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# **EPD procurement in Dutch hospitals. How to detect “unhealthy” corruption?**

*An explorative research into the application of the NATO Early Warning System  
for financial intelligence*

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*In the complex, evolving, uncertain situations that analyst and decisionmakers must handle, the future is not easily predicable. Some events are intrinsically of low predictability. The best the analyst can do is to identify the driving forces that may determine future outcomes and monitor those forces as they interact to become the future. Scenarios are principal vehicle for doing this.*

Heuer Jr & Pherson (2015) p. 133

## **Abstract**

Crimes often leave a financial trail consisting of unusual transactions that can be witnessed by financial gatekeepers, such as banks and accountants. If the transactions are observed, they have to be reported to FIU-The Netherlands. Analysis of this financial intelligence can ultimately lead to the discovery of criminal money flows. With a rising number of reported unusual transactions in the last years, it is important for FIU-The Netherlands to safeguard an effective work method. The accurate determination of criminal trends are however often based on subjective interpretations. In order to overcome this difficulty, the NATO Early Warning System (NEWS) can be used as structured method for information acquisition, assessment and analysis. This explorative intelligence research calibrated the concept of NEWS for financial intelligence illustrated by an example of corruption in the healthcare sector; EPD procurement corruption. The original NEWS method has been reviewed and the insights of scientific literature, logic, fourteen experts and secondary data have been consulted and applied. This resulted in a preliminary calibrated version of NEWS by which scenarios and critical indicators have been developed in order to detect EPD procurement corruption.

## List of Abbreviations

AIVD	Dutch General Intelligence and Security Service
EPD	A Dutch abbreviation ( <i>Electronisch Patiënten Dossier</i> ) that is commonly used to refer to the software applications developed for the digital usage of medical data of patients in hospitals. The application may comprise a wide range of medical relevant data but can also be connected to financial, logistic or organizational information.
FININT	Financial Intelligence
FIU	Financial Intelligence Unit
HUMINT	Human Intelligence
IMINT	Imagery Intelligence
MIVD	Military Intelligence and Security Service
NEWS	NATO Early Warning System
OSINT	Open Source Intelligence
SIGINT	Signals Intelligence
SOCMINT	Social Media Intelligence
Wwft	Money Laundering and Terrorist Financing (Prevention) Act

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## Chapter 1: Introduction

### 1.1 Financial Intelligence

The Dutch Fiscal Information and Investigation Service conducted a criminal investigation into corruption and seized the administration of a medical company in 2018. The company was suspected of forgery and bribing doctors. In exchange for the bribery, the company supposedly supplied medical devices to the hospitals to which the doctors were affiliated to. The investigation started after an accountant reported an unusual transaction to the Financial Intelligence Unit (FIU-The Netherlands) (NOS, 2018).

Crimes, such as the bribery described here, often leave a financial trail that consists of unusual transactions that are witnessed by gatekeepers of the financial system. These are actors, such as accountants, that protect the gates to the financial system through which potential users of the system, including criminals, must pass in order to launder their assets (FATF, 2011; Ramos, 2003). FIU-The Netherlands - the only organization to which these entities<sup>1</sup> are obliged to report unusual transactions to - collects and analyzes these unusual transactions in their database.

Analysis of financial intelligence (FININT) can lead to the discovery of criminal money flows that can be linked to money laundering or underlying crimes. In order to be effective, the reported unusual transactions are analyzed with different methods, such as data mining or data-matching techniques to identify actors that are potentially engaged in criminal conduct. If the circumstances of the transaction seem doubtful, the unusual transaction is declared suspicious after which the FININT is put at the disposal of law enforcement and investigative services. The suspicious transaction can be the initiator of a criminal investigation, used as management information for existing investigations, brought as additional evidence in trial or can serve as a source for analysis and strategic research for policy makers (FIU-The Netherlands, 2018).

Since 2013 FIU-The Netherlands sees a rising trend of reported unusual transactions and it is expected that this increase will continue to grow in the next years. It is therefore important for the organization to safeguard an effective and accurate work method in which criminal phenomena get detected on time. One of the ways for FIU-the Netherlands to connect

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<sup>1</sup> In accordance to the Money Laundering and Terrorism Financing (Prevention) Act (Wwft) this only involves entities that have an obligation to report. See Appendix III for full list of reporting groups. The reporting entities use official formulated subjective and objective indicators to red flag unusual transactions. In 2018, this resulted in 753,352 reports of unusual transactions (FIU-The Netherlands, 2019).

their work effectively to the rest of the criminal justice chain is the implantation of theme-led investigations based on the annual objectives of the investigation-, intelligence- and security services and on additional strategic analysis (FIU-The Netherlands, 2018).

## **1.2 Corruption in the Healthcare Sector**

One of the assigned themes that FIU-The Netherlands is looking into is corruption in the healthcare sector. Countries all over the world lose millions of euros each year to corruption in the healthcare sector, causing higher prices, a remarkable waste of public resources and an overall loss of trust in the general health system (Sommersguter-Reichmann, Wild, Stepan, Reichmann, & Fried, 2018; Gee, Button, & Brooks, 2010). The overall perception of corruption in the healthcare sector in The Netherlands is however really low, as people generally have an idealistic view of the professionals working in the sector (European Commission, 2013). Nonetheless, the general thought is that the small amount of found cases of corruption in the Dutch healthcare sector expose only just the tip of the iceberg. But where to start?

Corruption can occur in different segments of the healthcare delivery process (e.g. medical research or procurement of drugs and medical devices) and between different key healthcare actors (e.g. patients, providers, payers, industry and regulators) (Vian, 2005; European Commission, 2013). The interaction between different healthcare actors is vulnerable for corruption as the different parties often deal with asymmetric information, making it difficult to identify and control for diverging interest. Additionally, due to the fact that many private healthcare actors are assigned with important public roles and deal with complex inter-relations, the risk of corruption tends to be higher (Savedoff, 2006; European Commission, 2013).

To gain a better understanding of the diverse and intertwined forms of corrupt activities in the healthcare sector a considerable amount of research has been done (European Commission, 2013; World Health Organization, 2009; Duncan, 2003; Slot, et al., 2017; Sommersguter-Reichmann, Wild, Stepan, Reichmann, & Fried, 2018). For example, the European Commission (2013) has created different healthcare corruption typologies in order to recognize the main drivers, complexities and prevalence of the different forms of healthcare corruption. One of the created typologies is procurement corruption, i.e. corrupt conduct that involves long-term and large contracts. The small set of existing research focuses on the nature of procurement corruption within the medical devices- and pharmaceutical industry (European Commission, 2013; Kassirer, 2006; Lantham, 2001; Rose-Ackerman & Yan, 2014; Volkerink, Adamini, Meindert, Van Der Wiel, & Canoy, 2011; World Health Organization, 2009; World

Health Organization, 2006). Research shows that both industries have special characteristics that influence the functioning of the markets. The main corruption drivers for both markets are the limited competition, enormous profits, high value contracts, highly sophisticated goods and close relationships between the buyers and the industry (European Commission, 2013; Slot, et al., 2017).

An industry that is however not mentioned in relation to procurement corruption research is the IT sector. The IT sector has a growing involvement in the healthcare sector. Paperless computerized medical records have become a reality in the last two decades, improving the quality and effectiveness of the business process (Kierkegaard, 2011). Besides the positive influence the IT industry brings to the healthcare sector, there is also a danger to be mentioned in this context. Concerns related to the power of monopolist IT companies in the healthcare sector arise (Muijen, 2019). In 2018, the Independent Commission Against Corruption warned for a remarkable increase in findings of corrupt activities relating to IT procurement (ICAC, 2018). The Commission noted that corrupt activities are less likely to stand out due to the fact that IT projects often run longer or are more expensive than planned for with reasons unrelated to corrupt conduct. The Dutch Public Procurement Expertise Centre reasons that this is often the result of requested customization of the IT product, a higher than expected maintenance fee, or functionalities that have been forgotten in the procurement request (PIANOo, 2019).

Due to the fact that the IT sector is overlooked in corruption research, not much is known about the corruption risks it brings. It can be argued however that the above mentioned corruption drivers for the pharmaceutical- and medical devices industry also fit the profile of the IT industry. One can only wonder if corrupt practices of IT companies in the Dutch healthcare sector have indeed occurred. Are the current methods to detect these phenomena enough to ensure further action?

### **1.3 NATO Early Warning System**

The operational decision of FIU-The Netherlands to enable investigative action into an unknown criminal phenomenon cannot be taken lightly. The decision causes a fundamental dilemma for the organization as unknown criminal phenomena can appear far-fetched, vague or highly unrealistic at first instance, while the decision to start an inquiry implies real costs (e.g. hours of investigative man power) and a negligence of other known criminal occurrences. For unknown criminal phenomena it is virtually impossible to guarantee success at the start of an inquiry. More often, the operational choice will concern on a criminal phenomenon that is

guaranteed to be successful (i.e. declaration of suspicious transactions). As a result of this tradeoff, FIU-The Netherlands is most likely prompted to take on a ‘wait and see’ attitude in responding to vague warnings (Wirtz, 2013).

The accurate determination of predicting factors of new criminal phenomena are however often based on subjective interpretations and assessments. Therefore, different methods for information acquisition, assessment and analysis have been created in order to overcome these pitfalls and to safeguard efficient analysis (Heuer Jr, Heuer, & Pherson, 2010; Kriendler, 2002; Barton & Von Hippel, 2008). One of the concepts that provides a structured method is the NATO Early Warning System (NEWS). On the basis of a designated warning problem, the NEWS methodology demands an analyst to analyze the plausibility of an unknown criminal phenomenon by using critical indicators that serve as decision points. The indicators have to be so critical that, if they are observed, they imply that the criminal phenomenon is most likely occurring and demands more investigative follow-up action.

FIU-The Netherlands currently lacks a method to warn for and anticipate on unknown criminal phenomena such as corruption in segments of the healthcare sector. Since corruption is often motivated by profit and greed, related conduct will most likely create a string of observable financial actions that can be detected by actors in the financial world (Egmont Group, 2018). Whereas terrorism surveillance focusses on potential targets and unusual behavior, a similar approach can be applied in which unusual transactions and vulnerable healthcare segments are mapped out. Since the concept of NEWS has not yet been calibrated for the use of financial intelligence (FININT), this study will explore how this can be done by using an operational illustration of an unknown criminal phenomenon.

#### **1.4 Central Research Question**

In the last decade several Dutch hospitals have procured new IT systems. Media who write about these so-called EPD systems<sup>2</sup> describe a complex picture of failed procurement processes, extensive implementation periods and just a few IT suppliers (Sanders, 2015; Sanders, 2016; Bukman, 2019; M&I/Partners, 2018; Jacobs, 2014; Van de Pas, 2010; Van den Berg, 2017). Cases of EPD procurement corruption are however unheard of and, if it has occurred, these crimes would currently be part of a dark number - a term used in criminology to refer to unreported and undiscovered crimes. Therefore, EPD procurement corruption is chosen as

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<sup>2</sup> A Dutch abbreviation (*Electronisch Patiënten Dossier*) that refers to the software applications that are developed for the digital usage of medical data of patients.

operational illustration in order to calibrate the NEWS methodology for FININT.

The goal of this study is threefold. Overall, the research will show how an intelligence technique can be calibrated for a different operational setting with a focus on FININT. Furthermore, by focusing on an unknown criminal phenomenon both the private- as well as the public sector are stimulated to broaden their horizon. Additionally, by choosing the illustration EPD procurement corruption for Dutch hospitals the research will acquire more contextualized insights into the risks and vulnerabilities. Eventually, the calibrated methodology and the developed critical indicators can lead to a more effective, intelligence-led form of monitoring and investigation. The following research question is formulated:

*How can the concept of the NATO Early Warning System be calibrated for financial intelligence illustrated by EPD procurement corruption?*

The following sub-questions will assist in providing a coherent and structured account in order to properly address the central research question:

1. What does the concept of the NATO Early Warning System entail?
2. What are the features of EPD procurement corruption?
3. Which scenarios can be developed for EPD procurement corruption based upon the NATO Early Warning System concept?
4. Which critical indicators can be developed to test these scenarios?

## **1.5 Reading Guide**

In order to give a substantiated answer on the research question, this study is built up as follows. First, the definitions and methodology of this explorative intelligence research will be described in chapter 2. Afterwards, the body of knowledge will be outlined. Chapter 3 provides the theoretical groundwork for the concept of the NEWS. The four steps of the concept are described and it is explained how and why the model has been calibrated. Chapter 4 describes the risks of EPD procurement corruption by outlining the EPD market and the different drivers and forms of corruption. Then, chapter 5 describes the different scenarios and critical indicators that have been developed. Finally, chapter 6 discusses the answers to the sub and research questions, contains a critical discussion of some limitations to the study and suggests further avenues for academic research.

