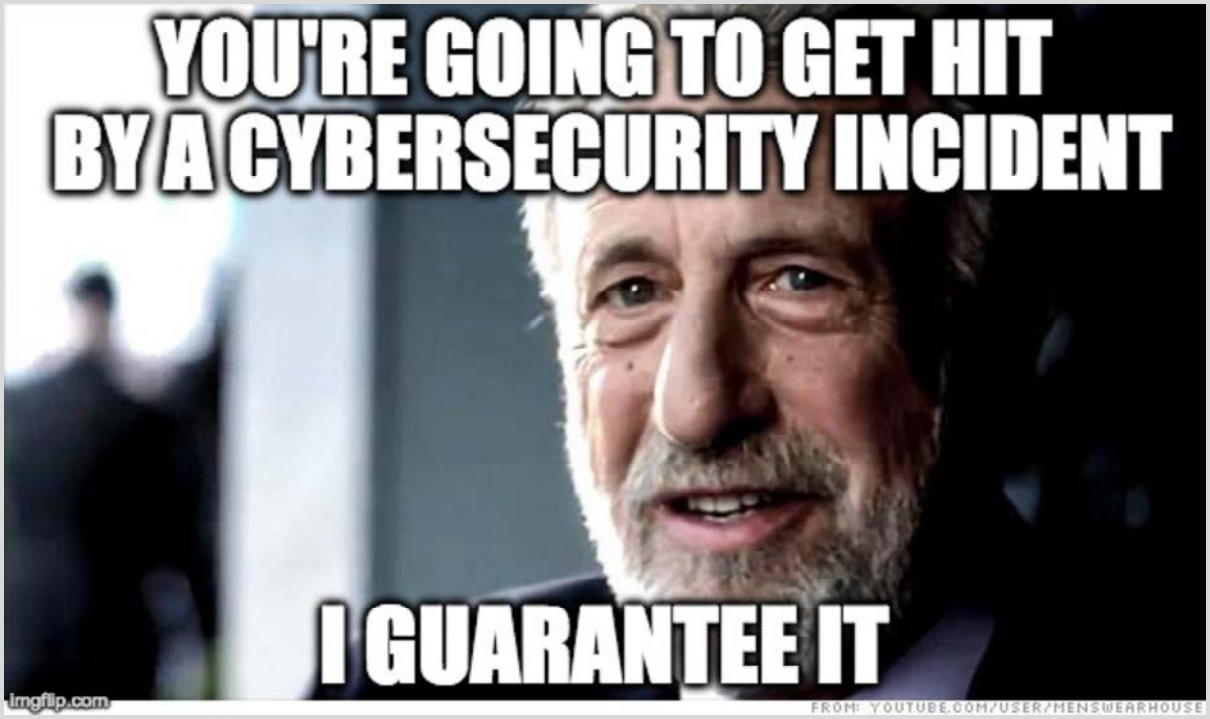
MANAGING CYBERSECURITY: CERTIFIED MISSION CRITICAL PROFESSIONAL (CMCP)

Mission Critical Global Alliance

Steve Mustard
Mission Critical Global Alliance (MCGA)

