Privacy Profiles for Enhanced Privacy Permission Management in Trigger-Action Platforms - SWITS 2024

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1 Abstract

With the increasing popularity of IoT devices and the usage of Trigger-Action Platforms (TAPs), users are becoming high-level programmers in connecting and personalizing technological tools. However, this increased connectivity facilitated by TAPs brings forth privacy risks due to the automatic exchange of personal and non-personal data among various interconnected devices and services. Our focus is to applied human-centered design to get directly from the people what are their privacy protection needs. Another priority when dealing with users' privacy risks are the policies and rules indicated by the GDPR.

To achieve this objective, we employed a triangulation approach, integrating three distinct research methods—qualitative method, experts' evaluation through a literature review, and quantitative questionnaire—within privacy attitudinal aspects. In our previous works, we conducted 3 focus groups where we found what are the attitudinal privacy concerns in this regard. We used those results to understand similarities and differences with the existing literature related to the general IoT. In our last work, we create a self-developed questionnaire which has been tested with hundreds participants. Our two factors model composed by unauthorised access and control, and transparency was repeated in 4 scenarios, real if-this-then-that applications, while our EEA and US participants were exposed to risks or non-risks conditions. We validate our questionnaire using Confirmatory Factor Analysis. We characterized the participants' answers by employing machine learning techniques to cluster users based on their privacy concerns and preferences.

To summarize, our works want to narrow the gap between users' privacy concerns and the increase usability of customising their new digital spaces by creating an user-friendly permission management systems tailored to if-this-then-that applications.