

Technical Skills Are Not Everything

Professional Development for Cybersecurity
Change Agents

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Motivation

Even though there are well-known security best practices, policies, and mandates, many organizations fail to implement those.

How can we (as a community) improve the rate of security adoption?

Cybersecurity Change Agents

- ▶ Encourage security best practices
- ▶ Develop security mitigations
- ▶ Facilitate security tech adoption

- ▶ Varied audiences
 - ▶ Office workers/end users
 - ▶ Technical staff
 - ▶ Developers
 - ▶ Managers/executives/decision-makers

Change Agent Functions

- ▶ Develop a need for change on the part of clients
- ▶ Establish information exchange relationship
- ▶ Diagnose problems
- ▶ Create client intent to change
- ▶ Translate intentions into action
- ▶ Stabilize adoption and prevent discontinuance
- ▶ Achieve a terminal relationship with clients

The Gap

- ▶ Cybersecurity is often viewed through a technical lens, but non-technical factors may be even more critical
- ▶ No career track or professional development opportunities for security change agents
- ▶ We have not formally documented the competencies needed for security change agent roles

Study Overview

Study 1: Government Case Study Analysis

- ▶ 13 DOD security technology adoption engagements
- ▶ Research questions
 - ▶ What factors impact the outcome of engagements?
 - ▶ What are the professional attributes of people doing this type of work?
 - ▶ How can these engagements be improved to increase the likelihood of success?

Study 2: Cybersecurity Advocates

- ▶ 28 cybersecurity advocates in government, industry, higher education, and non-profits
- ▶ Research questions:
 - ▶ What are the motivations, professional characteristics, and skills of security advocates?
 - ▶ What techniques do security advocates use to encourage security adoption?
 - ▶ What are the rewards and challenges experienced by security advocates?
 - ▶ From where do security advocates get their security information and knowledge?

Combined Results

Trust as the Foundation

“*To me, trust is the most important thing that I have. If they trust that what I’m telling them and what I’m doing is the right thing, then I am much more successful.*”

Technical Credibility

“ You really do need to understand the technology...This stuff's tricky, and you don't just guess your way out of it.

”

Non-Technical Competencies

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“ *The majority of [security] professionals have a huge understanding of technical issues, but a very, very small percentage of them have any soft skills whatsoever.* ”

Interpersonal Skills

“

I think people have to have a high emotional intelligence, and especially empathy. Part of being successful in this is being able to have a conversation and put yourself in the place of the person you're working with, and then be able to give effective advice that is not preaching, is trying to be helpful, and is letting them know that they're not stupid because they may not know how to do certain things.

”

Context Awareness

“ *Understanding your environment and the different, unique threats and vulnerabilities in your environment is hugely important.* ”

“ *The message, even though it's going to be the same, is going to be delivered differently depending on the level of person that you're talking to.* ”

Communication Skills

“

You can produce as many policies and processes as you like, if you cannot communicate them to people in a language that they understand, in a language that means they're going to be receptive to your message, then they're worthless.

”

Personal Attributes

“ You can make an entire living just pointing out other people’s problems or mistakes...But I just don’t find that satisfying. I’m much more interested in creating positive change. ”

“ I love empowering people and seeing their lightbulbs go off in the moment that they understand why they are a target and what they can do about it. ”

Implications & Next Steps

Change Agent Career Development

- ▶ Need new work role
- ▶ Incorporate non-technical skills in addition to technical skills
- ▶ Encourage movement into cybersecurity field from individuals in other disciplines with the appropriate non-technical skills

Change Agent Course

Change Agent Development Concepts

- ▶ Importance of employing non-technical competencies
- ▶ Change agent functions
- ▶ Gaining context
- ▶ Communication and coordination
- ▶ Building trust and credibility
- ▶ Skillful use of influence
- ▶ Facilitating change

Discussion & Questions

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