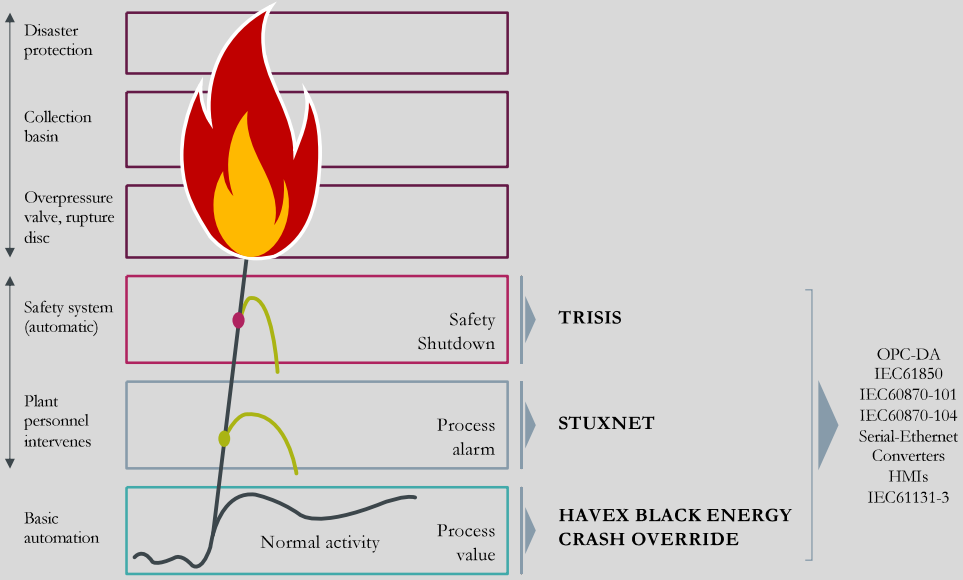
Introduction

- Steve Mustard
  PE, CAP, Eur Ing, CEng, FIET, GICSP, CMCP
  - 30 years in automation and real time embedded systems
  - >12 years in industrial cybersecurity
  - 2021 ISA President and certified cybersecurity instructor
  - WEF safety and security committee member
  - Countries: UK, Ireland, Germany, France, Czech Republic, Holland, Belgium, Bulgaria, Australia, USA, Canada, Bolivia, Panama, Trinidad & Tobago, India
  - Customers: Anglian Water, Sydney Water, Dublin City Council, BP, BG Group, Shell, Aera Energy, Quintiles Laboratories, NATO, Royal Air Force, Atomic Weapons Establishment, Royal Navy, National Grid Transco, McCain Foods
- MCGA
  - MCGA is dedicated to be a trusted resource for business, government and industry to assist in securing Operational Technologies as a critical component of mission critical infrastructure through advocacy, skills standards development, education, research, networking, workforce development and professional certifications.