## Chapter 2: Methodology

This chapter will outline the methodology that is used to calibrate NEWS for FININT and answer the research questions. First, relevant research concepts and their definitions are discussed. Second, the characteristics of this research are outlined. After, the data collection, exploitation and assessment are described. Last, the methodological focus is explained.

### 2.1 Definitions

Several concepts that are formulated in this research need some clarification.

#### *Corruption*

Corruption is a multifaceted concept and is generally used to describe a lot of different types of behaviors (Vargas-Hernández, 2010). As no comprehensive EU legislation on corruption exists, definitions of corruption vary by country. Researchers have developed a broad scale of different classifications (Punch, 2000; Holmes, 2006; Miller, 2003; Miller, 2001; Skogan & Meares, 2004; Pedersen & Johannsen, 2008). As this research also addresses undesirable, yet non-criminal, features of the EPD market, a broad definition for corruption is used in order to include types of conduct that fall outside the scope of the Dutch<sup>3</sup> criminal law. Transparency International defines corruption<sup>4</sup> as the abuse of entrusted power for private gain and involves two actors; the corrupter and the corrupted. Corruption, in this sense, is different to fraud as the latter can only be committed by one actor. By applying this broad definition, different types of corrupt conduct that are normally hard to prove in a criminal case - such as conflict of interest and favoritism – are also included in the calibration of the model. The types of conduct that fall under the scope of corruption will be further explained in paragraph 4.3.

#### *Financial Intelligence*

The concept of intelligence has a variety of different definitions and can be used to describe a process, a product or both. The concept is sometimes used to refer to secret information, information about other countries or information meant for policymakers. Yet, this study the concept of intelligence specifically refers to the information that plays a role in the prevention and repression of crime. It is information that is gathered, processed, and/or analyzed for law

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<sup>3</sup> In the Dutch criminal law corruption is described in the articles 177-178a and 364-364a Sr.

<sup>4</sup> Other terms that are often used, such as grand-, petty-, and political corruption, are not discussed as they not fully cover the topic of this research.

enforcement and investigative services and/or policymakers (Valk, 2005). Literature distinguishes a wide variety of data (e.g. open source, social media, satellites etc.) that can be used for the input of the intelligence process (Stottlemyre, 2015; Herman, 1996; Clark, 2013). This study focusses on the role of financial intelligence (FININT), referring to the collection of data that concerns the financial affairs of entities of interest in order to understand their nature and capabilities, and predict their intentions (Cordner, Das, & Cordner, 2009).

### *EPD*

The abbreviation EPD (*Electronisch Patiënten Dossier*) is commonly used in The Netherlands to refer to the software applications developed for the digital usage of medical data of patients in hospitals. The application may comprise a wide range of medical relevant data such as medical history, medication and personal stats, but can also be connected to financial, logistic or organizational information. In English written literature one distinguishes the term practice management, electronic health record, and electronic medical record (Gunter & Terry, 2005; Habib, 2010; Select Hub, sd). As these terms do not cover the Dutch situation, it is chosen to solely refer to the Dutch abbreviation.

### *Procurement*

The Cambridge Dictionary describes procurement as a process of getting supplies. This process involves a multitude of steps that can be divided in three phases; pre-bidding, bidding and post-bidding. The more comprehensive definition of the European Commission (2013, p. 16) is therefore used as they describe it as “the complete process of acquiring goods, services and works from suppliers. It includes identification of requirements, specifications, assessment of risks, management of tendering processes, ordering, contract award and management and monitoring of suppliers’ performance”. An important note for this research is that the implementation of the EPD system in the hospital will also be seen as the last phase of the procurement process.

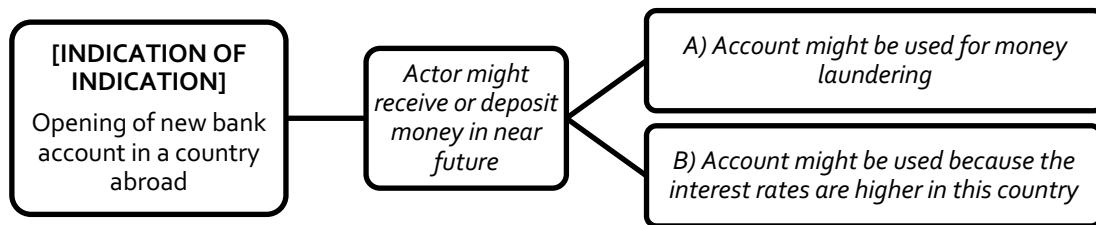
### *Warning*

There are many misconceptions about the connotation of warning. Warning is not a fact, a certainty, a provable hypothesis, or a majority consensus. Instead, a warning needs an in-depth research effort and is essentially an assessment of probabilities (Grabo & Goldman, 2015). Loosely based on the definition of Goldman (2001), warning will be defined as a notification of impending criminal activities that may, or may be perceived to, harmfully affect the society

and the interests of the criminal justice system.

### *Indications and Indicators*

The concepts of indications and indicators are often used in the intelligence community. The difference between both concepts is important to distinguish. The concept of an indication is used in order to refer to developments that give some insight into the likely course of action. An indication can be positive, negative or uncertain. It may be events, incidents or acts from the past such as “a confirmed fact, a possible fact, an absence of something, a fragment of information, an observation, a photograph, (..) a diplomatic note, (..) or a hundred other things.” (Grabo & Goldman, 2015, p. 10). Indications can be both concrete evidence ( $\neq$ proof,  $\alpha$ -related) or leading to a suspicious option ( $\beta$ -related) (De Valk, 2018). A development can even be an *indication of an indication* (see figure 1).



*Figure 1 Example of an indication of an indication*

The concept of an indicator is used in relation to future events or incidents and represent a known or theoretical step that may be taken by the enemy in preparation for hostilities. Indicators are developed for intelligence models and are “observable phenomena that can be periodically reviewed to help track events, spot emerging trends, and warn of unanticipated changes.” (Heuer Jr, Heuer, & Pherson, 2010, p. 149). If there is any information that any of the developed indicators are actually being executed, this information would be seen as an indication (Grabo & Goldman, 2015). This research will distinguish critical and suspicious indicators. A more comprehensive explanation will be outlined in paragraph 3.3. The next paragraph will outline the characteristics of this study.

## **2.2 Type of Research**

Intelligence research differs from science research as it is not orientated at producing general scientifically founded statements or focused on theory building but instead has a rather specific and applied nature. Generally, there are three types of research distinguished in intelligence research; descriptive, explanatory and prognostic (De Valk, 2005). This study applies a more explorative methodological focus however, in which descriptive and explanatory elements are combined together in order to provide FIU-The Netherlands with a reliable analysis method. In

order to do so, this study will calibrate an early warning model so that it can be used in the setting in which FIU-The Netherlands operates.

Originally, warning intelligence is a post-World War II development that is used in both crisis situations as well as a continuing routine function to oversee possible developments and shifting interests of the actor of interest (Grabo & Goldman, 2015; Wirtz, 2013). As many different early warning models have been developed in the past, the model that is chosen for this research is the NATO Early Warning System (NEWS). The ultimate goal of NEWS is to give timely warnings for threats, so that actions can be taken to prevent or minimize a threat from occurring. Grabo (2002) is seen as the founding mother of NEWS as she has been one of the first authors from the intelligence community to write about methods for information acquisition, assessment and analysis in relation to warning intelligence. The original NEWS model is developed for the intelligence community and is not publicly available. This thesis is however written based on the public version that is taught during the course Intelligence Failures in the minor Intelligence Studies at Leiden University (Leiden University, 2019).

NEWS is often used for actor-orientated research in which it is assumed that any actor is unique, making it impossible to predict someone's behavior from the general knowledge of those actors (De Valk, 2005). This is the opposite of an act-orientated analysis in which it is assumed that, under specified conditions, most rational actors will behave in the same manner. In order to calibrate NEWS for FININT and answer the research questions, an act-orientated illustration of EPD procurement corruption is used as the phenomenon constitutes a small chance, yet high impact event.

### **2.3 Data Collection, Exploitation and Assessment**

Different methods of data collection have been used in order to answer the research questions. Data triangulation – “the use of more than one method or source of data” (Bryman, 2012, p. 717) – proves to be a suitable and valuable method that improves the reliability of the findings of this study and makes sure that the different dimensions of the concepts of NEWS and the operational illustration are captured. In order to answer the research questions, the data is collected, exploited and assessed via a process of four steps; literature, logic, experts and data. This process is visualized in figure 2.

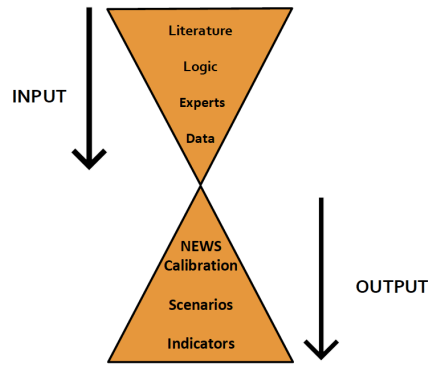


Figure 2 Visualization of steps taken in order to answer the research questions

### *Literature*

The concept of NEWS and the features of EPD procurement corruption have been described in the theoretical framework by using interdisciplinary scientific literature of criminological-, administrative, intelligence-, and economical disciplines.

### *Logic*

Three types of logic have been applied for the development of the scenarios and the critical indicators; deductive, inductive and abductive logic (see figure 3).

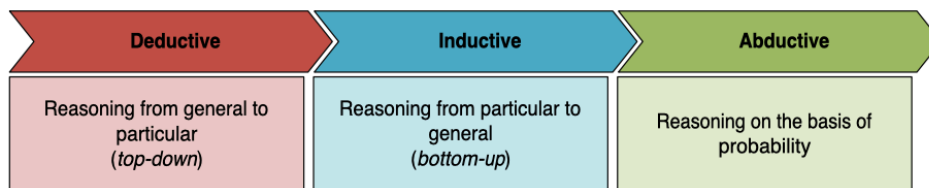


Figure 3 Visualization of the different types of logic used in this research

Deductive logic (top-down) - the process of reasoning from the general to the particular. The starting point is the use of level-A theory, scientific research that focusses on theory building and explains phenomena (e.g. corruption, perfect market conditions) in a general sense. Additionally, inductive logic - the process of reasoning from particulars to the general – has been applied to improve and calibrate the model further. For this bottom-up process, level-B and level-C theories are applied as they are both practice oriented. A level-B theory is an explanation of a phenomenon that is limited to only a category of cases, whereas a level-C theory is only developed for an individual case and explain phenomena for a concrete actor or a societal situation. Finally, abductive logic - the process of reasoning on the basis of probability – is applied (i.e. based on experts’ opinion) (De Valk, 2005; Grabo, 2002; Voulon, 2010).

### *Experts*

Fourteen experts from relevant work fields (see Appendix I for list of respondents) have been consulted in order to reflect, adjust and modify the concept version of the calibrated model. Therefore, a broad set of professionals from various backgrounds such as the IT sector (R1, R3, R4), the healthcare sector (R5, R6) and the consultancy sector focused on healthcare and IT (R2, R10, R13) have been interviewed. Furthermore, two respondents (R8, R9) from Dutch Authority for Consumers and Markets (*Autoriteit Consument & Markt*) have been interviewed as this authority is the national independent regulator that is charged with competition oversight. Likewise, a respondent (R12) from the Health and Youth Care Inspectorate (*Inspectie Gezondheidszorg en Jeugd*) has been interviewed as this inspectorate is tasked with the responsibility to supervise the safety, quality and integrity of hospitals and their management. Last, a professor of economics (R11), a procurement lawyer of the police (R14) and an assistant of a political party (R7) was contacted.

All professionals were found via a snowballing method or through direct contact details of their website. The semi-structured interviews had a duration of an hour on average and prior to the interviews, the purpose and design of the study were explained to the respondents. The topic list of the interviews (see appendix II) is composed based on the theoretical framework. Due to the taboo on corruption in the healthcare sector it was essential to create an interview environment in which the respondents felt the freedom to express themselves freely. Therefore, the interviews have not been recorded. Instead, the alternative of taking handwritten notes had the preference. The interviews have not been transcribed as a result of this method.

### *Data*

Secondary data (level-B and level-C theories) has been consulted in order to develop the critical indicators. This includes a list by Dutch Public Procurement Expertise Centre, an organization set up to professionalize procurement and tendering for government departments and improve compliance with the rules. Based on the ten recommendations of the OECD, safeguards of the National Audit (*Rijksaudit*) and several case studies, PIANOo listed indicators that can point to integrity violations (PIANOo, 2019). Additionally, the indicator list of the Egmont Group has been used. In 2018, the Egmont Group has published a set of indicators that may improve the identification of activities indicative of corruption for reporting entities and could possibly lead to the suspicion of money laundering of proceeds derived from corruption or any other predicate crime (Egmont Group, 2018).

