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# Detecting and Reducing Corruption Risk and Fraud in the Public Sector

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# Introduction

The problem of corruption is one of the most topical issues of the day. The question of corruption is reflected in a number of works by major institutions dealing with corruption (Transparency International, 2006; EU, 2013; OECD, 2009a, 2009b, 2013a, 2013b) and has also been examined by a number of authors (Ackerman and Søreide, eds., 2011; Mo, 2001; Nye, 1967; Persson, Rothstein, and Teorell, 2013). Publications which deal with the problem of corruption focus on, for example, ranking countries in terms of the perceptions of corruption (CPI) investigating corruption in public procurement (EU, 2013; Piga, 1986, 2011), and engaging in a sociological analysis of corruption (Frič, 2001, 2012; Langr, 2014; Langr and Ochrana, 2015) in terms of individual conduct (individual corruption) or systemic action (systemic corruption). There is rather significantly less emphasis on the issue of choices for anti-corruption strategies and very little has been done on the issue of reducing corruption within the contexts of identifying corruption risk and detecting fraud. It is on these areas, which until now have been neglected, that our work is targeted. The underlying motive for the work on this book is the fact that to combat corruption effectively requires a search for appropriate instruments which will detect corruption, and prevent it.

From the viewpoint of the management and leadership of the state, municipality or region (Klitgaard, 2012; Petersen and Strachota, 1991), there are two very effective tools in the fight against corruption and fraud. The first is an actual functioning system of financial control (Ramkumar, 2008). This, however, fails to capture corruption and fraud in all areas (particularly in those areas which are not related to the handling of funds or property). A second key measure to prevent corruption is risk analysis (Půček and Matochová et al., 2007). This tool is used insufficiently by the Czech public administration, or if it is used at all, it is

used just formally. Both instruments (financial control and risk analysis) are the basis for the formulation of an effective anti-corruption strategy concerning the conditions in the Czech Republic. When analyzing existing anti-corruption government documents, we discovered that their common weakness in the fight against corruption and fraud currently is an inadequate, or a completely missing risk analysis of corruption and fraud. Therefore, we have focused on this problem for this book. This publication as a whole relates to the public sector. More accurately, however, it focuses on government and its organizations. The book also offers a new perspective on investigating corruption in the contexts of waste and fraud. Corruption itself is waste and fraud (Frič et al., 1999). Waste is not necessarily associated with corruption, but it may be a signal that corruption and fraud are occurring. We will focus on this overlooked relationship in our work. Its primary objective is designed to develop the concept of corruption risk analysis and fraudulent practices, to formulate the theoretical and methodological basis for the creation of an effective anti-corruption strategy, and to detect fraud in the management of public expenditures. This objective is present in the logic of the research, and the content and structure of the publication. We endeavor to show that corruption is a complex social phenomenon, which can be examined from the perspective of various disciplines. The purpose is to show the need for an interdisciplinary analysis of corruption. The focus of the investigation and a major contribution of the book is an analysis of the factors affecting the detectability of corruption risk and the fraudulent use of public resources. Based on the analysis of FMEA (Fault Mode and Effect Analysis – see Carbone and Donald, 2004; Chen, 2007; Chrysler Corporation, 1995; Franke, 1993; Fritzsche, 2011, Lipol and Haq, 2011, Liu et al., 2012) we introduce our own approach to working with corruption risk in public administration. We develop a modified FMEA and design algorithms to uncover corruption and fraud risk in public administration regarding the handling of public resources.