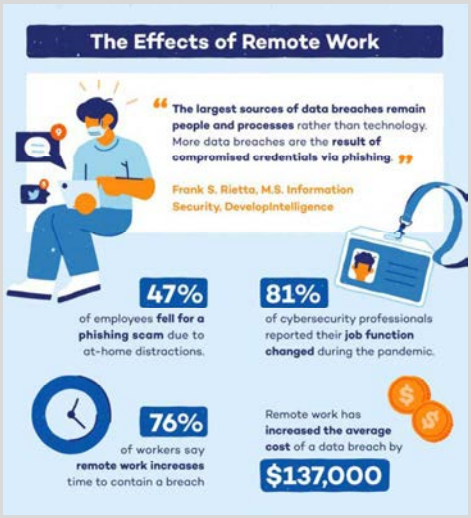


Critical Infrastructure Cybersecurity

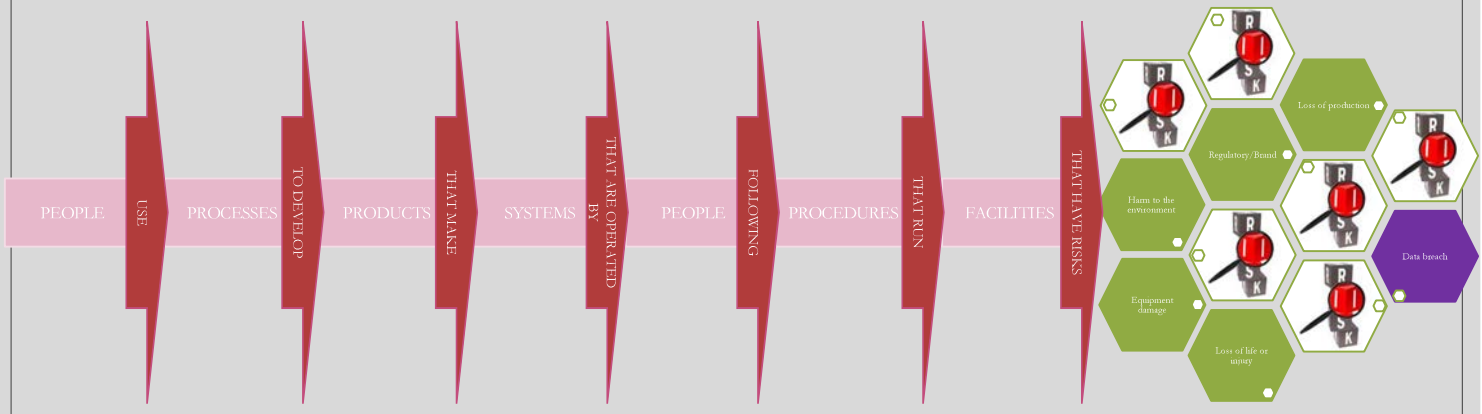
Attacks On Layers Of Protection



Cybersecurity in the COVID-19 Age

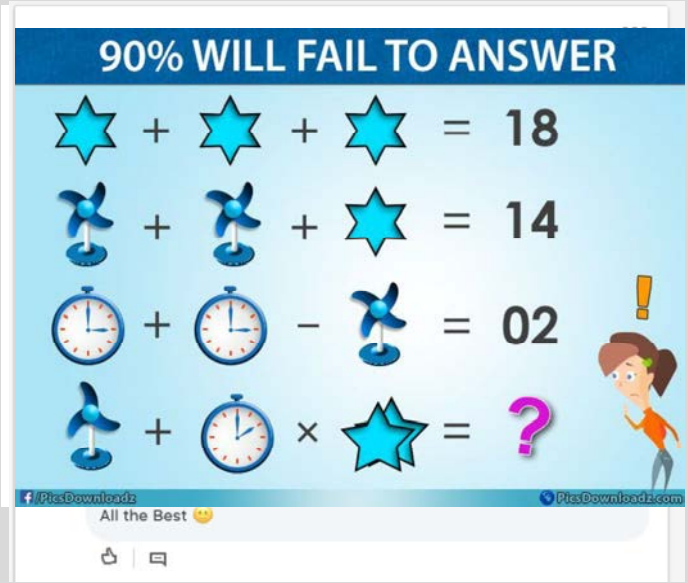


Mission critical system risk chain



Competency issues

- The scale of mission critical systems technology knowledge requirements
- On the job training/informal mentoring
  - The internet is not a trusted source of information
  - Over reliance on informal instruction



Example

"Yes, I struggled with my first project. My mentor was a true engineer with a **sink or swim mentoring style**, so I quickly found myself in the deep end of the automation pool. **My assignment** working in my new role on the team was to figure out how to **build human-machine interface (HMI) graphics**. As a recent graduate in chemical engineering, **I had never touched HMI graphics, tagging or networking before – I mean, not at all**. Once the entire project was completed, however, **I had learned a great deal about graphics, troubleshooting and project work in general**."

Where Competence and Cybersecurity Intersect

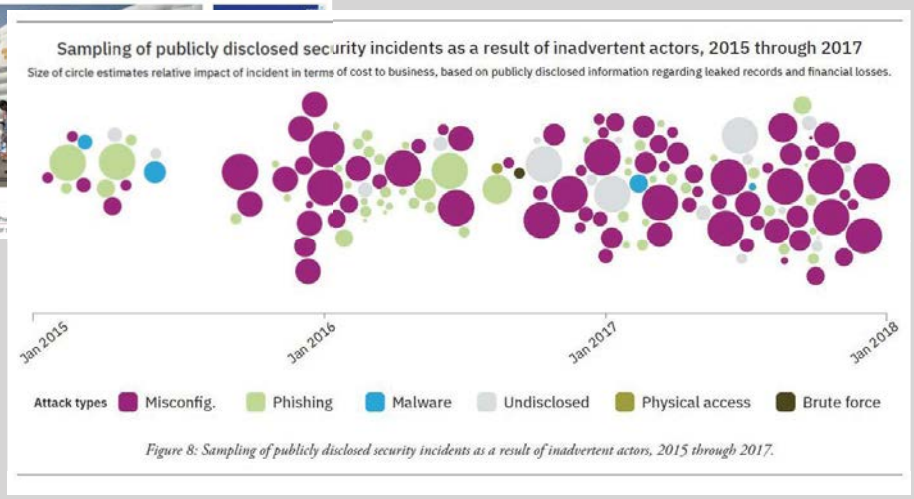


Figure 8: Sampling of publicly disclosed security incidents as a result of inadvertent actors, 2015 through 2017.

