

Using Process Tracing to Improve Household IoT Users' Privacy Decisions

Challenge:

How can users manage the privacy settings of an interconnected set of household IoT applications?

Solution:

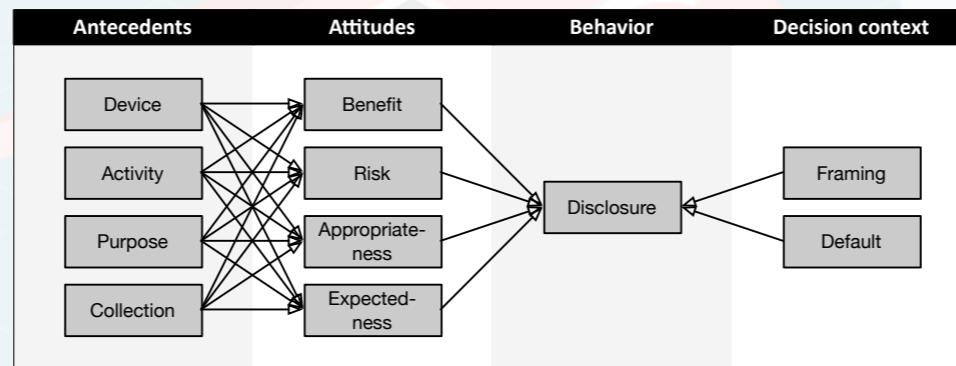
Uncover users' processes to better understand how, why and when users' privacy decisions are suboptimal

Methods: Eye tracking, process tracing, utility mapping, machine learning

Create and test a simple, central interface that integrates privacy settings across all devices within a household

Methods: UI design, default profiles, implementation, in-home evaluation

Funded by **NWO** Netherlands and **NSF**,
Award No.: SES1640664



The camera of X shares data about (see more ⇌)	The camera of X shares data about	your presence	Which room you are in	How active you are
<input checked="" type="checkbox"/> With your other devices (see more ⇌)	With Device Y	<input checked="" type="checkbox"/> stored locally <input checked="" type="checkbox"/> stored in the cloud	<input checked="" type="checkbox"/> stored locally <input checked="" type="checkbox"/> stored in the cloud	<input checked="" type="checkbox"/> stored locally <input checked="" type="checkbox"/> stored in the cloud
<input checked="" type="checkbox"/> With your manufacturers (see more ⇌)	With Device Z	...	...	...
<input checked="" type="checkbox"/> With other parties (see more ⇌)	With manufacturer A	...	...	...
	With manufacturer B	...	...	...
	With third party P	...	...	...
	With third party Q	...	...	...

Bart P. Knijnenburg

Clemson University, bartk@clemson.edu

Martijn C. Willemsen

TU Eindhoven, m.c.willemsen@tue.nl

Alfred Kobsa

University of California, Irvine, kobsa@uci.edu

Scientific Impact:

For privacy: first study to attempt to improve the privacy decision process itself

For decision sciences: develop support of decisions where outcomes are vague, uncertain, and emotionally laden

Broader Impact:

Develop a technique to study the “decidability” of privacy setting interfaces

Centralize and simplify the privacy setting interfaces of existing IoT devices

Account for cultural and regulatory differences