# 1. Theoretical Framework

## 1.1 Public expenditures and potential threats to corruption

The theme of this publication is the issue of corruption and the fraud of resources in the public sector (with an emphasis on government). Public spending is becoming an object of corruption and waste (Kopits-Craig, 1998). Society utilizes a significant amount of public expenditures. According to Eurostat data (2015) total government expenditures in the EU-28 amounted to 49.1% of GDP in 2013. In the Czech Republic, these expenses amounted to 42.3% of GDP in 2013. By comparison, in the Slovak Republic, these expenses were 38.7% of GDP, in Poland 41.9% of GDP, Germany 44.7% of GDP, and in Austria 51.3% of GDP. Additionally, a large amount of public resources were allocated through public expenditures at the level of local governments. Total spending at the local government level (according to EUROSTAT methodology, this includes spending by “local authorities, governments” – i.e., municipalities, regions, and their organizations) in the EU-28 amounted to 11.6% of GDP in 2013 and in the Czech Republic 10.2% of GDP for the same year. By comparison, in the Slovak Republic, the expenses for local governments amounted to 6.3% of GDP, in Poland 13.1% of GDP, in Germany 7.8% of GDP, and in Austria, 8.0% of GDP<sup>1</sup>.

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1 These differences are caused by the system of fiscal federalism, which is characteristic for the individual states. The theory of “fiscal federalism”, exploring the relationships between different levels of budgets, trying to find the optimum degree of fiscal autonomy of individual levels of public budgets, in order to achieve the highest allocation efficiency. Another purpose of the theory of fiscal federalism is to improve the democratic process of decision making on finances in the budgetary system, increase transparency and public and civil control. The theory recognizes centralized, decentralized and mixed models of fiscal federalism. In practice, the most frequently applied is the mixed model. According to an analysis of corruption, corruption is more prone with the centralized model, where local governments are dependent

A significant volume of public spending creates a great temptation for corrupt actors to misuse public funds (Grochová and Otáhal, 2011; Rijckeghem and Weder, 2001). Corruption is perceived as a negative social phenomenon that causes the moral devastation of society and financial losses that can be quantified monetarily as sources that were “diverted” towards the bounty of corrupt actors<sup>2</sup>. Economically speaking, this loss represents a waste of public resources. A waste of public resources by means of such usage of public resources, leads to their wasteful, ineffective, and inefficient use. In the case of corruption, this conduct has the character of a conscious illegal redistribution of public resources towards corrupt actors. The size of this loss can be expressed as the “corrupt differential”.

We understand the corruption differential to be the part of the public resources that are “wasted” because of deliberately wasteful, inefficient, and socially ineffective management. From an economic point of view, the corruption differential represents the social loss. Therefore:

$$KD = VZ - POZ$$

*KD* corruption “differential”

*VZ* actual expended public resources including corruption increases

*POZ* potentially optimal expended resources

The indicator „potentially optimal expended resources” represents a level of resources that is the best possible option with respect to the objectives and the conditions. This means that the allocation of resources meets the criteria of economy, efficiency and effectiveness (3E); the lowest possible cost within the specified targets, while at the appointed time reached the expected quality and quantity of the procured goods and services. POZ above represents a volume of resources for the given circumstances and set goals is not possible to achieve any savings in resource allocation (Bailey, 1995). It’s a case where all the actors meet the “allocation optimization conditions”. They are honest (from a moral standpoint), and are professionally and managerially competent (from

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on subsidies from the center. Conversely, a decentralized model should be more democratic and transparent. It should also achieve greater allocative efficiency (Oates, 1998). Centralization, however, speaks to the opportunities to achieve economies of scale (Matějová, Plaček, Křápek, Půček, Ochrana, 2014). The total volume of public spending, however, depends on the extent of the public services and goods, which the state ensures.

2 To illustrate the size of definite social losses due to corruption, it is possible to use information from the indictment against the former governor of Central Bohemia D. Rath (July 2015), when in court, the total volume of corruption for a rigged procurement was 10% of the value of public procurement which was diverted to the corrupt actors.

a skill standpoint). If any of these conditions are not met, there will be a waste of resources (Ochrana and Půček, 2012).

Corruption present itself as a case of wasting public funds. It is also accompanied by an uneconomical, ineffective, and inefficient handling of resources, but this waste does have its peculiarities, however. This lack of economy, ineffectiveness and inefficiency is deliberate and is accompanied by illicit (illegal) behavior and morally-bankrupt conduct. From an institutional standpoint, it takes the form of individual corruption (Nye, 1967) or systemic corruption (Vanucci, 2009).