Furthermore, unusual and suspicious transactions have been studied as level-C theory.

Key words and filter options have been used in order to find and distinguish them from non-relevant transactions. As this research focuses on the Dutch situation only Dutch queries have been used. The found transactions have been studied in order to see which reporting groups are involved in transactions (related to procurement) and during which phase of the procurement the transaction is reported. The key search words can be found in figure 4. The transactions are not disclosed in the appendix as they are labeled as classified.

<b>Method of search</b>	
<i>Reporting date</i>	09-07-2014 until 10-07-2019
<i>Type of transactions</i>	Unusual and suspicious transactions
<i>Key search word</i>	Aanbesteding
	Filter on: aanbested-, consult-, ICT, omkop-, conflict of interest

*Figure 4 Search queries for unusual and suspicious transactions*

## 2.4 Methodological Focus

For the calibration of the concept of NEWS, it is important to stress that in scientific research one distinguishes two types of methodological focus. This can be exemplified with the fundamentally methodological difference between criminal investigations and intelligence inquiries. Berkowitz (2003) simply describes this difference as follows: “Intelligence analysts (..) go to work before a crisis; detectives usually go to work after a crime.” (p.2).

In criminal investigations, the emphasis lays on the irrefutable recording of facts that prove someone has committed criminal conduct. Criminal files are compiled in a way so that the allegations are substantiated with evidence and meet a specific legal standard. The purpose of a criminal investigation and the subsequent prosecution is to find someone guilty above reasonable doubt by providing legal and convincing evidence. By doing this, the chance of wrongful convictions is minimized. Intelligence inquiries however, are not used to prove anything in a juridical context. Instead, the main focus is to not miss potential threats and to inform stakeholders on time. In contrast to criminal investigations, evidence (in a juridical sense) does not play any role (De Valk & Aerdts, 2018; Berkowitz, 2003).

Due to this operational contrast, the methodological focus differs for both. The main objective of the criminal justice apparatus is to keep the  $\alpha$  value<sup>5</sup> as low as possible, referring to the chance that one incorrectly concludes that there is a significant relation between two phenomena (i.e. innocent suspect that is found guilty in trial). A relatively high value of the  $\beta$

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<sup>5</sup> The chance of a type 1-error or a false positive

(i.e. unsolved or undetected crime) is customary and therefore the criminal justice approach is seen as a form of risk management. After all, a crime-free society is not expected, but the crime rates do have to stay on a socially acceptable level.

The key goal of intelligence work is the prevention of threats that are being executed. The main objective is to keep the  $\beta$  value<sup>6</sup> as low as possible, referring to the chance that a weak, yet existing relationship between phenomena is not discovered (i.e. potential threat that is not being detected). Since it's seen as more important to detect a possible threat rather than proving its accurateness, the value of  $\alpha$  can be higher. This approach can be seen as a form of threat management (De Valk, 2005).

In contrast to the AIVD, FIU-The Netherlands is focused both on threat- as well as risk management<sup>7</sup> due to their special position in the criminal justice apparatus. In the illustration of EPD procurement corruption, the threat management relates to the detection of relevant unusual transactions from the FIU database. The  $\beta$  value – chance of not detecting relevant unusual transactions – needs to be as low as possible. Once unusual transactions are found by FIU analysts, they have to substantiate why the transaction needs to be labeled as suspicious in order to share the information with law enforcement and investigative services and turn it into evidence. The  $\alpha$  value needs to be as low as possible, referring to the chance that FIU-The Netherlands incorrectly concludes that a transaction is suspicious. The different methodological focus of risk- and threat management is visualized in figure 5.

Type	Methodological Focus	Example of focus for FIU-The Netherlands
Threat management	$\downarrow \beta$	chance of not detecting relevant unusual transactions
Risk management	$\downarrow \alpha$	chance that FIU incorrectly concludes that a transaction is suspicious

Figure 5 The methodological focus of risk- and threat management

Since NEWS is an analysis method that incorporates both methodological focuses, it can be of operational use for FIU-The Netherlands. The next chapter describes the concept of NEWS and why and how it has been calibrated.

<sup>6</sup> The chance of a type 2-error or a false negative

<sup>7</sup> The threat management mainly concerns FININT related to terrorism financing. This will however not be discussed since it is outside the scope of this study.

## Chapter 3: NATO Early Warning System

Since the operational setting of FIU-The Netherlands is somewhat different than the more familiar Dutch intelligence agency AIVD, some aspects of NEWS have to be calibrated. The subsequent paragraphs will elaborate further on the four different steps of NEWS (see figure 6) and describe why and how it is calibrated.

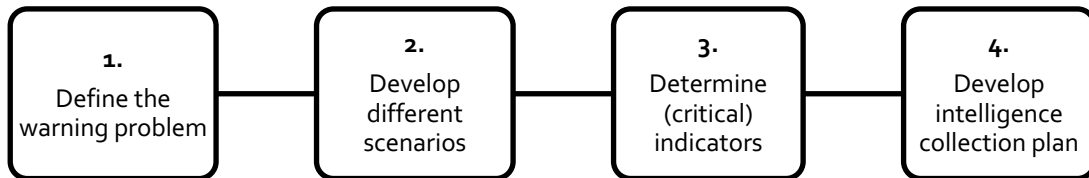


Figure 6 The four steps of the NATO Early Warning System

### 3.1 Warning Problem

The first critical step in the analytical process of NEWS is defining the warning problem for FIU-The Netherlands. A warning problem is a single, clear and concise statement that focuses on a single warning issue. The warning problem has to describe a concern, a risk or a (potential) threat and includes the actor, the action, the time, the location and the reason (De Valk, 2018). The systematic brainstorming technique of Starbursting has been used in order to define a well-thought and grounded warning problem. The aim of the method is to develop as many questions as possible. This method is important for intelligence research, as asking the right questions is an essential start to finding the correct answer (Heuer Jr & Pherson, 2015). Five out of six questions of the Starbursting brainstorming technique (what, when, who, where, why) let to the formulation of the warning problem. The how-question is answered by developing different scenarios (paragraph 3.2). See figure 7 for an example how the technique was used.

<p><b>What</b> is the act that we should warn for?</p> <p><b>When</b> or which time period is relevant to research?</p> <p><b>Who</b> are the actors that are involved?</p> <p><b>Where</b> or what country do you want to focus your research on?</p> <p><b>Why</b> would the actors commit corrupt conduct?</p> <p><b>How</b> can we find cases of corrupt conduct?</p>
---

Figure 7 Example of Starbursting brainstorming technique (Heuer Jr & Pherson, 2015)

*What?*

As this intelligence research is act-orientated, the answer to the what-question - *What is the act that we should warn for?* - is important for the scope of the research. The primary answer to

this question is corruption, as this is a thematic focus of the FIU (FIU-The Netherlands, 2018). But, as was already shortly described in paragraph 2.1, corruption is a multifaceted concept that describes different types of conduct (Vargas-Hernández, 2010). Since the research also addresses undesirable, yet non-criminal, features of the EPD market, corrupt activities that often are hard to prove in court or not seen as illegal are also included in the model. The types of conduct that fall under the scope of corruption will be further explained in paragraph 4.3.

#### *When?*

As was already described in the introduction of this research, corrupt conduct can occur in different segments of the healthcare delivery process (Vian, 2005; European Commission, 2013). The when-question – *When or which time period is relevant to research?* – is therefore relevant to answer. In order to formulate a clear and concise warning problem this research focusses on corruption during the whole process of an EPD procurement because the Independent Commission Against Corruption warned for a remarkable increase in findings of corrupt activities relating to IT procurement (ICAC, 2018). The time period that is therefore relevant to study is the pre-bidding, bidding and post-bidding phase of a procurement.

#### *Who?*

Since the research is not actor-orientated there is not a focus on a specific actor. Instead, the actors are described in a theoretical manner so that the calibrated model can eventually be applied to specific actors that have a role in an EPD procurement. Nevertheless, the who-question – *who are the actors that are involved?* – still needs to be answered. The act of corruption demands the involvement of at least two actors; the corrupter and the corrupted. Procurement corruption can concern two types of relationships. On the one hand, it can concern the relation between the IT industry (bidders) and the hospitals (specifically procurement departments or officials). Besides the involvement of these two actors, corruption can also occur in a more indirect manner, such as via IT or consultancy intermediaries. These intermediaries are seen as experts in the EPD market who can secure a better deal and break the information asymmetry. This trust can however be misused for corrupt conduct (European Commission, 2013).

On the other hand, it can concern collusion between different bidders (European Commission, 2013; Vargas-Hernández, 2010). The latter can take many forms, such as bid-rigging, price fixing or market division (OECD, 2010). Since this research focusses on the vertical relationship of the IT sector, hospitals and other involved actors, acts of collusion will

be excluded from the model. The possible occurrence of a cartel in the market - several independent IT companies who collectively work to maintain their power – is therefore not in the scope of this research.

*Where?*

In order to narrow the scope of the research and define a concise warning problem the where-question - *Where or what country do you want to focus your research on?* – cannot be overlooked. As FIU-The Netherlands has a thematic operational focus on corruption in the Dutch healthcare system the calibrated model will only be focusing on Dutch hospitals who are procuring an EPD system.

*Why?*

The why-question - *Why would the actors commit corrupt conduct?* – is relevant in order to identify the corruption drivers for the actors involved. The ground hypothesis for this research is that corrupt conduct occurs in exchange for personal gain and in order to manipulate the market. The assumed drivers for EPD procurement corruption will be further explained in paragraph 4.2.

**3.2 Scenarios**

Once the warning problem has been defined, it is time for the second step in the analytical process. Different scenarios have to be developed for the warning problem (see figure 8). A scenario is not an assessment, a snapshot in time (current intelligence) or a forecast (estimative intelligence). Instead, a scenario is a hypothesis that describes how the warning problem may become reality – a so called potential end-state. It can be a plausible and provoking story about how the future might unfold and includes different elements, such as the actor’s intentions, aims, objectives, capabilities (strengths and weaknesses) and activities (practice and precedence).

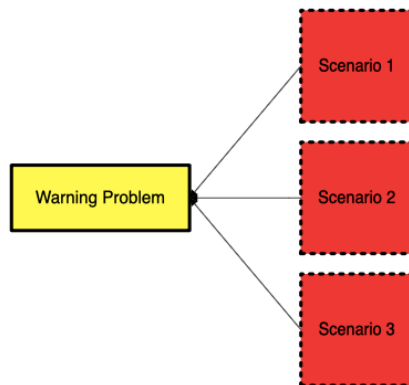


Figure 8 Visualization of NEWS

Generating multiple scenarios helps an analyst to focus on critical underlying drivers and other elements that most likely have an influence on the development of situations. Additionally, scenarios can be used to examine assumptions and can produce valuable warning messages if high impact-low probability scenarios are included. The emphasis is put on hypothetical deductive thinking and theoretical notions are used as an important source to generate knowledge (Heuer Jr & Pherson, 2015). The scenarios are viable once it is established that they are possible, represent a true end-state and tie back to the warning problem (De Valk, 2018).

The development method of the scenarios has been calibrated in this study in order for NEWS to have an operational value for FIU-The Netherlands. In the original method, developing different scenarios is important for analysts in order to warn for different dangerous activities of a state or non-state opponent, such as Russia or a terrorist group. This approach is actor-orientated since the focus lies on one unique actor. FIU-The Netherlands is however an act-orientated organization who focuses on financial trails of crimes, irrespective of who has committed the crime. To overcome this difference, a different approach has been taken for the development of the scenarios.

The calibrated model has only one main scenario that ties back to the warning problem; the act of EPD procurement corruption. Since no cases of EPD procurement corruption are known so far, the calibrated model needs to have an extra focus on keeping the  $\beta$  value as low as possible, referring to the chance that EPD procurement corruption is not detected. In order to lower the  $\beta$  value, different supporting scenarios are developed subsequent to the main scenario. Each supporting scenario describes a dimension of the market circumstances in which the risk of EPD procurement corruption increases<sup>8</sup>. As a result, each supporting scenario represents a potential undesirable end-state of the market. The supporting scenarios may overlap – in contrast to the original method - as in reality different undesirable markets aspects can also occur at the same time and/or can be intertwined.

