



On the Recruitment of Company Developers for Security Studies:

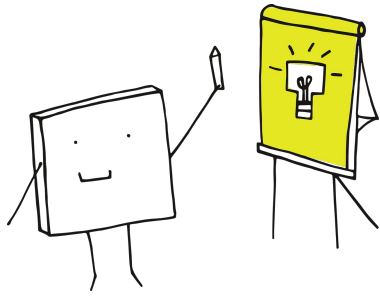
Results from a Qualitative Interview Study

Raphael Serafini, Marco Gutfleisch,
Stefan Albert Horstmann , Alena Naiakshina
University of Bochum

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Challenge: Recruiting Software Developers

- Freelance and crowdsourcing participants and CS students are often recruited as convenience samples
- Professional software developers employed in companies are indispensable to investigate factors influencing usable security and privacy in companies
 - Company Context
 - Organizational Processes
 - Security Culture
 - Communication between security and privacy experts and software developers



Research Question:

What **motivates** professional software developers
to participate in
software engineering and **security studies**?

Goal:

Study design and **recruitment recommendations**
for future studies

Qualitative Study

- **30 professional software developers** employed in German companies
 - Recruited from previous security studies + snowball sampling
 - Compensated with €100

- 60 minutes online interviews
 - Analyzed with Thematic Analysis

- Demographics:
 - **Gender:** female = 4, male = 26
 - **Age:** min = 22, max = 53, median = 33
 - **Development Experience [years]:** min = 4, max = 30, median = 12
 - **Previous Study Participation:** Sec: 15, Non-Sec: 9, None: 5, NA: 1



Expectations

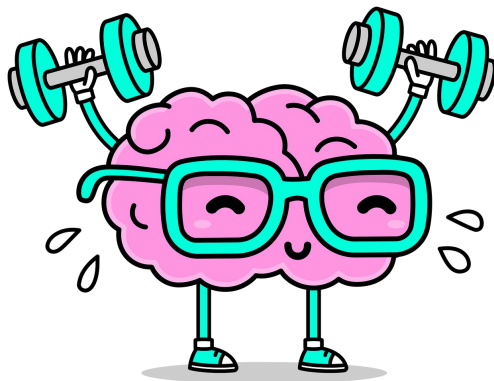
- Most participants are **uncertain about** empirical study **expectations**
- **Study invitation** should include:
 - Description of the task
 - Clear study requirements
- Especially in **Field** and **Security** studies
 - **Security:** Perceived as more challenging
 - **Field:** Fear of repercussions in case of bad performance

Motivation

- **Self-Improvement**
 - Expand knowledge or learn about misconceptions

- **Joy**
 - Variety to job
 - Social interactions

- **Altruism**
 - Academic background
 - Contribute to science



Programming and Security studies should highlight benefits for participants!

Compensation

- **Monetary compensation is a high motivator!**
- **Soft Limits:** Study Length (<4 hours), Topic, Task
- **Hard Limits:** Study Length (>4 hours), Data Collection (e.g., Biometrics)
- Decide on monetary compensation carefully
- Base payment on participant wage
- Acknowledge and pay for inconvenience (e.g., traveling)
- **Study length** can discourage from participating



Data Collection

- Explain data collection
- Don't break a developers paradigm
 - Submitting solutions
 - Development environments
- Build trust
 - Public institutions are more trusted than private institutions
 - Introduce yourself



Recruitment Channels and Strategies

- **E-Mail**

- Active > Passive recruitment
- Asynchronous communication
- Personal contact
- Address skill and expertise
- Highlight individual benefits



Takeaways

- Address **concerns** about high effort and weak performance in **Security**, **Programming** and **Field** studies
- Highlight **benefits** of participation, especially in **Security** studies
- **Personalize communication** to set realistic expectations and to build trust by acknowledging the individual, their interests and their expertise



Contact: Raphael.Serafini@rub.de or on Slack (SOUPS'2023)