The expected result of corrupt conduct is a “planned loss”. Its level is expressed by the corruption differential. The corruption differential is given by the difference between the amount of real (“waste”) expended resources and the amount of resources, where the given allocation of resources corresponds to the optimal allocation. It is generally accepted that the amount of resources actually expended is “planned” by the corrupt actors. They consciously incorporate their expected gains from the corrupt practice into their decision-making practices, and it is from this that we use the term “corruption differential” in the given equation. Detecting corruption and having an effective strategy for eliminating corruption risks can prevent or at least minimize the size of the corruption differential.

## 1.2 Interdisciplinary approaches for the examination of corruption

The problem of corruption is of interest to various scientific disciplines. In this part of the publication, we will try to systemize some approaches on how to investigate corruption. The purpose of this section is not an exhaustive overview of how each discipline of science investigates corruption, nor is it to develop the issue of corruption from the perspectives of all of these approaches. The aim of this part, however, is to create a basis for analyzing the risk of corruption and fraud.

An analysis of the literature shows that corruption is a complex social phenomenon (Caiden and Caiden, 1977; Frič, 2001, 2012). Regarding this, there is no doubt. However, this does beg a series of questions such as what is the cause (s) of this effect, and what factors influence their formation. A number of responses to this problem exist in contemporary literature (Caiden and Caiden, 1977; Klitgaard et al., 2000; Piga, 2011; Person et al., 2013; Mookherjee and Png, 1995; Vanucci, 2009; Volejníková, 2007). Existing views on corruption can be clearly summed up in Figure 1.

**Figure 1: Views on corruption (selected major approaches)**

No.	Approach to corruption	Nature of the approach
	Naturalistic	Corruption as a phenomenon inherent in the “nature” of man
	Historical	Corruption as a social phenomenon varying depending on historical conditions.
	Psychological	Corruption as a psychological pathology
	Ethical	Corruption as a moral failure of man
	Legal	Corruption as an illegal phenomenon (the case of violating the law)
	Sociological	Search for social causes and factors causing corruption
	Pictured as the relationship of principal and agent	Corrupt warped relationship of principal and agent
	Economical	Corruption as social costs, social loss
	Managerial	Corruption as a potential risk to society
	Procedural and objective view	Corruption as speeding up the process. Financial corruption – corruption as an area (subject), to which it relates.
	Others	

Source: based on the own desk research

**The Naturalistic approach** is anchored in the assumption that corruption resides in “human nature,” in individualism, in envy. Individualism (Hobbes, 2010) and envy (Reber and Reber, 2002), are human characteristics, which are also reflected in an immoral, reprehensible desire to gain something illegally, which belongs to someone else, even at the cost of violating morality and justice. Contemporary genetic research can comprehensively reveal the causes of pathological phenomena, among which we list corruption. If there is an “envy gene” (Dawkins, 1976), then such an approach offers a new perspective on human nature (Wilson, 1975, 1978; Wright, 1994; Williams, 1966) and on the explanations for the emergence of corruption. The question arises as to whether the “tendency towards corruption” can be encoded in the genes. Is corruption related to an envy gene? Can corruption be related to the evolution of culture, as describes Susan Blackmore (1999, 2001)? It is a question whose object of study belongs to the natural and medical sciences. Finding the answer to this question may significantly contribute to the under-

standing of corruption as a sociobiological phenomenon, leading to the discovery of factors that, under certain favorable social conditions can “give birth to corruption”.