Once one or multiple supporting market scenarios are accurate, the risk of finding corrupt conduct increases. As a result, analysts have to pay attention to the main scenario and especially focus on the aspect of the market that is proven to be vulnerable for corrupt conduct. If the main scenario also appears to be accurate, this can be seen as a signal to take additional investigative action. The goal of the main scenario is to keep the  $\alpha$  value as low as possible, in which the  $\alpha$  refers to the chance that one incorrectly warns that EPD procurement corruption is

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<sup>8</sup> See chapter 4 for a more elaborate description of the EPD market and the drivers for corruption.

occurring (and thus as a consequence losing crucial manpower to investigations). The calibrated version of NEWS is visualized in figure 9. It demonstrates how the supporting market scenarios partly overlap with the main scenario due to the fact that corrupt conduct may occur in the described circumstances of the scenario. It is however not implied that this is always the case since involved actors can also act unknowingly incompetent.

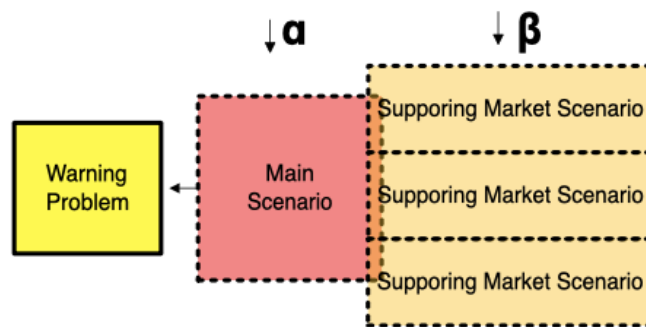


Figure 9 Visualization of the calibrated main- and supporting market scenarios

### 3.3 Critical Indicators

The third step of NEWS is the development of indicators for the scenarios. In intelligence inquiries, analysts continuously look for indications that point to the execution of indicators. The presence of absence of routine data can be indicative for this (Wirtz, 2013). A list of indicators represents a “preestablished set of observable or potentially observable actions, conditions, facts, or events whose simultaneous occurrence would argue strongly that a phenomenon is present or is highly likely to occur.” (Heuer Jr, Heuer, & Pherson, 2010, p. 149).

Indicators can be divided in two categories; critical and suspicious. Once an indicator is *critical*, it should give a substantial clue about what is happening and can therefore predict if the developed scenarios are accurate. Critical indicators are meant to predict future events and reduce the  $\alpha$  while *suspicious* indicators are meant to not miss future events and reduce the  $\beta$  (De Valk, 2018). Critical indicators are a crucial aspect of the NEWS methodology as they provide the warning clues and serve as decision points for designated warning problem. Once there are indications found by an analyst that are consistent with the developed critical indicators it should trigger a higher level of intelligence alert (Kriendler, 2002). The difference between indications and indicators has been visualized in figure 10.

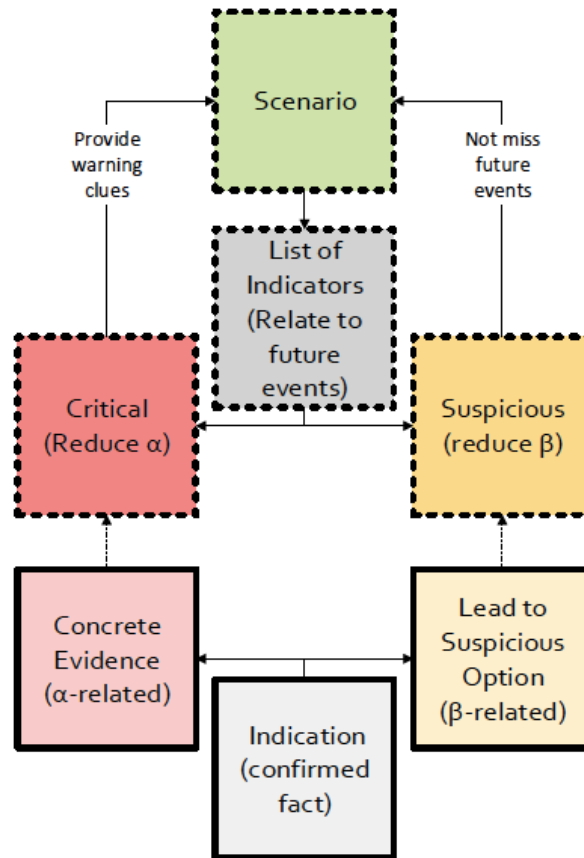


Figure 10 Visualization of the difference between indications and indicators

For the development of the indicators it is important to know that they have to relate to three main fields; intentions, capabilities and actions. *Intentions* refer to the goal and objectives of the actor, *capabilities* refer to the strengths and opportunities of the actor and *actions* refer to the practice and precedence of the actor. In this setting, Grabo and Goldman (2015) and De Valk (2018) specify different categories of indicators that can be developed, such as military, political, economic, social, technical, and transnational. One can also differentiate between long-term and short-term indicators. For this research, the majority of the developed indicators relate to an economic context however as there is a focus on the use of FININT.

In the general NEWS model, there is a preference of the usage of a limited list of indicators (six to ten). This preference does not apply to the calibrated model. Instead of minimalizing the number of indicators, they need to be maximized. There are however six demands to take into account when labeling an indicator as critical (see figure 11). All six demands will stay in place, yet some descriptions are slightly altered in order to ensure operational functionality.

First of all, indicators should be *timely* as the predicted activity must be early to permit effective warning. In the adapted model, this demand can still be included but is not mandatory.

If corrupt conduct is recognized in an early phase, the social damage and loss of public money can possibly be confined. Second, an indicator should be *reliable* as it is something that must occur or exist if the threat is to materialize. The demand is important to reduce the chance of a type-1 error. Third, an indicator should be *identifiable* as it should accurately recognize the activity which is taking place. It should be distinguished from other indicators and events that may be similar but unrelated. Fourth, an indicator should be *collectable* and observable as one should be able to collect the information through their own sources. This applies for FIU-The Netherlands and its stakeholders. Fifth, an indicator should be *diagnostic* as it leads the analyst to a certain scenario upon which a decision has to be made. Sixth, an indicator should be *unambiguous* as the analyst cannot afford to make any mistakes. An indicator needs to point to one definite event. If it identifies many scenarios it will lead to confusion and ambiguity (De Valk, 2018). In the adapted model however, the indicator can identify multiple scenarios, as they are overlapping. In this context, it is important that the indicator should not identify the opposite of the scenario, as that would lead to confusion.

<p><b>1. Early</b></p> <p>An indicator <del>must</del> can be early or timely to permit effective warning.</p> <p><b>2. Reliable</b></p> <p>An indicator must be reliable and credible, as it has to predict an <del>future</del> event that relates to the scenario. It must be something that occurs or exist if the threat is to materialize.</p> <p><b>3. Identifiable</b></p> <p>An indicator must be able to accurately identify the activity that is taking place, so that it can be distinguished from other indicators and events that may be similar but unrelated.</p> <p><b>4. Collectable</b></p> <p>The indicator has to be collectable for the organization through their <del>own</del> sources or via the reporting groups. (<del>written, orally, observe etc.</del>)</p> <p><b>5. Diagnostic</b></p> <p>An indicator needs to be diagnostic in the sense that an analyst should be able to make a decision with the indicator or come to a certain conclusion as to its meaning.</p> <p><b>6. Unambiguous</b></p> <p>The indicator must be unambiguous by pointing <del>solely</del> to <del>one definite event</del> the end-state. If it identifies <del>many scenarios</del> the opposite, then it will lead to confusion/and or ambiguity.</p>
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Figure 11 Overview of the six revised indicator demands.

### 3.4 Collection Plan

The last step of the NEWS methodology is the development of a collection plan. After all, critical indicators only have value for an intelligence organization if they can identify and collect relevant indications that are often scattered over multiple sources. The type of information one is able to collect depends on the type of means an organization has. For example, the AIVD and the MIVD distinguish several different forms of intelligence for their inquiries, such as open source- (OSINT), human- (HUMINT), imagery- (IMINT), signals- (SIGINT) and social media intelligence (SOCMINT) (Omand, Bartlett, & Miller, 2012; Lowenthal, 2016).

FIU-The Netherlands has however different means<sup>9</sup> for their intelligence work as their inquiries are mainly based on FININT. FIU-The Netherlands is the sole organization in the country that has access to the highly classified database of reported transactions from designated reporting groups<sup>10</sup> (e.g. banks, accountants, etc.). The reporting entities function as gatekeepers in the financial system and are obliged to report all (completed or intended) unusual transactions they observe in their work on the basis of one or more designated objective and subjective indicators<sup>11</sup>. A reported unusual transaction can, after analysis, be declared suspicious by the head of FIU-The Netherlands after which it is put at the disposal of several law enforcement and investigative services (FIU-The Netherlands, 2018).

It can be a hard task for an analyst to find the reported unusual transactions that might be relevant for specific inquiry as they are buried among thousands of others in the database. Part of the quest of an intelligence inquiry is therefore wading through the ocean of reported unusual transactions. This process can be compared to the concept of the signal and the noise

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<sup>9</sup> Additionally, FIU-The Netherlands can use OSINT, different (police) databases and their international network of FIU's abroad.

<sup>10</sup> The reporting groups are legal entities and natural persons that are nationally determined by the Money Laundering and Terrorist Financing (Prevention) Act (Wwft). An entity that fails to report an unusual transaction (intentionally or unintentionally) is guilty of violation of the Wwft and commits an economic crime (Section 1, sub 1, Dutch Economic Offences Act). This can result into a sanction, penalty or fine imposed by the supervisory authority (FIU-The Netherlands, sd). See appendix III for the full list of reporting groups.

<sup>11</sup> The objective indicators differ per reporting group and often relate to cash transactions and designated risk countries. A subjective indicator is a transaction for which the entity has reason to believe that it might be related to money laundering or terrorism financing and relies on the professionals opinion whether a transaction is unusual or not. Reporting groups only have to substantiate to FIU-The Netherlands why the transaction is seen as unusual and do not have to look for the criminal act.

in which the signal (relevant unusual transactions) has to be distinguished from the noise (sum of all unusual, yet non-relevant, transactions) (Treverton, 2009; Moore, 2011; Silver, 2012). After all, if the signal is not found, it means that data for the inquiry is missing, possibly resulting in an intelligence failure. As it is expected that the number of unusual transactions will increase in rapid pace in the upcoming years, this means that the noise will most likely also expand, making it more crucial to have effective detection methods (FIU-The Netherlands, 2019). Figure 12 visualizes the concept of the signal and the noise for FIU-The Netherlands.

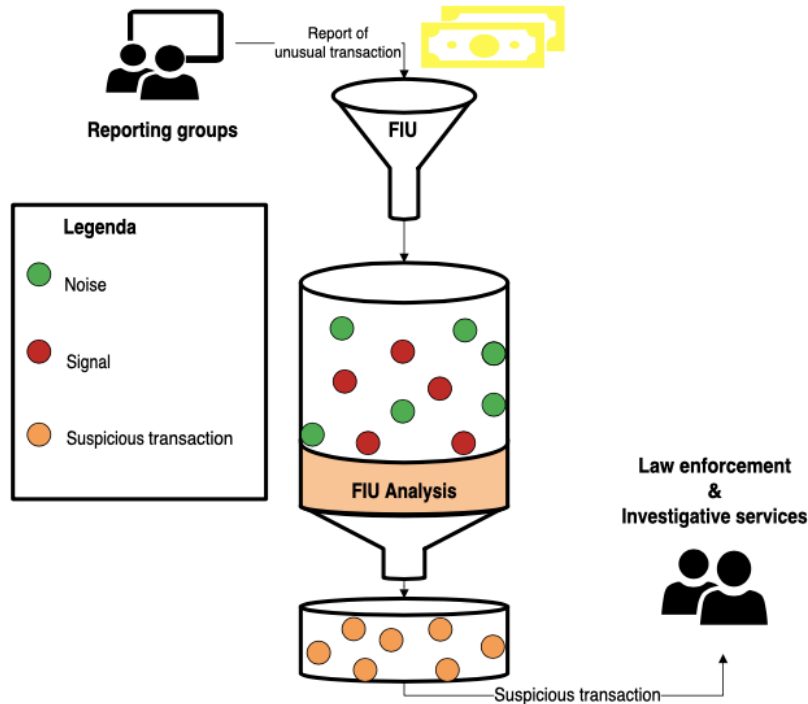


Figure 12 Visual representation of the signal and the noise in relation to unusual transactions of FIU-The Netherlands

In order to work efficiently in circumstances of increasing noise, the NEWS methodology demands the analyst to make a collection plan in which it is noted how the critical indicators be observed. Since the original NEWS method is developed for agencies who have different means of intelligence collection than FIU-The Netherlands has, this step has to be calibrated for FININT. By using abductive logic, the analyst should note which reporting group is most likely the observer of the critical indicator and therefore has the opportunity and the juridical obligation to report the witnessed activity. And, if possible, the analyst should note when in the procurement process the critical indicator is most likely observable. As a result, one or multiple relevant reporting groups can be included in the text mining queries that are used to filter the large quantities of reported unusual transactions from the database.

