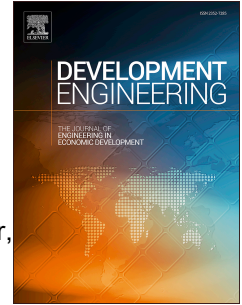


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# Computer Security for Data Collection Technologies<sup>☆</sup>

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## Abstract

Many organizations in the developing world (e.g., NGOs), include digital data collection in their workflow. Data collected can include information that may be considered sensitive, such as medical or socioeconomic data, and which could be affected by computer security attacks or unintentional mishandling. The attitudes and practices of organizations collecting data have implications for *confidentiality*, *availability*, and *integrity* of data. This work, a collaboration between computer security and ICTD researchers, explores security and privacy attitudes, practices, and needs within organizations that use Open Data Kit (ODK), a prominent digital data collection platform. We conduct a detailed *threat modeling* exercise to inform our view on potential security threats, and then conduct and analyze a survey and interviews with technology experts in these organizations to ground this analysis in real deployment experiences. We then reflect upon our results, drawing lessons for both organizations collecting data and for tool developers.

*Keywords:* ICTD, Data Collection, Security

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## 1. Introduction

Technology has become an important tool for many non-governmental organizations (NGOs) and groups collecting data in the developing world. For example, technology can provide people in remote regions with access to financial services and allow organizations to collect vital information within communities they serve. Information and Communication Technology for Development (ICTD) is the study of what technology can accomplish and how technology is used in such low-resource settings around the world. ICTD takes a broad definition of “low-resource”. Areas affected by poverty are frequently the focus of ICTD, but any setting where things like limited connectivity, unreliable power,

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<sup>☆</sup>Invented submission; this paper previously appeared at ICTD 2016 [8].

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