The problem of corruption has been registered throughout the course of history (the **historical perspective** on corruption). The warnings against corruption, for example, are found in the book of Exodus: “You are not to take a bribe because a bribe blinds the clear-sighted and distorts the words of the righteous.” (Bible, Exodus, 23, 8th International Version). In ancient Egypt, bribery was met with condemnation in the Code, which was adopted during the reign of Horemheb (last Egyptian pharaoh of the 18th dynasty, about 1319 to 1292 B.C.). From the time of the Assyrian Empire, tables were discovered with the names of corrupt officials. Corruption intervened in the ancient Olympic Games (Forbes, 1952) and interfered into the state apparatus (see Plato, 1980, the fourth book). Additionally, the Middle Ages were no exception (see eg. Chelčický, 1990, Chapter 24.). Already in the early modern period, corruption was alive in the upper echelons of politics, as shown by the case of Francis Bacon, Lord Chancellor at the court of King James I. The problem of fighting corruption also made it way into the Constitution of the United States, where in Article 1. Section 9. states that “no person holding any of Profit or Trust under the United States, without the consent of the Congress, shall accept of any present, reward, office or title from any prince, king or the government of a foreign state”.

The problem of corruption was increasing in the second half of the 20th century and continues in the early 21st century. Corruption has become a transnational issue. It is possible to mention, for example, the corruption scandal involving BAE bribing Saudi officials to win a contract for the manufacture of aircraft, the bribing of officials by Siemens corporation, or corruption in relation to the choice of site for organizing the FIFA World Cup (2014). Although penalties for corruption in the 21st century have become harsher, e.g., the death sentence (China), they have failed to eradicate corruption.

The historical perspective on corruption records, in a way, the naturalistic concept of corruption. Corruption is inherent in society’s history. The historical perspective on corruption provides an answer to it, such as under which historical conditions corruption does arise, and how the abuse of social status or functions in politics, economics, public administration and other areas of social life work in order to obtain illegal personal benefits.

The historical perspective on corruption, investigates corruption in terms of “historical time” as it takes the shape of bribery, extortion, courting favor, undeserved privilege, illegal income, and theft of public property and the disintegrated society. It’s a perspective which complements the interdisciplinary analysis of corruption.

**The psychological view of corruption**, offers another of the possible individualistic explanations of the causes of corruption. Corruption is a psychologically pathological phenomenon that is associated with impaired personal integrity. It is a deviant behavior, which is characterized by a deviation from accepted social norms. The psychological concept of corruption therefore looks for the causes of corruption at the individual level. The psychological view of corruption may be associated with the deviant behavior of individuals (Frič, 2001) and pathological behavior of certain social groups (Dančák et al., 2006; Reber and Reber, 2002). Psychological view of corruption contributes to the comprehensive understanding of corruption. Nye (1967) notes, however, that any deviant behavior is not corruption, but only that behavior which leads to abuse of power by persons holding public office (Frič, 2001). Speaking from the terminology of economic theory, the public official abuses his position as a tool for the extraction of individual earnings (Bayley, 1966). Psychological view of corruption is focused on the role of individuals (personalities) and to analyze the personality of the conditions under which the personality becomes corrupted and corrupting.

Another view of corruption is provided by ethics. Corruption is a transgression of existing ethical (social) norms and standards and their replacement with anti-social ones. From the ethical point of view, we could sort between moral vices (Aristotle, 1979), which cause social disorganization (see Coleman, 1961; Merton, 1961). One of the manifestations of social disorganization is the failure of an official set of standards. Corrupt standards penetrate into the social system, fill the “white spots” (Frič, 2001) or expel an official standard. This is a case where the actor behaving corruptly accepts the norms of corrupt behavior, behaves according to them and practices a social evil.

**The ethical approach** to the examination of corruption in the case of public administration is shown by Rejtořík, Šelešovský, et al. (2003), where the causes of corruption are seen in the moral fall of the practicing officials. Ethics explains corruption as the result of a failure to comply with ethical norms. These are, in the case of public servants in the Czech Republic, contained in the Code of officials and public employees, a document that was approved by the Government on 5.9 2012. The ethical



view on corruption is a philosophical-normative view on corruption. The ethical view of corruption leads to a moral condemnation of corruption. It is a conviction based on moral norms. The moral condemnation of corruption, in contrast to the legal perspective on corruption, occurs in the consciousness.