Once the NEWS model is fully developed and intelligence is collected, analysts can start assessing the critical indicators by assigning five types of status (see figure 13). As critical

indicators have different values and importance, they are assessed separately. Afterwards, they collectively get a final assessment (De Valk, 2018)<sup>12</sup>.






Status for indicators		
	Routine	<i>Activities are observed that fall within a range or level defined by the analyst as normal.</i>
	Abnormal	<i>Activities are observed that are assessed as outside the levels that are considered normal.</i>
	Significant	<i>The observed activity is assessed to be far outside the level considered normal.</i>
	Extreme	<i>Activities are observed that are assessed as extremely far outside the level that are considered normal.</i>
	Unknown	<i>No recent information available or the collection is insufficient to make a firm assessment</i>

Figure 13 Types of status for indicators

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<sup>12</sup> This step is not elaborated extensively since it is not relevant to answer the research questions.

## Chapter 4: EPD Procurement Corruption

Given the general warning of the Independent Commission Against Corruption for an increase in corrupt activities relating to IT procurement, this study uses the phenomenon of EPD procurement corruption as an operational illustration to calibrate NEWS. As no actual cases of EPD procurement corruption are known, it can be argued that the chosen illustration remains an unknown theoretical criminal phenomenon until it is actually detected and proved in court. As has been described in methodology chapter, different scenarios will be developed to detect EPD procurement corruption. The scenarios consist of one main scenario that ties back to the warning problem and three supporting scenarios that each describe a dimension of the market circumstances in which EPD procurement corruption can occur. This chapter provides the theoretical groundwork that is needed to construct these scenarios. The first paragraph will illustrate important general features of the Dutch EPD market that are essential to set the scene in which corruption can occur. Afterwards, different potential drivers for corrupt conduct in the EPD market will be distinguished. Last, the possible forms of corruption will be outlined.

### 4.1 The Dutch EPD Market

In economics, the perfect market can be outlined by numerous idealizing conditions that all together result into a perfect competition, such as a great amount of demand and supply, information symmetry and homogeneous products. This means that, when these theoretical conditions are in place, the market will ultimately end in a so-called *general equilibrium* – a perfect state in which demand and supply are in balance resulting into both a productive- as an allocative efficiency (Debreu, 1972; Walras, 2003; Bork, 1993). The current Dutch EPD Market is however far from perfect.

Hospitals in The Netherlands use different forms of software applications in order to work with the digital medical data of patients (Peer60; Pragus, 2016). The procurement of an EPD system involves long-term and large contracts between the hospital and the IT company and goes hand in hand with enormous amounts of money spent (Van Lonkhuyzen, 2019). Similar to the companies in the pharmaceutical- and medical devices industry, the IT companies involved in the Dutch EPD market have limited competition, enormous profits and high value contracts with the hospitals. The IT companies sell tailor-made software applications that are customized to the hospital's needs. The specific nature of the EPD system makes it a highly sophisticated good. This lack of homogeneity of the IT product makes it, in theory, easier for the IT company to commit corrupt conduct such as overcharging or over-scoping (ICAC, 2018).

Furthermore, as the EPD’s have been developed in in close relationship with the hospitals over the years, the IT industry is likely to nurture their bonds with the hospitals.

Reasonably, the decision of a hospital to procure a new EPD system can be marked as a critical one. Based on the theory of the Kraljic Matrix (see figure 14) it can be argued that a procurement decision of this kind comes with both a high risk for the hospital as well as an for the IT supplier (Kraljic, 1983). The procurement risk for the hospital relates to the fact that - due to the scarcity of alternative suppliers in the Dutch EPD market - there is a great dependency on the chosen IT company. Switching to an alternative supplier is not an easy decision since the switching costs are expensive and the influence on the work processes are immense. This means that, in case (technical, financial, etc.) problems in relation to the EPD do arise, this has a disrupting effect on the hospital processes. Likewise, the IT industry is greatly dependent on the collaboration with the hospitals in order to optimize and innovate their EPD system. The development of long-term relationships with the hospitals is therefore very important for the IT sector (Van Houdenhoven, 2018). Additionally, the involved IT companies in the Dutch EPD market have to deal with legislative risks and potential political upheaval of patient data privacy.



Figure 14 The Kraljic Matrix. Image from Webb (2017).

The exact procedures of a procurement process of an EPD system differs per hospital. Dutch hospitals are hybrid organizations and can be divided in two categories; academic (8) and general (80) hospitals (Inspectie Gezondheidszorg en Jeugd, n.d.; PatientenzorgNKI, 2017; ZorgkaartNederland, sd). Academic hospitals are linked to universities and therefore considered as public institutions who have to procure conform to the Dutch public procurement law and follow the European procurement procedures (PIANOo, 2019). This is different for

general hospitals, as they do not have this obligation and have more freedom to select their own procedures to procure an EPD (Recht in de zorg, 2014). Even though there are big differences in the rules and processes the two types of hospitals have to obey, it can be argued that the conceptual three phases of a procurement process still apply to both.

## **4.2 Drivers of EPD Procurement Corruption**

For the development of the scenarios it is important to identify the possible drivers for EPD procurement corruption. This has been done by analyzing Vian's (2008) theoretical framework of corruption in the healthcare sector for which previous scientific models and concepts have been consolidated (Klitgaard, 1988; Di Tella & Savedoff, 2001; Miller, Grodeland, & Koshechkina, 2001; Duncan, 2003; Ramos, 2003; Brinkerhoff, 2004; Olivier, 2004; Lewis, 2006; Fung, Graham, & Weil, 2007). Vian's (2008) framework looks at corruption from the perspective of the government agent and suggests that corruption is driven by three main drivers; rationalization, opportunity to abuse and pressures to abuse. The three conceptual features can however also be applied to the actors involved in EPD procurement corruption and will therefore be described and applied to this study.

### *Rationalization and Pressure*

Different forms of rationalization have an influence on corrupt activities such as social norms, moral or ethical beliefs, attitudes and personality. It is for example known that a sense of moral obligation and a concern for others can have a big effect on behavior, especially for healthcare professionals (Randall & Gibson, 1991; Kurland, 1995; Raats, Shepherd, & Sparks, 1995). Different causes (e.g. failing hospital management, budget cuts etc.) can however create a vacuum in which corrupt conduct appears more justified (Miller, Grodeland, & Koshechkina, 2001). Cultural settings and social norms can also be a big factor to take into account (Olivier de Sardan, 1999). A workplace culture or norms within an IT company (e.g. making profit is the only priority) could for example justify certain activities of corrupt conduct. Likewise, demographic characteristics and personality character traits can be a significant factor to take into account when studying forms of corruption. Research of Hessing, Elffers and Weigel (1988) showed for example that different traits, such as tolerance for illegal behavior or a competitive orientation, could be associated with tax evasion. Moreover, the study of Giedion, Morales and Acosta (2001) suggested that gender and marital status could also be a factor to take into account, as their study showed that procurement prices were lower when the purchasing agent was woman or unmarried. Besides the influence of rationalization, one also

has to look at the possible existence of pressure to conduct corrupt activities. Pressure can be related to personal situations (e.g. financial debts, low salaries, arguments with management, etc.) and to external pressures (e.g. pressure of IT company to win the procurement and get a high value contract with the hospital) (Vian, 2006).

### *Opportunity*

The main driver that has however possibly the biggest influence is the *opportunity* to conduct corrupt activities. Based on the criminological rational choice theory, one could argue that actors always weigh the cost and benefits of corrupt conduct against the cost and benefits of acting with integrity (Clarke & Cornish, 1986). This is in line with the economic theory that suggests that actors always prefer to act in a way that maximizes their self-interest (Jaen & Paravisini, 2001). The level of opportunity to commit corrupt conduct during an EPD procurement process is dependent on different factors; monopoly, discretion, accountability, transparency and enforcement (Vian, 2008).

First, the opportunity for corrupt conduct during an EPD procurement is maximized when one of the IT companies involved has a monopoly of power, as it limits the hospital to choose other IT companies and distorts the EPD market (Klitgaard, Maclean-Abaroa, & Parris, 2000; Blinder, Baumol, & Gale, 2001; Friedman, 2002). In a monopoly market structure, there is only one company that dominates a particular industry. Yet, from a regulatory point of view, there is no official market share threshold. One can however speak of a rebuttable presumption of dominance once a company has a market share of 50% or more (Jongmans & Van Joolingen, 2018). Beenstock (1979) argues that market imperfection is one of the principal aspects to consider as corrupt conduct can be the result of the secret abuse of a conferred monopoly status of an actor.

Furthermore, opportunities for corruption tend to be greater when the actors involved in the procurement have a great deal of discretion. Discretion refers to situations in which actors have the autonomous power to make decisions (Vian, 2006). This setting is especially strengthened when adequate controls are lacking and there is not enough accountability for results or decisions (Klitgaard, 1988). In this context, accountability refers to the actor's obligation to demonstrate effectiveness (e.g. accurate and detailed justification of the chosen EPD) (Segal & Summers, 2002).

The level of transparency - the idea that information on decision-making and performance measures are actively disclosed – is very important in this respect (Vian, 2008). Transparency also plays a role in the information asymmetry between hospitals and IT

companies. It is, for example, not affordable for all hospitals to employ in-house, knowledgeable IT experts. This can lead to a knowledge gap between the actors responsible for the procurement in the hospital and the IT company trying to sell its EPD system. Due to this information asymmetry, hospitals can possibly find it hard to design the extent of work, set accurate budgets, question the needs for variations and properly manage the contractor. Even if the healthcare provider has in-house IT staff, it is not unlikely that they work as freelancers or as independent contractors via recruitment firms or their own company. This increases the risks of conflicts of interest (ICAC, 2018).

Last, the possibility to sanction actors (enforcement) for inadequate performance and, in the worst case, corrupt behavior is important (Vian & Collins, 2006). Until quite recent, chances to get caught for corrupt activities in the healthcare sector seemed small so far (Eikelenboom & Ten Katen, 2017; Ten Katen, 2016). Figure 15 shows the visualization of all mentioned drivers above.



Figure 15 Drivers of EPD procurement corruption

### 4.3 Forms of Corruption

A procurement process involves a multitude of steps that generally can be divided in three phases; pre-bidding, bidding and post-bidding. All stages of the procurement process are vulnerable to corrupt conduct, especially the pre- and the post- phase as they are less transparent and regulated (European Commission, 2013; Sommersguter-Reichmann, Wild, Stepan, Reichmann, & Fried, 2018). During the different phases, one can distinguish *passive* or *active* corrupt conduct, referring to the actor that's either in the power of making the decisions or to the actor that is requested. Furthermore, one can make a distinction between *direct* and *indirect* procurement corruption. We can speak of direct procurement corruption when corrupt conduct is applied in order for a specific winner to be selected, regardless of the bid offer. Indirect procurement corruption is however a more refined method than the direct form. The method ensures that the preselected supplier wins the procurement without technically violating the

procedure rules. This way, it appears that the corrupt actor has won out of merit as opposed to the actual corrupt conduct that took place (European Commission, 2013). This study distinguishes five forms of corrupt conduct that can be identified; bribery and kickbacks, conflicts of interest, trading in influence, revolving door corruption and favoritism.

#### *Bribery and Kickbacks*

Throughout the procurement process, corruption can take place in different forms and occur during different moments. The most well-known, widespread and perhaps classic form of corruption is *bribery*. A bribe can be a financial or other advantage, such as money, discount, loan, donation, gifts or entertainment, information, preferential treatment, or offers of employment. In cases of procurement corruption, negotiated bribes (*kickbacks*) often occur as it encourages the corrupted to cooperate in the illegal scheme. A commission is paid to the bribe-taker in return for the service that is rendered and the compensation is generally negotiated ahead of time.

#### *Conflicts of Interest*

Furthermore, there are other controversial issues that can be associated with procurement corruption, such as *conflicts of interest*. This can occur when an actor is involved in multiple interests, possibly corrupting the motivation for an act in the other. When cases of corruption are related to conflicts of interest, they can be motivated by financial gain or non-financial objectives. The discovery of conflicts of interest can be of great importance as it often is visible before any corruption occurs and can possibly be voluntarily resolved (European Commission, 2013).

#### *Trading in Influence*

Another highly controversial issue that can be named in relation to procurement corruption is the *trading in influence* (also called influence peddling or interest peddling). It refers to “the situation where a person misuses his influence over the decision-making process for a third party (person, institution or government) in return for his loyalty, money or any other material or immaterial undue advantage.” (Slingerland, 2010, p. 2).

