

Vrije Universiteit
Master thesis proposal

Exploring ways in which the
understanding of forensic fraud reports
by auditors can be improved

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1 Scope

A team of **auditors** or external clients provide the Forensic & Integrity department of KPMG assignments to work on. Auditors have to identify the risk of fraud at a company (bonuses or incentives are fraud sensitive subjects). Fraud is most of the times conducted on large items which are manually entered. Fraudulent behaviour can be identified by forensic data analysers from the Forensic & Integrity department. Therefore they are being hired by auditors. The terms auditor and accountant are used interchangeably in the fraud domain. Throughout this thesis the term auditor is used. The **Forensic Technology** department receives and analyses digital material in order to identify fraud risks. **Forensic data analysis** is the process of taking existing disparate sets of data that organizations routinely collect in the normal course of business and extracting additional value by making a series of comparisons, summaries, and aggregations to detect anomalies that are traditionally indicative of fraud or other misconduct. Figure 1 provides a visual overview of the situation. The next chapter of this thesis explains the part of the picture where the term “Suggestions” is introduced.

One of the tools the Forensic Technology department of KPMG is able to use during a forensic analysis is the **K-trace** tool. K-trace consists of different areas or modules of analysis. These areas include the accounts payable, accounts receivable, payroll, expenses, client specific and journal entries. The journal entry module consists of approximately 79 forensic routines which are responsible for analysing unusual (manual) journal entries (JE). Unusual journal entries include the ones booked on strange/unusual times e.g. in the evening/weekends or large amounts of money. The output of the data analysis process is a **K-trace report**. During my research I am focussing on the K-trace reports of the JE module (case study). The results of my research on K-trace reports will be used as an advice towards these reports and data representation in general. The K-trace tool can be used in order to check the accounts receivable, accounts payable, journal entries and other large data sets to identify irregularities and anomalies. The Forensic Technology department currently only uses the JE analysis module of the K-trace, because there is no effective demand for the other modules.

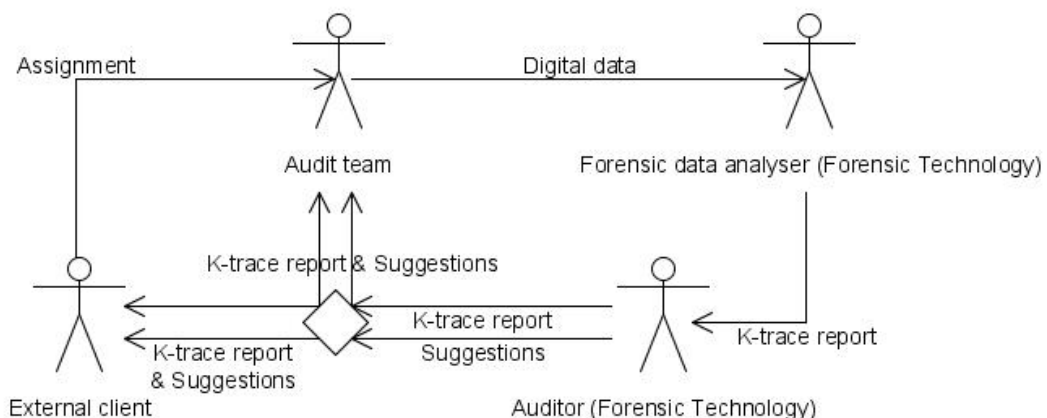


Figure 1. Context diagram





2 Problem

The result of the data analysis process is a K-trace report. This report is being used by auditors to identify irregularities which can identify the possibility of fraud. This report consists of graphs and tables with information which can be used as evidence for fraud. This can be a graph of User ID activity to identify user behaviour.

Unfortunately a K-trace report cannot always be well understood by the auditor and consumes a lot of his or her time. It is not clear in their point of view. The K-trace report represents knowledge in the form of graphs and tables. This knowledge is very detailed in the eyes of the auditor. That is why a **suggestions and observations** to the K-trace report is provided to make the report more understandable. An overview of this situation is provided in Figure 2.