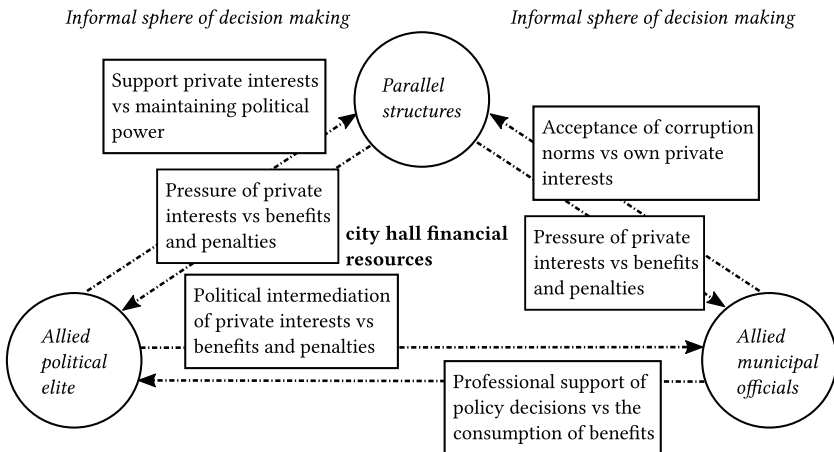
The legal view of the corruption phenomenon is evaluated through the legal lens as illegal violations of existing legal norms. When violating the legal norms in the form of corruption, there are legal sanctions (punishments). These harsh sanctions from the legal perspective differ significantly from the ethical perspective, where corruption is only condemned morally by public opinion. From a legal point of view, corruption is a negative societal phenomenon which is punished in terms of criminal law (Horník, 2012).

A comprehensive view of corruption is offered by the **sociological approach** where we look at corruption as an institution as well as the activities that correspond to the defining features of corruption. The term “corruption” then denotes two phenomena that differ in their scope (narrow or broad) and content. What we are talking about is “individual” and “systemic” corruption. The “narrow” conception of the term “corruption” is such a phenomenon that is in books described as “individual corruption.” **Individual corruption** (e.g. Heidenheimer and Johnston, eds., 2002) is explained as a phenomenon that occurs as a result of an individual abuse of power, whose objective is to profit from illegal gains. The individual acquires an undeserved (corrupt benefit) private gain (Nye, 1967) as payment for that, which as an agent of the public administration or a representative of a private firm violated the existing legal norms, in order for a corrupt party to gain favor and for the corrupted party behind this manipulation to gain benefits for himself in the form of a bribe or some other favors. As this is an individual failure of a single person, we refer to this kind of corruption with the term “individual corruption”. The literature offers various indicators, based on which we can assume that there is corruption. The most elaborate are the indicators on corruption in public procurement (e.g. EU 2013; OECD 2009b, 2013b, TI 2006). If these indicators allow you to set a “diagnosis” – by revealing individual corruption, then treatment can follow.

Corruption can also have a nature referred to as **systemic corruption**. This is regarding corruption which is more “deeply rooted” in the social structure. It therefore has a different mechanism of action than individual corruption. Individual corruption is related to the activities of “fallen” individuals. Systemic corruption is characterized by a corrupt

system which has been deliberately created. It has the nature of a functioning collective system (see Persson, Rothstein, Teorell, 2013), in which individual actors are bound by mutual systemic links (Frič, 2012; Langr, 2014) and the norms of corrupt behavior, which are binding for actors involved in corrupt behavior (see Caiden and Caiden, 1977). Informal system structures are characteristic for systemic corruption. Their actors, though not official actors in public administration, somehow streamline its operations so that corruption reaches the expected benefit. They consist of tightly interconnected relationships between political structures, public officials, and other actors associated with corruption which form a system (Piga, 2011). In the Czech Republic, the term “godfathers” is used as the designation of such structures. It is a term originally denoting the Mafia patron relationship between the driving position and the client who is held in a subordinate position. Langr (2013, 2014) examines this problem regarding the corruption cases that occurred at Liberec City Hall during the first decade of this century (see the cases of corruption in connection with construction work for the world championships in skiing as well as the construction of the arena). According to Langr (2013), this system of corruption appears as follows:

**Figure 2:** The case of systemic corruption at Liberec City Hall (after 2000)



Source: Adapted from Langr (2013:178).

