

Case Study: Exploring Employees' Security Friction & Loss of Productivity

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Introduction

In organizations, poorly designed security policies and non-usable security mechanisms can cause **security friction** that leads to a **drop in productivity among employees**.

- While the burden single security mechanisms cause on users is widely studied in the usable security community, the combination of policies and tools and their effects on employees in an overall organizational context is not.
- Existing papers primarily discuss a loss of time, e.g., when authentication takes multiple minutes per employee per day.
- However, we argue that non-usable security tasks can cause friction through different mechanisms, such as a loss of concentration, frustration, stress, or unwillingness to innovate. For non-security-tasks, this has already been discussed and shown.
- On the journey to measure different aspects of friction with one instrument, we embedded various friction-related questions into an online survey that we distributed to employees in an organization.
- Here, we report how we measured friction and what we can learn from this case study.

Methodology

Creation of online survey

- Knowledge questions
- Security Self-Efficacy questions
- **Security Friction** questions

Context: Site of German automotive supplier with 700 employees

n = 182 valid responses from two questionnaire versions

Learnings

- One key learning is that we gained insights into the employees' perception of security friction by asking open-ended questions. We were indeed able to uncover different forms of friction that our partner organization should work on. Perhaps not surprisingly, employees described issues with authentication as the primary source of friction.
- We were generally surprised at how open the employees were with their critique of existing security rules and measures. While we can not ultimately say what led the employees to be more open than we expected, we attribute it to some combination of (I) the work council distributing the survey as a trusted partner and (II) our appearance as independent academic researchers who will keep employees' data safe.
- We encourage future research on security friction in the context of organizations based on the multiple facets that friction can have

Security Friction Items from the Survey

Nr.	Question	Category
1	Are there IT security rules in your company that you find disruptive to doing your actual job? [Yes; No]	Disruption
2	What rules or procedures do you find disruptive? [Open Answer]	Disruption
3	Why do you find the rules or procedures disruptive? [Multiple Choice Answer: Costs too much time; Costs too much concentration; Negatively affects my motivation to work; Prevents me from being innovative; ...]	Time/ Concentration/ Motivation
4	Would you leave all the information security rules as they currently are, or would you change something? [Yes, I would leave everything as it is; No, I would change something]	Improvement
5	What information security rules and procedures would you change? [Open Answer]	Improvement
6	Do information security rules in your organization prevent you from proposing new ideas, improvements, programs or innovations? [Yes, regularly I do not suggest something, because I think the rules of the information security rules don't allow it anyway; Yes, I have refrained from proposing something at least once ...; No, they don't]	Innovation
7	Following the information security rules costs my employees too much time. [Strongly disagree - ...]	Time
8	Following the information security rules costs my employees too much nerves/ concentration. [Strongly disagree - ...]	Concentration
9	I find the rules of information security at my workplace understandably formulated. [Strongly disagree - ...]	Usability
10	I have the necessary resources to behave securely at my workplace. [Strongly disagree - ...]	Usability
11	I may enter information on websites as long as it helps me do my job. [Strongly disagree - ...]	Circumvention
12	When I enter information on a website, it doesn't matter what the information is as long as it helps me do my job. [Strongly disagree - Disagree - Neutral - Agree - Strongly agree]	Circumvention
13	I may download any file to my work computer as long as it helps me do my job. [Strongly disagree - ...]	Circumvention
14	I download any file to my work computer which helps me in my work. [Strongly disagree - ...]	Circumvention
15	I find it stressful to check emails for suspicious features. [Strongly disagree - ...]	Stress
16	When I check emails for suspicious features, it takes too much time. [Strongly disagree - ...]	Time
17	When I check email for suspicious characteristics, it distracts me from my real work. [Strongly disagree - ...]	Disruption
18	I feel that checking emails for suspicious features interferes with my daily work. [Strongly disagree - ...]	Disruption
19	When I check email for suspicious features, I forget what I was doing before. [Never; Sometimes; Often; Regularly]	Disruption
20	If I report suspicious emails, it costs too much time. [Strongly disagree - Disagree - Neutral - Agree - Strongly agree]	Time
21	The suspicious email reporting process is cumbersome. [Strongly disagree - Disagree - Neutral - Agree - Strongly agree]	Disruption
22	I have already reported an email as suspicious, even though it was legitimate. [Yes; No; I have not received any feedback]	Negative Side-Effects