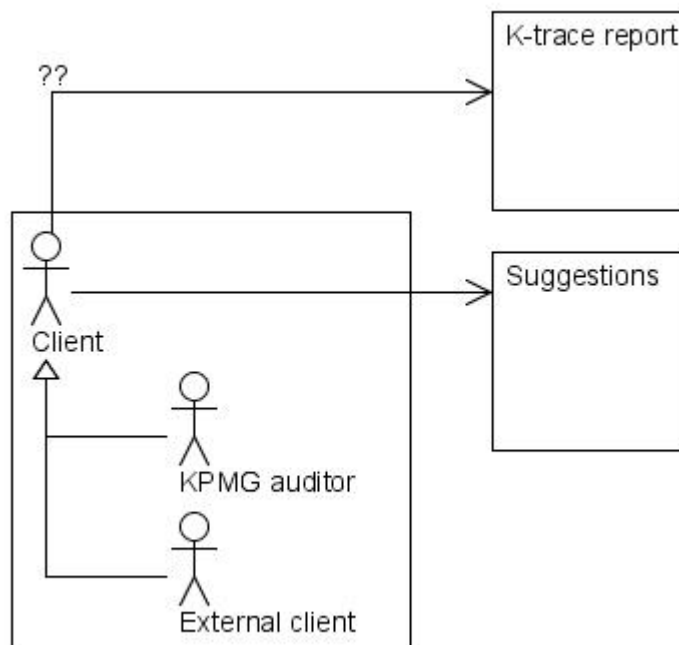


Figure 2. Problem representation





3 Research Questions

In order to increase the appreciation and understanding of K-trace reports by auditors it is important to answer the following question:

“How can the understanding of forensic reports by KPMG auditors be improved?”

K-trace reports are supported by a “Suggestions and observations to the K-trace report” document in order to increase the understanding. Another method or technique which might be used to improve the understanding of a K-trace report is changing the format, structure or adding explanations, suggestions or tips to the report. These Human Computer Interaction concepts might be a solution for the auditor’s problems on behalf of the K-trace reports. That’s why the following (sub) questions need to be answered:

“Which auditor’s requirements are critical for knowledge representation of the K-trace reports?”

Auditors will be interviewed in order to answer this question. A SWOT analysis will be created from the results of this interview. SWOT stands for Strengths, Weaknesses, Opportunities and Threats. This analysis is created in order to identify shortcomings and obstacles auditors are faced with. These shortcomings might be eliminated if data is represented in another way to increase its understanding. That’s why the following question needs to be answered:

“Which Human Computer Interaction concepts can contribute to better understanding of the K-trace reports?”

The results of these two sub questions are the auditor’s requirements and Human Computer Interaction concepts. HCI concepts will be used in order to fulfil auditor’s requirements. The auditor’s requirements will be used in order to provide KPMG an advice for an improvement of the (JE) K-trace reports. That’s why I stated this last sub question:

“How can these results be matched in order to comply with good report presentation?”

This thesis focuses on K-trace reports (case study). The results of my research will be used as a general advice towards the representation of data and knowledge.





4 Research Methods

I am going to examine K-trace by means of **participant observation**. Participant observation is a method by which a researcher systematically observes people while joining in their activities. Participant observation is also called fieldwork or field study. I am going to observe and join a forensic data analyzer during the creation of a K-trace report.

The second research method is focusing on the understanding of K-trace reports by auditors. This will be researched by means of interview techniques. The result of these interviews will be a (SWOT) analysis of K-trace reports.





5 Approach & Planning

Explore auditor's requirements and Human Computer Interaction concepts for K-trace reports in an iterative process (exploration – solutions – testing). To test the HCI solutions gathered through the exploratory literature study I am going to conduct knowledge acquisition for determining the auditor's requirements, opinions and recommendations to the K-trace report. The knowledge acquisition process consists of interviews and/or surveys. The result of this process will be an advice for KPMG (in a modular form) to increase the auditor's appreciation and insight in the K-trace reports. The modular form means possible combinations of the provided HCI solutions. For example a combination of explanations and feedback provides a better understanding than a combination of explanations and the use of another format.

In order to answer my research questions I am going to:

	Activity	Start date	End date
1	Search for literature about data analysis tools (like K-trace)	01-03-2009	01-04-2009
2	Search for literature about fraud	01-03-2009	01-04-2009
3	Search for literature about HCI concepts	01-04-2009	15-04-2009
4	Finish Project Plan	01-03-2009	01-04-2009
5	Study literature	01-03-2009	-
6	K-trace project	27-03-2009	unknown
7	Write theoretical background	01-04-2009	20-04-2009
8	Think of interview questions	20-04-2009	25-04-2009
9	Approach auditors for interviews	Month 5	
10	Interview auditors	Month 5	
11	Proposal solutions for feedback	Month 6	
12	Improve solutions	Month 6/7	
13	Write conclusion	Month 7	
14	Read and (re)write thesis	1-07-2009	30-07-2009
15	KPMG checking thesis	30-07-2009	05-08-2009
16	Finish my thesis		10-08-2009





6 Expected results

The documents I am going to deliver:

- Progress presentation

After approximately 66% of my work a progress presentation will be carried out.

- Final presentation
- Final thesis