From the picture, the links among the actors involved in systemic corruption are clear. The godfathers in informal structures have over-

sight of all relationships. They coordinate corruption, as well as oversee it. They give instructions to politicians and officials, divide the profits obtained from corruption and impose sanctions for any failure to comply with the rules. Politicians oversee operations from the positions of their formal role in the office. The bureaucracy administers the necessary steps agreed upon and helps to formally disguise relevant activities. The picture clearly shows that the two decision-making levels are intertwined when dealing with systemic corruption. The first level is represented by informal structures that act “top-down” as a system ties between the parallel structures and political elites, and the parallel structures and corrupt officials. The second level is a formal structure that corresponds to the official structure of public administration.

The purpose of this created parallel system is to obtain illegal profits from corrupt activities. This profit is distributed according to predetermined rules of a “corrupt game for profit.” The corrupt participants in this game proceed according to the rules of corruption and keep the informal structure of the corruption network even for the next period. This feature of systemic corruption differs substantially from that of individual corruption. In revealing these structures, we find out that it has the same politicians, officials and companies. It is a bond with a strong social structure and linkages (Lambsdorff, 2002; Vanucci, 2009), in which all corrupt actors connected to time-fixed informal networks, more specifically “cobwebs,” having the form of criminal structures (Piga, 2011). A characteristic feature of these structures is that they work undercover in exchange for reciprocal economic relations (Lambsdorff, 2002) that correspond to specific rules of how the “spoils of corruption” will be divided.

Public contracts are the subject of corrupt practices. They offer a tempting opportunity to divide the spoils by their volume of resources and also offer a “legitimate chance of repeated corruption success”. Now, a significant difference can be shown between individual corruption and systemic corruption in public procurement.

Public procurement has three basic phases (see EU, 2013): a) the preparatory phase (pre-bidding), b) the phase of the tender (bidding), c) the contracting and implementation phase (post-bidding). In the preparatory phase, the authority of public administration decides whether a given good or service will be secured through public procurement. After the decision has been made to provide a good or service by outsourcing, the parameters of the contracting authorities for the demanded goods or services must be defined. In the next phase, tenders are offered for the competition and finally a winner is declared. In the contracting phase, the

contracting and implementation of the public contract follow. There is a distinct difference between individual corruption and systemic corruption for analysing the phases of public procurement and the impact of corruption on them. Figure 3 provides the basis for a comparative analysis.

**Figure 3:** Phases of public procurement and their impact on individual and systemic corruption

	<b>Individual corruption and official phases of the public contract</b>			
	$T_1$	$T_2$	$T_3$	
	Public tender is influenced by corrupt individuals			
<b>Systemic corruption, the official phase of a public contract and “additional phase” of public procurement</b>				
$T_0$	$T_1$	$T_2$	$T_3$	$T_4$
Corrupt procurement decisions	Corrupt activities concealing corruption and „insuring” corrupt agreements			Final “settlement of debts and claims” from corrupt practices at $T_0$

Source: authors

Figure 3 graphically illustrates the difference between individual corruption and systemic corruption in public procurement. Individual corruption in public procurement is the result of individual moral failure, or several individuals who enter into the process of public procurement (e.g., public officials entrusted with the administration of public procurement and the representative of a private company that is bidding for a public contract).

Morally fallen individuals illegally influence the outcome of the tender so that the rigged contest manifests a profit. The tender can be corruptly influenced at any stage of public procurement. In stage  $T_1$  (preparatory phase) the competition can be affected by the part of the contracting authority, for example, by choosing a less transparent type of procedure for the competition (e.g., Direct purchase), while setting the conditions of the tender so as to favor a particular (corruption participant) candidate. Corruption manifests itself even in the tender phase ( $T_2$ ). The corrupt contracting authority (representative of the sponsor) may, in agreement with the corrupt participant, establish assessment criteria and their weights to favor a pre-selected candidate. When utilizing a single-criterion evaluation (the lowest price) an “agreed victory” may