People are not the weakest link in cybersecurity

our understanding is...
Nice to meet you!

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A psychologist? On Cybersecurity?
What is cybersecurity/ information security?

Goals: Keep information available, reliable and confidential

Policy, rules, processes, technique, etc
Why cybersecurity?

EasyJet issues apology after customer data breach in 'highly sophisticated' cyber attack

Posted by Lee Hayhurst on May 19th, 2020 at 13:28

Budget airline easyJet has informed UK regulators that it has been subject to a “highly sophisticated cyber-attack”.

The carrier has said emails addresses and travel details of around nine million customers were accessed. They will be contacted within the next few days, the firm said.

Brand image damage

Facebook falls in the trap of data leak again! A glitch gave 5,000 apps access to user account information

July 2, 2020 by Suryaprasad Roy

Facebook may be trading your data for money as the company says a glitch caused 5,000 apps to get your info
Why cybersecurity?

Garmin reportedly paid millions to resolve its recent ransomware attack

The company is said to have made the payment through a third party;

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Financial damage

Business continuity

Personal consequences

Ransomware hackers demanding millions from Manchester United: Report

Austrian firm fires CEO after €50-million cyber scam

Austrian aircraft parts maker FACC said Wednesday that it has fired its chief executive of 17 years after cyber criminals stole some €50 million in a so-called ‘fake president’ scam.

Hackers who targeted Premier League club Manchester United last Friday are reportedly demanding millions of pounds in ransom in exchange for not releasing sensitive files associated with the club and its players, the Daily Mail has revealed.
Cybersecurity in organisations

• No one size fits all!
• Rules, policy, processes, etc.

• Which behavior is secure?
  • Wear a badge
  • Choose a strong password
  • Lock your computer
  • etc
Knowing what is desired from people

- Mostly, people are told how to behave
- They get informed and instructed
- ... and the conclusion is that people are the weakest link in cybersecurity
- But knowing what is desired from people is not the same as being able to influence them!
Expertise of psychologists

- HOW TO make people...
  - Wear their badges
  - Use a strong password
  - Lock their computers

- Psychology is the science of behaviour

- It may seem easy, but...
People are complex!

... and different...

The fact that we are humans ourselves, does not make us human experts...
Combine the expertises!
Psychology learns from cybersecurity

Processes
What is the policy on information security?

Technology
What is technically possible?

People
What is desired from people?
Cybersecurity learns from psychology
People are not rational

• All efforts put into awareness trainings, new procedures, sending e-mails, etc.
• Sending knowledge, because we rely on that people will behave rationally
• Conclusion: People are the weakest link
• However, look at daily life...
The 1.5-metre rule is really just a best-effort recommendation, Dr Norman Swan says. (AAP/Scott Barbour)
Knowledge and awareness
Do not guarantee the desired behaviour
Safe behavior
behavior = ability \times motivation \times opportunity
Behavioral change

Assess what is withholding people
What are the barriers?
• Ability
• Motivation
• Opportunity
behavior = ability × motivation × opportunity

Intervention = educate × motivate × facilitate
Behavioral change

... goes beyond education!
The step towards behavioral change

How do you know whether you should educate, motivate or facilitate??

Define behavior very specifically
Specific behavior

• Lock computer
• Use VPN
• Use Secure File Exchange
• Unique password for work account
• Use password manager
• Report incidents
Behavior change

Define behavior specifically

This varies per focus group
Behavioral change

Assess what is withholding people
What are the barriers?
- Ability
- Motivation
- Opportunity
Identify barriers

Assess what is withholding people

Ask them!

Do not assume

We don’t know...
Because only then...

... you can remove the right barriers

In more ways than education
behavior = ability × motivation × opportunity
Ability

- Knowledge
- Awareness
- Skills
Ability the barrier?
Educating the solution!
How to educate? An example

We want everyone to report incidents

“I don’t know where I should report”
“I have no idea what I should and should’t report”
How to educate? An example

We want people to recognize phishing mails

“I think it is getting more and more difficult”
“I am in doubt frequently”
“I don’t know exactly what to look at”
behavior = ability × motivation × opportunity
Motivation

• Intrinsic
• Extrinsic
• Self efficacy
• Self determination
Motivation

Motivation the barrier? Motivating the solution!
How to motivate? An example

We want everyone to wear their badges

Resistance against (new) rules from the board/management
How to motivate? An example

We want everyone to lock his/her computer

“But I trust my colleagues, so why should I?”

“It’s not possible for strangers to access this site”
behavior = ability \times motivation \times opportunity
Opportunity

• Context
• Culture
  • Power distance
  • Trust
  • Commitment
  • Individualism vs collectivism
  • (Role) modelling
  • Previous experiences
  • Short vs long term orientation
  • Result vs process orientation
Opportunity the barrier?
Facilitating the solution!
How to facilitate? An example

Report incidents

“I always have to search for the way to report an incident”
How to facilitate? An example

Only work in your own account

“I do not have the authorizations to do what I have to do”
Take home

Gap between awareness and behavior

Safe behavior as the end goal

Behavior consists of multiple factors

Assess what is withholding people

Remove the specific barrier
Because behavior is more than knowledge

behavior = ability × motivation × opportunity
And behavioral change is more than education

\[ \text{behavior} = \text{ability} \times \text{motivation} \times \text{opportunity} \]

\[ \text{intervention} = \text{educate} \times \text{motivate} \times \text{facilitate} \]
Thank you!

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