#### *Revolving Door Corruption*

Moreover, revolving door corruption should also be mentioned in this context. Generally, it refers to the movement of staff between roles as legislators and regulators and the industries

affected by the legislation and regulation (European Commission, 2013). In the context of this research however, it can refer to movement of staff between the IT-industry and hospitals. This can result in the development of an unhealthy relationship between both sectors. After all, there is a risk that procurement decisions of hospitals will be influenced by past IT sector employers.

#### *Favoritism*

The last aspect that should be taken into account when studying corruption is *favoritism*, referring to the rather normal human inclination to prefer certain acquaintances (like friends and family over strangers). One refers to nepotism (involves family relations) or cronyism (involves friends) whenever high officials demonstrate this behavior (European Commission, 2013).

## Chapter 5: NEWS for EPD Procurement Corruption

This chapter will describe the scenarios and critical indicators that have been developed for the (theoretical) criminal phenomenon of EPD procurement corruption based on the calibrated version of NEWS. The warning problem combines five elements (see figure 16) and is defined as the following: *The conduct of corrupt activities during the EPD procurement process of a hospital in The Netherlands by actors involved in order for personal gain and the manipulation of the market.*

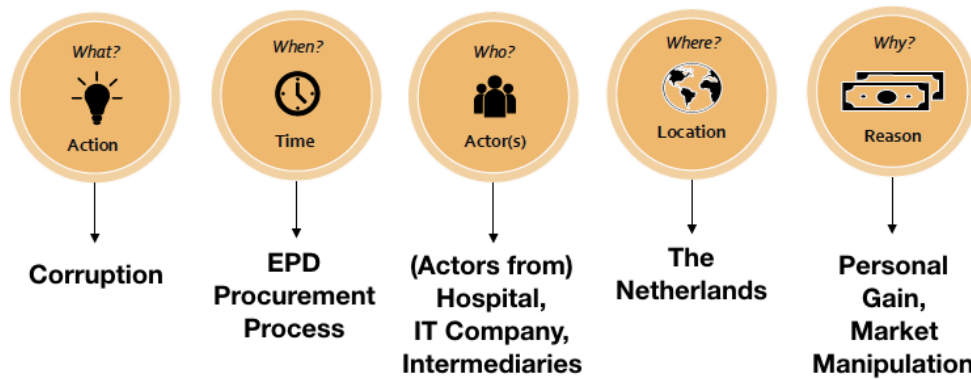


Figure 16 Important elements of the warning problem

The calibrated model has one main scenario that ties back to the warning problem; the act of EPD procurement corruption (paragraph 5.1). Since no cases of EPD procurement corruption are known so far, three supporting scenarios have been developed subsequent to the main scenario. Each supporting scenario describes a dimension of the market circumstances in which the risk of EPD procurement corruption increases; a hospital with a non-transparent procurement procedure (paragraph 5.2), a de-facto monopoly status of an IT company (paragraph 5.3) and a hospital with insufficient oversight (paragraph 5.4). Figure 17 visualizes how the scenarios relate to the warning problem.

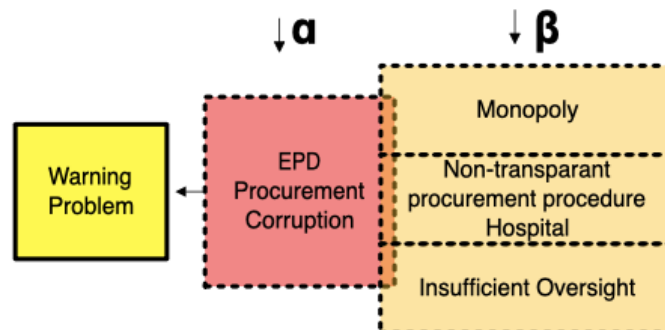


Figure 17 Visualization of the warning problem and the main- and supporting scenarios

## 5.1 Main Scenario: Corruption

A hospital in The Netherlands wants to purchase a new EPD system in a market where they can choose from only a select couple of IT companies that can deliver the requested EPD system. During one or more phases of the procurement process actors involved (hospital, IT company, other external actors) conduct corrupt activities. The corrupt conduct can involve a bribery, a kickback, a conflict of interest, the trading of influence, revolving door corruption and favoritism (both nepotism as cronyism). In return, the actor(s) receive(s) an additional incentive (e.g. money or other form of payment) for its role in/influence on the procurement process. One or multiple actors that agree on corrupting the procurement process can have different motives, such as internal pressure (e.g. financial depts) or a personal tolerance towards corrupt conduct. Another possibility is that a company involved in the process wants to become and/or stay the market leader in order to increase and safeguard its profits and future long term. The corruption of the actors involved damages the interest of competitors, the hospital and the public. Moreover, they violate generally accepted moral standards and the criminal law. The corrupt conduct is therefore hidden and concealed. The criminal acts will most likely be hard to discover as the actors involved do not have a criminal history and the health sector generally has a great deal of trust.

In the *pre-bidding* phase a hospital decides that, after a needs assessment, it is time to procure a new EPD system. The hospital will define the contract characteristics and chose a procurement method. There are different reasons and ways thinkable of why and how procurement corruption can occur during this phase. It is, for example, possible that one or multiple actors of the IT-company decide that legal actions are not enough to secure the deal with the hospital and persist on taking additional steps in which actors within the hospital are persuaded in cooperating with the IT-company in order to secure their contract for the delivery and implementation of the EPD system. This could be done by choosing a *non-competitive procurement method* in which the hospital already has the intention to procure the EPD system from a certain IT company. Another option is that the requirements are determined in a non-objective way. This so-called *tailored terms of reference* is an indirect form of procurement corruption and a common practice in the medical equipment- or medicine industry. It requires the cooperation of the actor who's in charge of setting the terms of the procurement and the requirements of the EPD system that is being requested. The procurement process and the requirements are set in a way that results in only one perfect match with the corrupting party. As long as the corrupt conduct does not become public, the predetermined bid seems to be the

genuine winner, even though it was fixed beforehand. The method seems popular as the corrupt actors can deny any personal responsibility or reject accusations of corruption.

The *bidding* phase involves the start invitation for other IT companies to bid. In this phase *different time frames* can be given to different bidders, for example by sending out tender invitations or information earlier to some bidders in order to give them a head start in the process. The bids are afterwards evaluated by the hospital and eventually lead to the awarding and the actual making of the contract. In this phase favoritism or conflicts of interest can occur, for example when a hospital has always invested in a sustainable working relationship with a previous IT company or when external IT intermediaries also have connections with a bidding IT company. During the bid evaluation bribery and kickbacks can occur in order to rank a certain EPD bid higher or by excluding competitors by making up reasons for disqualification.

In the *post-bidding* phase, the EPD contract is implemented and monitored. Corrupt conduct can, in this phase, be false invoices during the implementation of the EPD. Another possibility would be that contract agreements are altered in a later stage in order to allow higher prices for the implementation. Moreover, there could be a lack of contract monitoring allowing a low quality (undeveloped parts of the EPD) or a poorly managed implementation. An overview of the different procurement phases and the potential forms of corrupt conduct is visualized in figure 18.

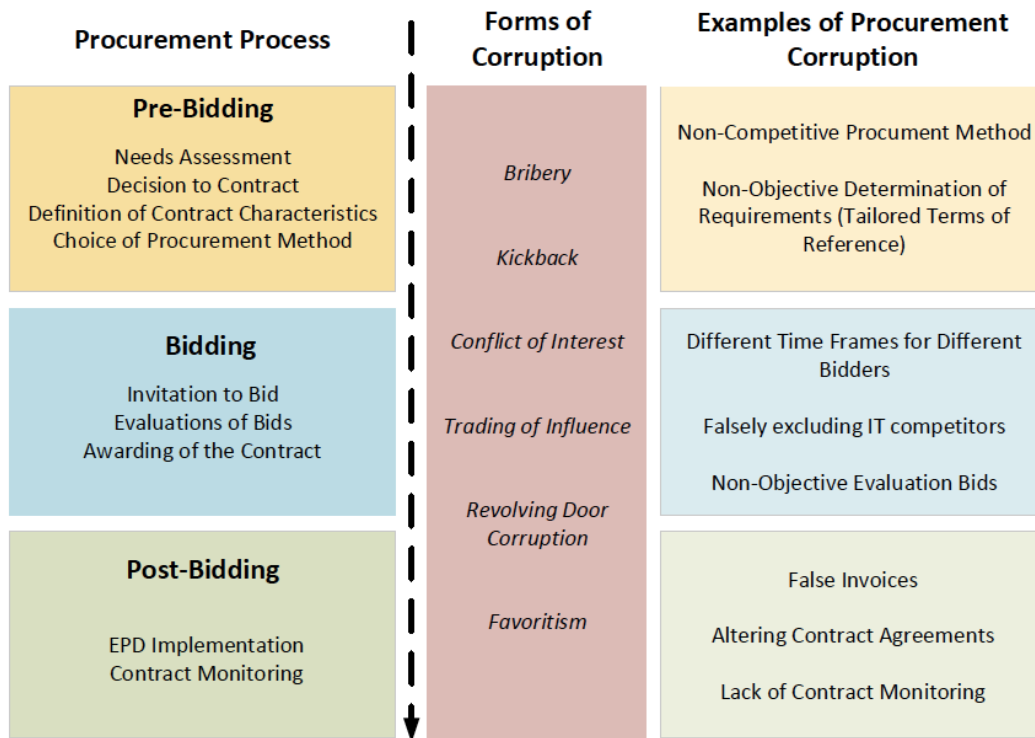


Figure 18 Visualized time line of the procurement process and the potential forms of corrupt conduct.

The following critical indicators have been developed in order to detect the main scenario:

**Applicable during the whole procurement process**

- The external consultants that are involved during the procurement process have not signed a confidentiality agreement.
- Checks issued by the IT company or related actors, being cashed out and subsequently deposited to bank accounts of one or more actors involved in the EPD procurement process.
- Non-work related activities of one or more actors involved in the EPD procurement process are sponsored by the IT company or related actors.
- One or multiple external actors that are involved with the EPD procurement process receive payments from the hospital for their consultancy/technical services where the amount paid appears to be outside the normal price range (when compared to the normal market prices for equivalent services).
- One or multiple actors involved in EPD procurement process and contract management receive international funds transfer instructions (IFTIs) from business and/or personal accounts, where these funds are excessive in value.
- During the procurement process there are services provided to the hospital by shell companies or companies registered in jurisdictions with simplified company registration.
- One or multiple actors that are concerned with the EPD procurement process are appointed as officials in involved companies without meeting the necessary requirements for taking up the position.
- Family members and/or associates of actors concerned with the EPD procurement process are appointed as officials in involved companies without meeting the necessary requirements for taking up the position.

**Applicable during the pre-bidding process**

- IT companies have got different time frames for their EPD bid.

**Applicable during the bidding process**

- Procurement file with motivated decisions is missing.

### **Applicable during the post-bidding process**

- External companies that are concerned with the EPD procurement process have common director(s) and/or are related to the management of the hospital or the IT company involved.
- Contractors, subcontractors or their counterparties that are involved in the implementation of the EPD system in the hospital are linked by: address, telephone number, IP-address, etc.
- Funds received by a contractor of the EPD implementation are not spent to fulfil the contract needs.
- Checks issued to hospital actors without an evident justification come from accounts of actors who benefited from the EPD procurement process.
- Companies involved in the EPD implementation changing the terms of agreements and definitions of intermediaries to avoid registration and regulatory oversight.
- Exceeding costs for the implementation process of the EPD system that are beyond the calculated risk margin.

## **5.2 Supporting Scenario 1: Non-transparent Procurement Procedure Hospital**

A hospital wants to procure a new EPD system. The procedure that is chosen and followed by the hospital is not transparent and systematic, therefore any information concerning the decision-making process and the performance measures are not actively disclosed. Lack of transparency of the procurement procedure of the hospital lowers the accountability for the actors involved, resulting into an increased risk of corrupt conduct. The following critical indicators have been developed to detect this supporting scenario:

- The hospital follows the different systematic phases of the procurement process in a non-transparent manner.
- The input of different stakeholders in the hospital for the procurement decision is given in a non-transparent manner.
- The hospital signs a confidentiality contract with the IT company that is chosen, making the contract characteristics (including the prices) not publicly available.
- The pricing system of the IT company (license, implementation, service and maintenance) is non-transparent and therefore open for manipulation.