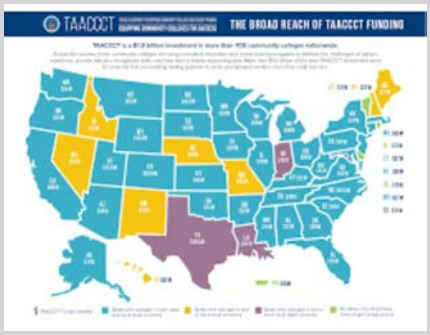
Enter CMCP

What is CMCP?

- A professionally constructed agnostic exam developed by industry subject matter experts (SMEs)
  - SMEs from both private and public sectors represented in the development
  - Independently developed
- Tests on the fundamental best mission critical operational practices with a focus on OT cybersecurity skills
- The Mission Critical industry credential and standard for individuals
- Not a dearth of training or certifications specifically for cybersecurity IT/OT convergence

CERTIFIED MISSION CRITICAL PROFESSIONAL CMCP

Background to CMCP



US DoL TAACCCT Grant Funding - 2013

Target areas

- High Wage, High Skill Areas with regional needs
- Mission Critical

Consortium Built

- Cleveland CC (lead), Wake TC, Moultrie TC, Nash CC and UNC Charlotte
  - Industry Steering Committee - Key members from ISA and AF
  - Grant application completed and submitted
    - $23M+ Awarded to the consortium
    - Grant started late 2013 (delayed start and extension); ended Dec 2016

Target Audience

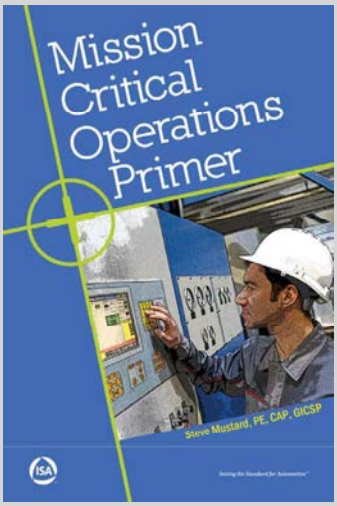
- Anyone working in a mission critical (MC) environment interested in validating their skills against the fundamental best business practices as determined by the MC industry.
- Any organization that would like validation that their staff have the fundamental skills to protect their mission critical work environment.

Recommended Experience Level

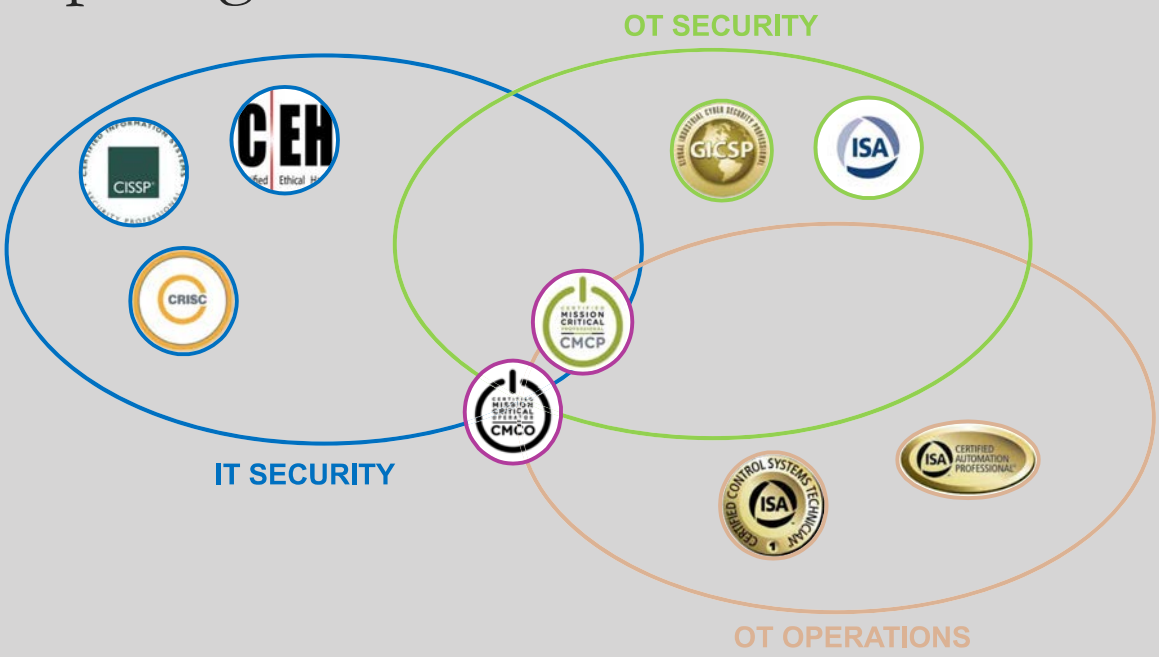
- Two-year Associate's Degree (with coursework in an information technology or operations technology related field, such as engineering or information technology), including a minimum of 6 months (2 quarters) of related co-op experience or an equivalent apprenticeship of at least 6 months; OR
- Two years of related work experience in a field such as information technology, operational technology, engineering, cybersecurity, military, or other mission critical fields; OR
- Any combination of the two totaling two years of experience or education, with a minimum of 6 months hands on experience.

