Tech acceptance: Why people do (and do not) adopt technology

WHO AM I?

- I’m Jonathan Robst
- ~4 years of IT experience
- Bachelors in Psychology
- Currently work for 12 Points

12 POINTS TECHNOLOGIES

Managed Services

Cyber Security & Forensics

WHY PSYCHOLOGY?

- The ERP is 40 years old
- ERP unpatched for 30 years
- Untested backups
- Unknown if we have second server
- Stolen(?) Licenses
- Unpatched WIN2003 for DC
- SOHO routers as switches
- File server’s backups are “untestable”
- 802.11B wireless
- “The domain controller hasn’t been the same since it was ransomware’d”

WHO HAS HEARD ANY OF THE FOLLOWING?

- You cannot engineer away a human problem
- That’s a human problem, not an IT problem

Enter: The Technology Acceptance Model

WHAT IS THE TAM?

- From industrial-organizational psychology
- “The science of making work not suck”
- Originally from 1989, newest version from 2008
- “...There is a need to understand how various interventions can influence the known determinants of it adoption and use.”

QUALIFICATIONS

- Voluntary only
- Can only explain about 80% of the difference
- Recommendations are only in newest version
- Mostly considers end users
- Not tested on training

TAM: CORE CONSTRUCTS

- Perceived ease of use

  Does it *seem* easy to use?

- Perceived usefulness

  Does it *seem* relevant to my job?

PERCEIVED USEFULNESS

- Subjective norms

  The person's belief that those important to them will want them to adopt the technology

- Image

  Using it will increase their social standing

- Job relevance

  Is it relevant to their job

PERCEIVED USEFULNESS CONT'D

- Output quality

  Their belief that the output will be atleast as good as the output from other systems

- Result demonstrability

  That it will have tangible, observable, and communicable benefits.

PERCEIVED EASE OF USE

- Computer self-efficacy

  The person's belief in their ability with a computer

- Perception of external control

  How much they believe the organization will support their adoption of the technology

- Computer anxiety

  The anxiety they associate with using a computer

PERCEIVED EASE OF USE CONT'D

- Computer playfulness

  How playful or experimental they are with computers

- Perceived enjoyment

  How enjoyable using the application appears to be

- Objective usability

  How much effort is objectively required

How to apply the TAM?

Especially to security?

COMPUTER SELF EFFICACY, ANXIETY, PLAYFULNESS

- Mostly hiring decisions, I think
- Emphasize that nothing will be that bad

JOB RELEVANCE, OUTPUT QUALITY, AND RESULT DEMONSTRABILITY

- Understand pain points and user needs
- Get them involved in deciding
- Difficult to do with security
- Security culture
- Personal relevance (maybe)

PERCEIVED ENJOYMENT

- Consider UI and UX when deciding on tech
- Get end users in too
- Emphasize the UI and UX

OBJECTIVE USABILITY

- Ask users to judge the output
- Focus on the results in training

SUBJECTIVE NORMS AND IMAGE

- Start with leadership and senior staff

PERCEPTION OF EXTERNAL CONTROL

- Don’t talk down to users!
- Training, training, training
- Documentation, documentation, documentation
- Responsive IT
- Available IT

SO WHY DON’T PEOPLE ADOPT NEW TECHNOLOGY?

COMPUTER SELF EFFICACY, ANXIETY, PLAYFULNESS

- User anxiety about “not being good with computers” run wild

JOB RELEVANCE, OUTPUT QUALITY, AND RESULT DEMONSTRABILITY

- You did not understand the needs of end users, so you solved a problem they are not having
- You did not understand what the end users want from the technology's output

PERCEIVED ENJOYMENT

- You did not consider UI or UX when deciding on new technology

OBJECTIVE USABILITY

- You did not get end users into demos, so its hard to judge output

SUBJECTIVE NORMS AND IMAGE

- Organization leadership and seniors are not using it

PERCEPTION OF EXTERNAL CONTROL

- Your end users don’t think you will support them adopting new technology

BROAD RECOMMENDATIONS

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- Consider what your end users are comfortable with and emphasize that they cannot break anything critical
- Ask a lot of questions from the people who will use the software
- Get end users involved in demos and try to understand if it solves their issues
  - Ask them how easy they find it to use
  - Ask them about the output
  - Ask them if they think using it will make them better at their jobs
- When deploying software, consider who gets it first
- Provide a lot of support through training, documentation, and being present

“BUT I DON’T MAKE PURCHASING DECISIONS! OR DEAL WITH END USERS!”

CONSIDER THIS

- In 2020, almost 80% of ransomware attacks involved improperly configured system security (Microsoft, 2022)

REFERENCES

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- Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, *39*(2), 273–315. https://doi.org/10.1111/j.1540-5915.2008.00192.x

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