somebody for a reason that we could have anticipated.

[00:38:54] **Craig Barber:** Yeah. And I mean, some of it starts with the hiring. Obviously you're gonna wanna find people that are eager to learn [00:39:00] and they, you know, they have those right skills that we've already spoken about. But I think from the apprentice's perspective, it's, it's all about support really. I think, they, they need to be, and they need to feel that they are being supported by the organization.

I remember the day that I stepped in to my apprenticeship at a telecoms company. And it felt very overwhelming and, and, you know, you didn't really know what, you didn't know what to do, basically. I mean, yeah, like I said, I knew how to build a PC, but I didn't know much more and, you know, I knew how to put an IP address into a, into a router.

But aside from that, there wasn't a lot that I knew about how a telecoms company operated. And I think giving them the support that they need. And, you know, a lot of it is in the early stages, learning about the business, learning about the technology, how is it all kind of interlinked together and in my case, it was line cards and how are things communicating with each other and different types of connectivity, some of that's going to be in that more structured training, but at the [00:40:00] same time, they're going to need a mentor or somebody to kind of lead them and teach them about, you know, the company and how things operate. And that is a going to be a valuable thing that is going to, you know, make sure that they stick around and they're going to provide value to the company.

[00:40:14] **G Mark Hardy:** And that's a good point. One of the things we did to go back to one of my Navy stories here, you know, I always like to tell sea stories, but we had something called a running mate. And so in a new sailor, particularly a junior one, we'd get assigned to a command, you'd find somebody who was about the same age, but a little bit more senior and say, Hey, I need you to go ahead and look out for this new guy called Craig.

Okay, so I write you a letter, contact you, send you an email in advance. Hey, welcome to the ship. I'm, you know, what day do you arrive? I'll meet you at the airport or I'll meet you at the quarterback, wherever. And then you show them around for a little bit. You don't just drop them off and say, figure it out.

There's somebody who said, Hey, you know, I did this internship. I'm in my third year. You're in your first week, but that's a great way to go ahead and kind of hand over hand it to make sure that the people who achieved success in a program are front and center with the people who are just [00:41:00] starting. And it does a couple of things.

Number one is it helps a new person feel a little bit more at home because there's somebody looking out for them. They're not. Wow, look at this big new company out here. But the second thing is they can see a path to success. The person who's spending time with them have gone through the exact same pathway that they did or a similar enough one that they can say, Hey, look, I can, I got to tell you, and this is true for a lot of jobs, five, six, seven months into this thing, I wasn't quite sure if this was going to work out.

Well, you know what? Everybody feels that in almost every single job. So don't worry about it. When you get there, we'll talk about it and we're going to get you helping to understand that it's a whole lot better going forward. So a lot of things we can do and that we've discussed and, the like any parting thoughts or concluding thoughts you might have as recommendations for security leaders and what they can do.

in shaping the future for their cybersecurity career path, employees.

[00:41:51] **Craig Barber:** Yeah. I mean, yeah, I mean, absolutely consider, you know, hiring apprentices. And as I've said, look out and take a look around at some of those companies [00:42:00] online that will provide you and support you with. Building that program from, from scratch. I do think this is our answer to a lot of the challenges that we have in, in cybersecurity right now, where we can't find the right people.

There's a limited pool of talent. I mean, we haven't talked about like the, the whole return to office. And I know some companies are now obviously mandating that, well, that is now limiting again, the radius of their pool of talent and perhaps, you know, perhaps apprenticeships can help kind of address that issue because.

There are going to be people out there that have the, you know, they may have learned some of their skills. As we said, in the military, there may be veterans, they may be worked in, you know, in a retail store for 20 years and they want to, you know, they've always been technical. that doesn't mean that they are not, you know, a horrible cybersecurity person.

And that's where I think an apprenticeship comes in. And these people are going to be very loyal because you're providing them with a, you know, an exciting career and that you're going to give them the development opportunities.

[00:43:00] and, and as well, we, as we've been saying with, with people coming out of school and, and not sure what they want to do, or, you know, they maybe don't want to go to college or they can't afford to go to college.

This is the answer to that, that kind of conundrum as well, I think, is that, you know, that this provides a pathway for them into a career in demand. And then again, from an employer's perspective, you're getting people with. You know, that have, you know, written some code in their spare time. And, you know, they, they have the basics there that they, they will absolutely make a valuable person, a valuable contribution to the team.

I believe in conjunction with, you know, graduates, people with degrees, people that have been doing it for a long time. So I would absolutely, you know, as an employer, look into it, consider it and, you know, tap into that unused pool of talent that's out there.

[00:43:50] **G Mark Hardy:** Well, excellent insight. And Craig, this has been a really interesting opportunity. So thank you for being a guest on CISO Tradecraft. For audience out there, you've been listening with Craig Barber. I'm [00:44:00] your host, G Mark Hardy. If you like our show, you can go ahead and make sure you're subscribing to us on your favorite podcast channel or follow us on LinkedIn.

You can also subscribe to YouTube. And if you like to go ahead and read things, we're now on Substack. We're going to go ahead. Have weekly newsletters. And if you're cooking dinner and you want to listen to us, ask your favorite electronic assistant, whom I will not mention by name, because sometimes you invoke them incorrectly.

He said, Hey, play me the latest CISO Tradecraft podcast. And you can learn that way. So until next time, thank you very much for listening. Good luck with your cybersecurity career. Good luck in helping other people get their career started. And until next time, stay safe