



The Human Firewall: How Social Engineering Exploits Psychology and What We Can Do About It



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What is Social Engineering?

- Exploits human psychology rather than software vulnerabilities
- Often the entry point for bigger attacks (phishing, pretexting, etc.)
- Human element involved in ~60%

of data breaches (Verizon 2025 DBIR)



Psychological Underpinnings (The Science)

Authority: We obey perceived bosses/IT/government

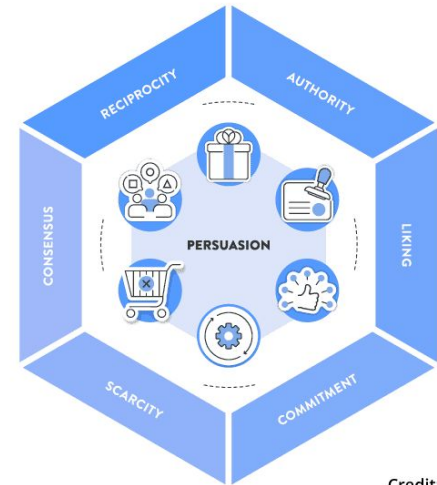
Urgency/Scarcity: "Act now or lose access!"

Reciprocity: A "favor" makes us feel obligated to help

Fear & Curiosity: Panic or FOMO overrides caution

Social Proof: "Your colleagues already did this"

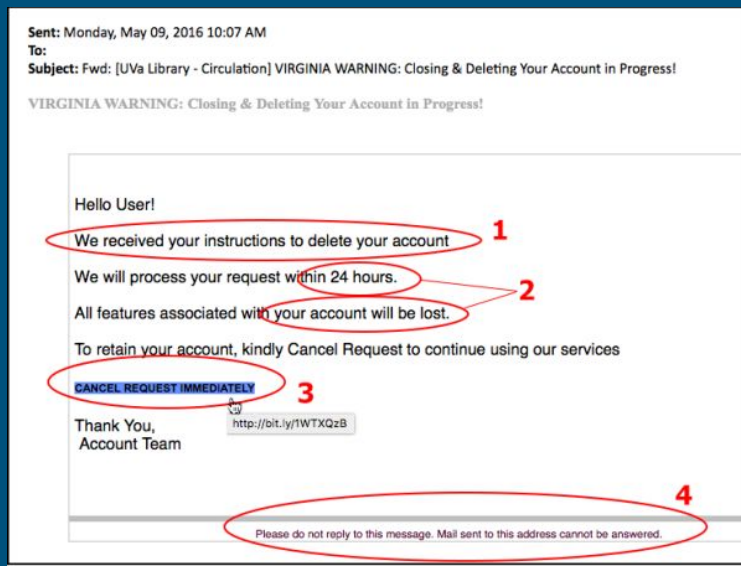
THE SIX UNIVERSAL PRINCIPLES OF PERSUASION



Credit: Dr. Robert Cialdini

Examples in the Real World

- Kevin Mitnick socially engineered access to source code by impersonating trusted insiders
- 2024 Arup deepfake video call led to \$25M wire transfer loss
- Trends: Massive CoGUI phishing campaigns
(580M+ emails in Japan)
- Insider bribery at Coinbase
- ClickFix-style fake browser prompts



Societal and Ethical Implications

- Victims experience financial loss, identity theft, psychological stress
- Undermines digital trust, widens inequality (less tech-savvy more vulnerable)
- Privacy vs. security, responsibility of platforms/organizations



Mitigation Strategies | Building Resilience

- Regular, realistic phishing simulations combined with role-specific sessions
- Verification: "When in doubt, call to confirm" using known channels
- Strong MFA (not just prompt-based), email filters, zero-trust models
- Culture encourages reporting without blame & rewards vigilance



Conclusion & References

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