### **5.3 Supporting Scenario 2: De-facto Monopoly Status IT company**

An IT company that develops EPD systems for Dutch hospitals has a de-facto monopoly status in the market and therefore has a dominating influence in the sector. This status is the result of limited competition with other IT companies as developing the EPD system is resource intensive and requires substantial time and money in the start-up phase. It is important for this IT company to retain their de-facto monopoly status in the market as they want to keep (and increase) their power, knowledge and market share. If the supporting scenario is accurate, it can be labeled as undesired as this form of market power ultimately results into an enormous dependency on one IT company for the majority of the critical health infrastructure of Dutch hospitals. The following critical indicators have been developed to detect whether the IT company is truly dominant and to verify this supporting scenario:

- The IT company that develops EPD systems has a market share of 50% or more.
- There is a lack of substitute EPD systems of equivalent quality available for Dutch hospitals.
- Due to barriers in the Dutch EPD hospital market there is limited competition between IT companies.
- The height of the switching costs to another EPD supplier makes a hospital fully dependent on one IT company (*vendor lock-in*).
- The market power enables the IT company to use price discrimination for the EPD contracts with the hospitals.
- The market power enables the IT company to deliver low-quality parts of the EPD system disregarding the contract agreements.
- The market power enables the IT company to deliver undeveloped parts of the EPD system disregarding the contract agreements.

### **5.4 Supporting Scenario 3: Insufficient Oversight Hospital**

A hospital wants to procure a new EPD system. During the procurement and implementation of the chosen EPD system, the hospital has insufficient internal oversight on the process. If the supporting scenario is accurate, it can be labeled as undesired as hospitals have an important public function wherein incorrect decisions and/or abuses of the system should be detected and altered on time. Additionally, insufficient oversight on important procurement decisions and IT implementations weakens the accountability of the hospital management and increases the risk

of corruption. The following critical indicators have been developed to detect this supporting scenario:

- The nature of the decision-making process of the hospital regarding the EPD procurement process disables sufficient oversight.
- One or multiple hospital actors responsible with the EPD procurement oversight lack financial expertise.
- One or multiple hospital actors responsible with the EPD procurement oversight lack juridical expertise.
- One or multiple hospital actors responsible with the EPD procurement oversight lack technical expertise.
- There are no independent audits during the EPD procurement process.

## **Chapter 6: Conclusion**

Although increased awareness is slowly diminishing the taboo nature of corruption in the healthcare sector, studies and estimates on the topic are however still rare in Western Europe (European Commission, 2013). In order to detect and warn for possible corrupt conduct during the procurement process of an EPD system for a hospital, this explorative methodological intelligence research has calibrated NEWS for FININT and developed scenarios and critical indicators for this phenomenon. This chapter elaborates on the conclusion, discussion, limitations and further avenues for future research.

### **6.1 Conclusion**

First, the concept of NEWS is explained in chapter three. The structured analytic technique is developed for the intelligence community and is used to give timely warnings for threats so that actions can be taken. In order to bypass different biases an analyst is likely to encounter, the NEWS methodology is set up in four different steps. The first step is to define the warning problem – a single statement that describes a concern, a risk or a (potential) threat and includes the actor, action, time, location and reason. The second step is to develop different scenarios that describe how the warning problem may become reality. The third step is to determine critical indicators that can serve as decision points for the designated warning problem. The fourth step is to develop an intelligence collection plan since typically all important clues are scattered over multiple sources.

Second, chapter four describes the features of a theoretical criminal phenomenon of EPD procurement corruption. The few companies that are active on the EPD market for Dutch hospitals deal with limited competition, have close bonds with some hospitals, make enormous profits and obtain high value contracts. Due to the scarcity of alternative EPD suppliers, hospitals have a great dependency on the procured IT company. It is theorized that three main drivers for EPD procurement corruption can be distinguished; rationalization, pressure and opportunity. If the theoretical criminal phenomenon does exist it can be detected in different forms such as bribery, kickbacks, conflicts of interest, trading in influence, revolving door corruption and favoritism.

Third, chapter five outlines four scenarios and numerous critical indicators that have been developed for EPD procurement corruption based upon the calibrated version of NEWS. The main scenario describes situations in which actors involved in an EPD procurement process commit corrupt activities in exchange for an additional incentive. Subsequent to the main

scenario are three supporting scenarios that each describe a dimension of the market circumstances in which the risk of EPD procurement corruption increases. The developed indicators relate to economic intentions, capabilities and actions of actors involved in the process.

To conclude, the original NEWS method has been reviewed and the insights of scientific literature, logic, fourteen experts and secondary data have been consulted and applied. This resulted in a preliminary calibrated version of NEWS. Furthermore, four scenarios and numerous critical indicators have been developed in order to detect EPD procurement corruption. Once one or multiple supporting scenarios are accurate, the risk of finding corrupt conduct increases. If the main scenario also appears to be accurate, this can be seen as a signal to take additional investigative action.

## **6.2 Discussion**

This explorative methodological intelligence research shows that the calibrated version of NEWS can facilitate FIU-The Netherlands with a more effective scientific substantiated approach that can focus on unknown criminal phenomena instead of the traditional known forms of crime. At the same time, the study exemplifies that the NEWS is adaptable for different operational functionalities and phenomena. The key difference between the original- and the calibrated model is the implementation of the scenarios. Whereas the main scenario focuses on the criminal phenomenon, the supporting scenarios outline undesirable market circumstances in which the risk of EPD procurement corruption increases. The critical indicators of the supporting scenarios have a double function as a result of this, as they can also be seen as suspicious indicators for the main scenario.

Furthermore, NEWS focusses on detecting changes in the operational posture of an actor or act by concentrating on anomalies. It requires sustained analysis of *modus operandi* in order to reflect this to ‘customary’ behavior and ‘standard’ external circumstances. Even though it has been suggested that threats posed by non-state actors are less predictable than state-actors, this study has however proved that unknown motives and *modus operandi* can be outlined via the four-step mixed method (literature, logic, experts and data) that is used in this study. Similarly, it has been argued that contemporary threats can fail to generate indicators of sufficient strength or significance to be subjected as critical indicator (Wirtz, 2013). This research shows however the importance of consulting experts as their knowledge is crucial for a good calibrated model.

Moreover, the collection plan of NEWS highlights the importance of financial

gatekeepers as their reported unusual transactions are an essential asset for the input of the FININT. The collection plan (shown in appendix III) shows that the relevant reporting groups that are generally involved in the procurement process are accountants, banks, juridical service agents and lawyers. The extent of the reporting groups' contribution to the identification and disruption of financial crime cannot be underestimated (Carlisle, 2016). The intelligence position of FIU-The Netherlands can therefore be enhanced by promoting corruption awareness.

Stimulating the alertness of reporting groups is of great importance since the perception of corruption in the healthcare sector in The Netherlands is really low (European Commission, 2013). This view corresponds with the general opinion of the consulted experts, who all had an idealistic view of the professionals involved in EPD procurement. None of them believed that bribery or kickbacks in the procurement process would occur. Some (R3, R6, R13) did however consider it possible that corrupt practices can occur in a grey field, in which it is hard to juridically proof any criminal offence but acts can morally be seen as undesired (e.g. subtly influencing hospital actors for a certain procurement decision). In that respect it is important to mention that the government of The Netherlands has made reservations against the undertaking to introduce criminal provisions for trading in influence. The complications in providing adequate legal instruments in anti-corruption policies are often named, as these activities are challenging to investigate and prove (European Commission, 2013). In order to by-pass this juridical difficulty, the supporting scenarios capture the undesirable parts of the market that find themselves on the border of the legal framework.

### **6.3 Limitations and Future Research**

This study has three limitations that have to be acknowledged. Firstly, the list of respondents that have been interviewed and consulted in order to calibrate the model lacks essential key actors that are generally involved in a procurement process (i.e. juridical expertise and accountants). The experts have been left out due to the limited time of the research. As a result of their missing input, the calibrated model and the developed scenarios and critical indicators can have blind spots and possible biases, lowering the validity of the results of this research.

Secondly, the developed scenarios and critical indicators represent the first conceptual outcome of the explorative research and need further calibration. For example, the supporting scenarios are based on the opportunities for corrupt conduct and ignore the influence of the other two drivers (i.e. pressures and rationalizations). The described actors, intentions and drivers of corruption that are described in the scenarios can in reality be different and/or more

complex. Additionally, it should be noted that patterns of criminal phenomena can change. In general, it is essential to realize that analysts cannot rely on past practices to predict future activities. The critical indicator list should therefore always be periodically reviewed to ensure that that all indicators remain valid (Kriendler, 2002).

Thirdly, the original NEWS method implies that critical indicators should be broken down into *priority requirements* and *requirements* in order to assess how the required intelligence can be obtained in an optimal way (De Valk, 2018). This additional step has however been left out due to limited time of the research.

In order to apply NEWS in the operational setting of FIU-The Netherlands, it needs further calibration and testing. A future, optimized model can - if calibrated correctly – be used as an independent and reliable assessment method that can substantiate if a certain phenomenon demands more attention. FIU-The Netherlands and other relevant partners can use the validated warning scenarios to timely anticipate by formulating a criminal justice strategy. This can lead to a more effective, intelligence-led form of transaction monitoring and the discovery of more criminal cases that can be prosecuted.

Similarly, future additional research can calibrate the warning method in different settings. For example, municipalities and the police can use and apply the method together in their battle against organized crime. NEWS could help distinguishing critical indicators for industries that are sensitive for the infiltration of organized crime and the undermining of society (Meijerink, 2018; RIEC, sd). In this setting NEWS can be used for prognostic research goals and warn if certain industries need stricter rules and/or additional criminal investigations.

Additionally, the results of the study can serve as a starting point of a discussion of how the EPD market and the Dutch healthcare system is functioning. The supporting scenarios raise the question if certain aspects of the healthcare market demand more regulation from the Ministry of Health, Welfare and Sport. The current operational role of the Ministry is very limited<sup>13</sup>, as a large part of the tasks are delegated to private- and non-governmental organizations. The functioning of the EPD market is however a more political issued question that is outside the scope of this research.

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<sup>13</sup> Due to the 2011 political debacle of the canceled national EPD infrastructure, the Dutch government took upon a more distant role (Kroneman, et al., 2016; Maillette de Buy Wenniger, 2012). This might change in the future however, as a recent letter to the parliament showed that the current minister of Health, Welfare and Sport has the intention to take upon a more guiding role for the EPD demands (Van Wijck, 2019; Tweede Kamer der Staten-Generaal, 2018).

Throughout the process of writing this thesis I have received a great amount of advice and support these last months. Firstly, I would like to express my utmost appreciation to Dr. G. G. de Valk for sharing his enthusiasm and passion for the intelligence world with me and, more importantly, for being my scientific guide along the way. Moreover, I'm incredibly thankful for the effort and time of Patrick Wolthuis and Sonja Corstanje-Maaskant who both introduced me to the world of financial intelligence. Last, I am more than grateful for the internship opportunity that FIU-The Netherlands gave me and look forward to what the future in this field will bring me.

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Fleur D. A. Crolla

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## Appendix I: List of Respondents

<i>Respondent (R)</i>	<i>Relevant background</i>
<i>R1</i>	IT expert and CEO of IT company that supplies software solutions for the digitizing of paper streams and the safe exchange of clinical data
<i>R2</i>	Director and advisor of company that specializes in process optimization focused on the administrative dimension in the healthcare sector
<i>R3</i>	EPD implementation consultant
<i>R4</i>	IT expert
<i>R5</i>	CEO of hospital in The Netherlands / Professor of Economic Management in Health Care at Radboud University's Nijmegen School of Management
<i>R6</i>	IT manager of hospital in The Netherlands
<i>R7</i>	Political assistant of a member of the house of representatives, representing the Dutch political party VVD
<i>R8, R9</i>	Two employees of the Authority for Consumers and Markets (ACM)
<i>R10</i>	Senior Manager EY
<i>R11</i>	Professor of Economics at Tilburg University
<i>R12</i>	Program manager Health and Youth Care Inspectorate (IGJ)
<i>R13</i>	CEO of consultancy company focused on IT, health and government
<i>R14</i>	Procurement lawyer of the Dutch Police

## Appendix II: Topic list Interviews

General theme	Prompts
<b>Introduction</b>	
<i>To begin with, would you like to tell me a bit about yourself?</i>	<ul style="list-style-type: none"> <li>• Current employer</li> <li>• Role of employee in the company</li> <li>• Previous relevant work or study experience</li> </ul>
<b>Procurement</b>	
<i>What are the differences between academic and general hospitals regarding the procurement process?</i>	<ul style="list-style-type: none"> <li>• Pre-bidding                             <ul style="list-style-type: none"> <li>○ Needs assessment and decision to contract</li> <li>○ Definition of contract characteristics</li> <li>○ Choice of procurement method</li> </ul> </li> <li>• Bidding                             <ul style="list-style-type: none"> <li>○ Invitation to bid</li> <li>○ Evaluation of the bids</li> <li>○ Awarding of the contract</li> <li>○ Contract award</li> </ul> </li> <li>• Post-bidding                             <ul style="list-style-type: none"> <li>○ Contract implementation</li> <li>○ Contract monitoring</li> </ul> </li> <li>• Pitfalls                             <ul style="list-style-type: none"> <li>○ More expensive than planned</li> <li>○ Design of extent of work</li> <li>○ Formulation of special needs</li> <li>○ Budget planning</li> </ul> </li> <li>• Lack of homogeneity in IT products</li> <li>• IT projects run for a long time</li> <li>• Employees                             <ul style="list-style-type: none"> <li>○ In-house IT experts</li> <li>○ Freelancers / independent contractors</li> <li>○ Knowledge gap</li> </ul> </li> </ul>
<i>Can you tell me more about the general process of a procurement of an IT system for a hospital?</i>	
<b>Corruption</b>	
<i>What type of conduct or activity would you relate to corruption in this context?</i>	<ul style="list-style-type: none"> <li>• Prevalence of relatively low quality</li> <li>• Relatively high prices</li> <li>• Low number of suppliers involved in procurement</li> <li>• A low number of bids</li> <li>• Low number of ‘new’ suppliers involved in the procurement process</li> <li>• Contracts just below the tendering threshold</li> <li>• Pre-bidding                             <ul style="list-style-type: none"> <li>○ Possibility for non-competitive purchasing methods</li> <li>○ Not objectively determining requirements</li> <li>○ Providing different time frames for different bidders</li> <li>○ Other?</li> </ul> </li> <li>• Bidding                             <ul style="list-style-type: none"> <li>○ Favoritism in invitation to tender</li> <li>○ Bribery and kickbacks during the bid evaluation</li> <li>○ Collusion or market division in bidding</li> <li>○ Other?</li> </ul> </li> <li>• Post-bidding                             <ul style="list-style-type: none"> <li>○ False invoicing</li> <li>○ Changing contract agreements</li> </ul> </li> </ul>

- Other?

