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Improving e-commerce fraud investigations in virtual, inter-institutional teams:

Towards an approach based on Semantic Web technologies

Master thesis

by

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Abstract

Describe in short what this thesis is all about
Keywords: ...

Contents

1 Introduction

Introduction of chapter, overview, ...

1.1 Motivation

"When it comes to fraud, 2015 is likely among the riskiest season retailers have ever seen, [...] it is critical that they prepare for a significant uptick in fraud, particularly within e-commerce channels". This statement from Mike Braatz, senior vice president of Payment Risk Management, ACI Worldwide in (Reuters 2015) shows the dramatic shift in credit card fraud from the offline to the online world, that retailers are starting to face nowadays.

In general credit card fraud can occur if a consumer has lost her credit card or if the credit card has been stolen by a criminal. This usually results in an **identity theft** by the criminal, who is using the original credit card to make financial transactions by pretending to be the owner of the card. Additionally, a consumer might hand over her credit card information to an untrustworthy individual, who might use this information for her own benefit. In the real world scenario there is usually a face-to-face interaction between both parties. The consumer, wanting to do business with a merchant or interacting with an employee of a larger business, has to hand over her credit card information explicitly and can deny doing so if she faces a suspicious situation. The criminal on the other hand must get access to the physical credit card first, before she is able to make an illegal copy of it - a process called **skimming**. The devices used to read out and duplicate the credit card information are therefore called skimmers. These can be special terminals, that the criminal uses to make copies of credit cards she gets her hands on, or they can be installed in or attached to terminals the consumer interacts with on her own (Action 2009). All of these so-called *card-present transaction* scenarios have seen a lot of improvements in security over the last years. Especially the transition from magnetic swipe readers to EMV chip-based credit cards makes it more difficult for criminals to counterfeit them (Lewis 2015).

As of this criminals are turning away from these card-present transaction scenarios in the offline world. Instead they are focusing on transactions in the online and mobile world, in which it is easy to pretend to own a certain credit card. Most online transactions (either e-commerce or m-commerce) rely ***only*** on credit card information like card number, card holder and security code for the card validation process – as of this these interactions are usually called *card-not-present transactions*. This credit card information can be obtained by a criminal in a number of ways. First she might send out **phishing emails** to consumers. These emails mimic the look-and-feel of emails from a merchant or bank, that the consumers are normally interacting with, but instead navigating the consumers to a malicious web site with the intend to capture credit card or other personal information (Action 2009). Additionally, criminals can **break into the web sites** of large Internet businesses with the goal of getting access to the underlying database of customer information, that in most cases also hold credit card data (Holmes 2015). Additionally, some of the online retailers are not encrypting the transaction information before transmitting them over the Internet; a hacker can easily start a **man-in-the-middle attack** to trace these data packages and get access to credit card and/or personal information in this way (Captain 2015).

1.2 Problem Definition

1.3 Thesis Outline

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2.2 Stakeholder Analysis

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