

Nudges for Privacy and Security: Understanding and Assisting Users' Choices Online

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Overview

- Multi-disciplinary survey of the literature on privacy and security decision making:
 - understanding decision making hurdles
 - assisting decision making
 - nudging users towards beneficial choices

Abstract

IT advancements often task users with complex and consequential privacy and security decisions. A growing body of research has investigated individuals' choices in the presence of privacy and security trade-offs, the decision making hurdles affecting said choices, and ways to mitigate those hurdles. We provide a multi-disciplinary assessment of this literature, focusing on how to assist individuals' privacy and security choices with soft paternalistic interventions, or nudges. We discuss potential benefits of behavioral interventions, their shortcomings, and some key ethical, design, and research challenges.

Decision Making Hurdles

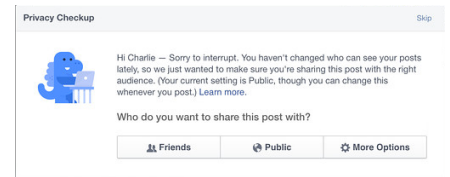
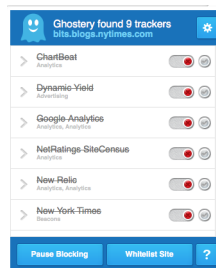
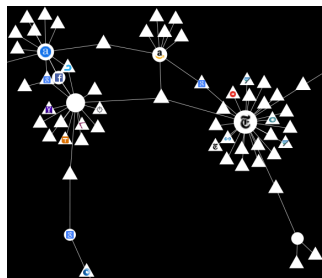
- Incomplete & asymmetric information
- Decision heuristics & bounded rationality
- Cognitive & behavioral biases, including:
 - Anchoring
 - Loss aversion
 - Framing effects
 - Hyperbolic discounting
 - Optimism bias & overconfidence
 - Post-completion errors
 - Status quo bias
 - [...]

To Nudge or Not to Nudge

- Nudges = Soft paternalistic interventions
- But: **every design choice** is a nudge
- Trend: nudging away from privacy and security
- Need and strategies for evaluating desired outcomes
- Importance of ethical nudge design:
 - are normative judgements of nudge appropriate?
 - what is the risk of unintended, adverse consequences?
 - is responsibility inappropriately transferred?
 - does nudging create or represent conflict of interest?
 - who can/should implement privacy and security nudges?
- Some guidelines:
 - nudges should be proportional to nudge's benefit
 - respect user choices
 - respect ethical norms regarding persuasion and expectations of truthful information

Nudging: Assisting Privacy and Security Choices

- Dimensions of nudges
 - Information
 - Education
 - Feedback
 - Presentation
 - Framing
 - Ordering
 - Saliency
 - Structure
 - Defaults
 - Incentives
 - Increasing costs
 - Rewards & punishments
 - Timing
 - Reversibility & error resiliency
 - Forced action or automated completion



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Images above and left: Examples of user interfaces of online services that can influence users' decision making

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