The Impact of Software Security Practices on Development Effort
Elaine Venson and Barry Boehm
USC Center for Systems and Software Engineering

Research Task / Overview

- The **effort/costs** of performing security practices are often pointed out as a barrier to their wide use.
- **Lack of knowledge** about the amount of resources needed to achieve a determined level of security assurance.
- It is paramount for users, developers, and managers to **understand and agree** on the right amount of resources to be allocated for software projects to deliver proper security.

Goals & Objectives

- Gather a better understanding of how software security practices are applied in the industry:
  - Effort and frequency of activities.
- Identify the implications of applying such activities in terms of effort:
  - Effort added in projects.
  - Effort estimation methods.

Data & Analysis

<table>
<thead>
<tr>
<th>Participants per Country</th>
<th>Confidence Interval</th>
<th>Level of Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>110 complete responses</td>
<td>13.61% of the sample</td>
<td>95%</td>
</tr>
</tbody>
</table>

Methodology

**Sampling Frame**
- Software Security Group on LinkedIn
- 2012 member at the time

**Sampling Strategy**
- Random Sampling
  - Initial sample size = 908
  - Excluding recruiters and sales people = 808

**Recruitment Strategy**
- Manual invitation through LinkedIn messages
- Raffle on Amazon to encourage responses

**Questionnaire Design**
- Reviewed by external expert
- Piloted with 10 members from the sampling frame
- Close-ended and quantitative questions
- One open-ended question

**Data Collection and Analysis**
- Web-based tool
  - Available for 2 weeks
- Reminder after 1 week
- Quantitative analysis mostly

Future Research

- Identify the degrees of application of security practices and security requirements in software development.
- Understand the variation of other cost factors when the security factor is included in effort estimation models.
- Compare the increase pattern of development effort with increased levels of security implemented.
- Elaborate a model to explain the increase in development effort caused by the degree of required security.

Contacts/References

Elaine Venson: venson@usc.edu
Barry Boehm: boehm@usc.edu