Certified Mission Critical Professional

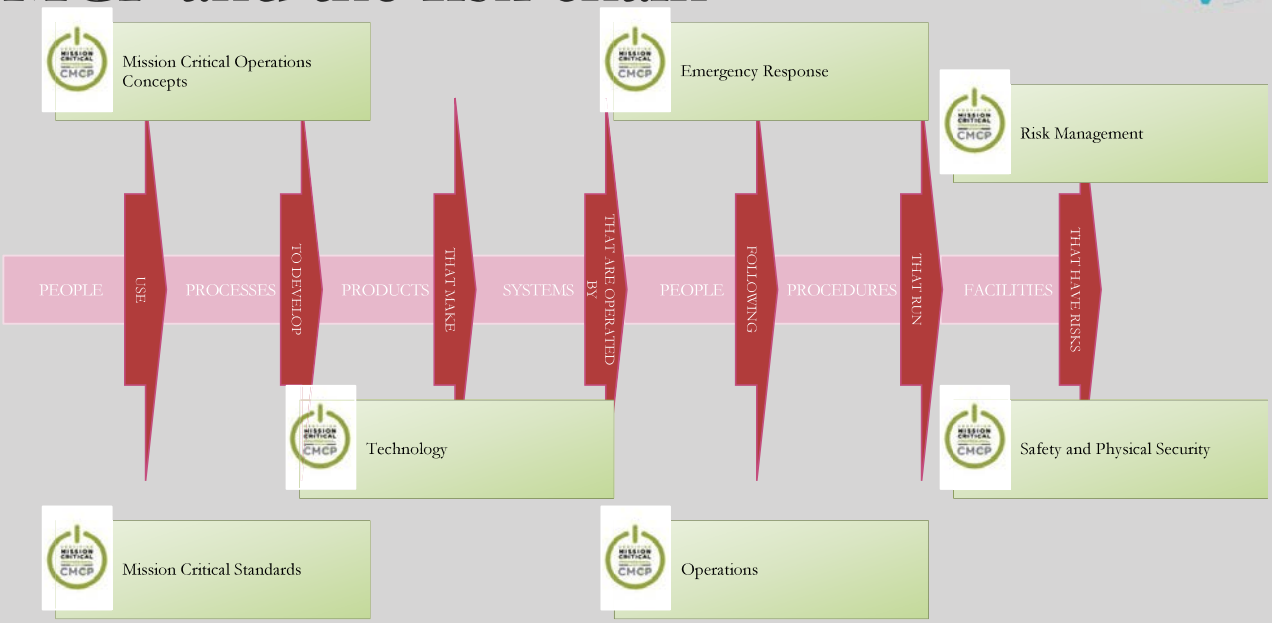
- Mission Critical Operations Concepts
- Mission Critical Standards
- Technology
- Operations
- Safety and Physical Security
- Risk Management
- Emergency Response



Comparing Certifications



CMCP and the risk chain



Questions?

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