### **Actors**

*Who would notice this possible corrupt conduct?*

- Board of directors
- Supervisory board
- IT responsible
- Medical staff
- Consultancy companies
- Accountants
- Tax advisors
- Lawyers
- Banks
- Notaries
- Other?

### **Support Scenarios**



*Which factors do you think result into a higher risk for corruption?*

- Non-transparent prices and agreements
- De-facto monopoly status IT company
- Non-transparent procurement procedure
- Insufficient supervision
- Other?

## Appendix III: Longlist (Critical) Indicators

In this appendix you can find the long list of all indicators that are formulated for the different scenarios. The sentences that are marked red are labeled as the critical indicators. The sentences that are marked orange are labeled as the suspicious indicators. The abbreviations show in what manner the (critical) indicators were developed. The numbers refer to the reporting groups of FIU-The Netherlands and show the most plausible collection plan. In case none of the reporting groups are able to collect this kind of data diverse is written in the table.

**Example**

-  → Critical indicators
-  → Suspicious indicators

Abbreviations	
<i>LI</i>	Literature (Method of development)
<i>LO</i>	Logic (Method of development)
<i>EX</i>	Experts (Method of development)
<i>DA</i>	Data (Method of development)
<i>DI</i>	Diverse

Collection Plan (Reporting groups FIU 2019)		
1. Accountants	14. Money exchange institutions	19. Payment service providers
2. Banks		( <i>betaaldienstverlener</i> )
3. Casinos	15. Natural or legal persons that put their address at another's disposal (domicile-providers)	20. Safe custody services ( <i>verhuurder van safes</i> )
4. Civil-law notaries (notarissen)		21. Tax advisors ( <i>belastingadviseurs</i> )
5. Domicile-providers		22. Traders / sellers of goods ( <i>handelaren</i> )
6. Electronic money entities ( <i>elektronische geldinstellingen</i> )	16. Pawn shops ( <i>pandjeshuizen</i> )	23. Trust offices ( <i>trustkantoren</i> )
7. Institutions, not being banks, that carry out banking activities	17. Payment service broker ( <i>betaaldienstagent</i> )	24. Undertakings for Collective Investment in Transferable Securities (UCITS) ( <i>instelling voor collectieve belegging en effecten</i> )
8. Investment firms ( <i>beleggingsonderneming</i> )	18. Payment service implementers acting by order of a payment service provider with other EU member state license	25. Valuers ( <i>taxateurs</i> )
9. Investment entities ( <i>beleggingsinstelling</i> )		
10. Juridical service agents ( <i>juridische dienstverleners</i> )		
11. Lawyers ( <i>advocaten</i> )		
12. Life insurers ( <i>levensverzekeraars</i> )		
13. Life insurance brokers ( <i>bemiddelaar in levensverzekeringen</i> )		

**Main scenario: Corruption**

Indicator	Method of Development	Collection Plan
<b>General</b>		
The external consultants that are involved during the procurement process have not signed a confidentiality agreement.	LO - DA	10
One or multiple actors that are responsible for providing advice to the hospital during the procurement process have a strong preference for one IT company.	LO - DA	DI
Checks issued by the IT company or related actors, being cashed out and subsequently deposited to bank accounts of one or more actors involved in the EPD procurement process.	LO - DA	1 - 2
Non-work related activities of one or more actors involved in the EPD procurement process are sponsored by the IT company or related actors.	LO - EX	1 - 2
There is open source information that concerns one or multiple actors involved in the EPD procurement process relating to negative press reporting (corruption, fraud or other financial crimes).	LO - DA	1 - 2 - 10 - 11
One or multiple external actors that are involved with the EPD procurement process receive payments from the hospital for their consultancy/technical services where the amount paid appears to be outside the normal price range (when compared to the normal market prices for equivalent services).	LO - DA	1 - 2
The stated source of wealth of funds received to a bank account of one or multiple actors involved in the EPD procurement process and/or family members or close associates, are inconsistent with the actor's stated career history, expertise, or age. In this regard a mismatch may exist between the applicant's stated career history and their total net worth.	LO - DA	1 - 2
Explanations for transactions include the use of words and phrases often used as euphemisms for bribes (for example commission, marketing fees, surcharge etc.).	DA	1 - 2
One or multiple actors involved in EPD procurement process and contract management receive international funds transfer instructions (IFTIs) from business and/or personal accounts, where these funds are excessive in value.	LO - DA	1 - 2
During the procurement process there are services provided to the hospital by shell companies or companies registered in jurisdictions with simplified company registration.	LO - DA	1 - 2
External parties that are involved in the EPD procurement process are not or insufficiently screened.	LO - DA	DI

One or multiple actors that are concerned with the EPD procurement process are appointed as officials in involved companies without meeting the necessary requirements for taking up the position.	LO – DA	10 - 11
Family members and/or associates of actors concerned with the EPD procurement process are appointed as officials in involved companies without meeting the necessary requirements for taking up the position.	LO - DA	10 - 11
<b>Pre-Bidding</b>		
The procurement process and/or the requirements of the EPD system are set in a way that the results can only match with one IT company ( <i>tailored terms of reference</i> ).	LO - DA	10 - 11
IT companies have got different time frames for their EPD bid.	LI – LO	10 - 11
There is a low number of bids compared to what is regular in the EPD market.	LI - LO	10 - 11
The requested EPD contract of an academic hospital is planned to be just below the tendering threshold, whereas the expected amount would transcend the threshold.	LI – LO	DI
<b>Bidding</b>		
The IT company that has won the bid has relations with hospital actors concerned with the EPD procurement process causing a pretense of conflicts of interest.	LO - DA	DI
Procurement file with motivated decisions is missing.	DA	10 – 11 - DI
The four-eye principle is not applied during the evaluation of the EPD bids.	DA	DI
There are complaints about the procurement process.	LO - DA	DI
<b>Post-Bidding</b>		
There is a lack of monitoring instruments (such as tendering calendar, contract register, internal control and a procedure for (legal) deviations).	DA	DI
External companies that are concerned with the EPD procurement process have common director(s) and/or are related to the management of the hospital or the IT company involved.	LO – DA	DI
Subcontractors/intermediaries are brought in on business deals once an EPD contract has already been agreed to.	LO – DA	DI
Contractors, subcontractors or their counterparties that are involved in the implementation of the EPD system in the hospital are linked by: address, telephone number, IP-address, etc.	LO - DA	DI
Funds received by a contractor of the EPD implementation are not spent to fulfil the contract needs.	LO - DA	1

Checks issued to hospital actors without an evident justification come from accounts of actors who benefited from the EPD procurement process.	LO - DA	1 - 2
One or multiple actors with little or limited experience receive highly complex tasks during the EPD procurement process that are not compatible with the size or experience of the entity.	LO - DA	DI
The issuance of indistinct specifications for the performance of the EPD contract leaving room for its misuse.	LO - DA	10 - 11
Companies involved in the EPD implementation changing the terms of agreements and definitions of intermediaries to avoid registration and regulatory oversight.	LO - DA	10 - 11
Exceeding costs for the implementation process of the EPD system that are beyond the calculated risk margin.	LI - LO	1
(Parts of) the EPD system are of low quality disregarding the contract agreements.	LI - LO - EX	DI
(Parts of) the EPD system are undeveloped disregarding the contract agreements.	LI - LO - EX	DI

### Supporting Scenario 1: Non-transparent Procurement Procedure Hospital

Indicator	Method of Development	Collection Plan
The hospital chooses to bypass the procurement procedure.	LI – LO - DA	10 - 11
The hospital does not follow the different systematic phases of the procurement process correctly.	LI – LO - DA	10 - 11
The hospital follows the different systematic phases of the procurement process in a non-transparent manner.	LI – LO - DA	10 - 11
The document with reasons for disqualification of certain IT companies in the procurement process is substantiated in a way that it leaves open the possibility for market manipulation.	LO - DA	DI
The input of different stakeholders in the hospital for the procurement decision is given in a non-transparent manner.	LI - LO	DI
The hospital signs a confidentiality contract with the IT company that is chosen, making the contract characteristics (including the prices) not publicly available.	LO - EX	10 - 11
The pricing system of the IT company (license, implementation, service and maintenance) is non-transparent and therefore open for manipulation.	LO - DA	DI
The monitoring of the contract implementation of the procured EPD system is done insufficiently, leaving room for manipulation.	LO – DA	DI
There are no hospital actors responsible for monitoring the contract implementation of the procured EPD system, leaving room for manipulation.	LO – DA	DI
The content of the monitoring criteria of the EPD implementation are defined in a way that leaves room for manipulation.	LO - DA	DI
There is no measurement justification for the implementation of the EPD, causing a lack of accountability for the process.	LI – LO - DA	DI
There is no measurement justification for the quality of the EPD, causing a lack of accountability for the procurement decision.	LI – LO - DA	DI

## Supporting Scenario 2: De-facto Monopoly Status IT company

Indicator	Method of Development	Collection Plan
The IT company that develops EPD systems has a market share of 50% or more.	LI	DI
There is a lack of substitute EPD systems of equivalent quality available for Dutch hospitals.	LI – LO - EX	DI
Due to barriers in the Dutch EPD hospital market there is limited competition between IT companies.	LI – LO - EX	DI
The IT company has a monopoly on maintenance of the EPD system.	LO - EX	DI
The height of the switching costs to another EPD supplier makes a hospital fully dependent on one IT company ( <i>vendor lock-in</i> ).	LI – LO - EX	DI
The EPD software is built in a way that only extensions that are built by the same company can function accordingly.	LO - EX	DI
Hospital staff are obliged to pay for certified in-house education with the IT company in order to work with the EPD system.	LO - EX	DI
The IT company that has won the bid has a profit of more than 50% of the revenue.	DA	1 – 2
The market power enables the IT company to use price discrimination for the EPD contracts with the hospitals.	LI – LO - EX	DI
The market power enables the IT company to deliver low-quality parts of the EPD system disregarding the contract agreements.	LI – LO - EX	DI
The market power enables the IT company to deliver undeveloped parts of the EPD system disregarding the contract agreements.	LI – LO - EX	DI

### Supporting Scenario 3: Insufficient Oversight Hospital

Indicator	Method of Development	Collection Plan
The nature of the decision-making process of the hospital regarding the EPD procurement process disables sufficient oversight.	LI – LO - DA	DI
One or multiple hospital actors responsible with oversight have shared interests with the actors involved in the EPD procurement process.	LI – LO – EX	DI
One or multiple hospital actors responsible with the EPD procurement oversight lack financial expertise.	EX - DA	DI
One or multiple hospital actors responsible with the EPD procurement oversight lack juridical expertise.	EX - DA	DI
One or multiple hospital actors responsible with the EPD procurement oversight lack technical expertise.	EX - DA	DI
The hospital lacks monitoring instruments for the EPD procurement process (such as tendering calendar, contract register, internal control and a procedure for (legal) deviations).	LO - DA	DI
There are no independent audits during the EPD procurement process.	LO - DA	1
There are no independent evaluations of the EPD procurement process.	LO - DA	DI
There is no consequence for the actors involved in the procurement in case of inadequate performance.	LO - DA	DI