



Digital technologies for accountability? Experiences by civil society in detecting corruption in public procurement in Mexico

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List of Acronyms

AI	Artificial Intelligence
ASF	Superior Audit Office of the Federation
CSOs	Civil Society Organizations
EDN	National Digital Strategy
ICTs	Information and communication technologies
IMCO	Mexican Institute for Competitiveness
INAI	National Institute of Transparency, Access to Information and Protection of Personal Data
NGO	Non-governmental organization
OECD	Organisation for Economic Co-operation and Development
PRI	Institutional Revolutionary Party
SEDESOL	Ministry of Social Development

Abstract

This research paper analyses the usage of digital technologies by Civil Society Organizations (CSOs) for the detection of corruption in public procurement in Mexico. Using the principal-agent relationship as a key analytical tool, it assesses the impact of technologies in correcting information asymmetries and reducing the transactional costs in the scrutiny of public information. Through the analysis of primary qualitative data, it elucidates how CSOs are contributing to solve collective action problems and what are their incentives to do so. This paper intends to contribute to the literature about the impact and challenges faced in the use of digital technologies in anti-corruption efforts held by civil society to encourage government accountability. It also adds some elements to understand the effect of transparency regulations, and it is suggested that the disclosure of information, despite being a crucial tool for the reduction of information asymmetries, is not enough to keep governments accountable. The discussion is based on two case studies that involve the experiences of CSOs using digital technologies for accountability initiatives. The paper concludes with policy recommendations for the country aimed at potentiating the use of public information and digital technologies.

Relevance to Development Studies

The emergence of new digital technologies has offered governments different opportunities to become more efficient, improve public services delivery, and enhance transparency. Nevertheless, there are still several debates and discussions on how citizens' use of technologies can enhance accountability and reduce corruption. This study intends to contribute to these debates by analyzing Mexican CSOs experiences in using technological tools to conduct transparency initiatives.

The relevance of exploring this topic lies in the fact that corruption can have a negative impact on social equality, economic growth, and good governance. Overall, it can undermine a country's economic growth and development. Under this assumption, several efforts have been suggested and implemented to tackle this phenomenon and curb it. One of these includes the policies and measures that suggest an active citizenry to oversee and monitor government officials' performance. Therefore, collective action has been at the core of many anti-corruption initiatives and has been part of different debates within the development studies for its potential to solve common problems. Thus, how CSOs are cooperating to certain political aims, like the reduction of corruption, is worth an analysis as it can be studied how in particular contexts, these organizations are helping solve the inherent problems of collective action.

Keywords

Digital technologies, civil society organizations, transparency, accountability, collective action, Mexico, information asymmetries.

Chapter 1

Introduction

1.1 Nature of the Problem

Corruption remains one of the most relevant problems that Mexico faces. According to the National Survey on Government Quality and Impact (INEGI 2017), 57% of the population aged 18 years and above considers that corruption is one of the most critical problems that the state entity where they reside has, just after insecurity and crime. In addition, the country scored 29 points out of 100 — where 100 implies a no corrupt country and 0 is highly corrupt — and ranked 130th out of 180 countries in the Corruption Perceptions Index 2019, which is ordered from the least corrupt (=1) to the most corrupt (=180) country (Transparency International 2019).

Corruption is mainly present in public procurement, affecting citizens for the misuse or embezzlement of public resources that can be used for the delivery of public goods or services. In Mexico, public procurement accounts for around 21% of government expenditure and comprised 5% of 2017 GDP (OECD 2019).

While authors like Huntington (1968) and Leff (1964) (as cited in Meón and Sekkat 2005:70) state that corruption “greases the wheels” of the economy as through its businesses can act against restrictive rules and inefficient institutions, others consider that it not only affects the economy and political legitimacy but hurts democracy itself (Fukuyama 2018).

In many policy circles, there is a consensus about the negative implications of corruption. This phenomenon has attracted significant attention within the international community to a great extent due to the international anti-corruption movement¹ that has emerged in the last two decades, and that relates corruption with the undermining of governance and development (Pozsgai-Alvarez 2018). As part of this movement, many countries, including Mexico, have enacted laws and regulations and have become adherents of international and regional conventions to act against corruption.

Transparency has become a vital element of these laws and conventions, as it is argued that having a government that makes all the information public that it produces and that guarantees the right of information will enable citizens to monitor its activities, which will result in an open exercise of power and the reduction of corruption. This assumption is based on the logic of principal-agent theory² in which “transparency increases the likelihood that principals will detect malfeasance on the part of agents and will exact punishment, thereby deterring the abuse of public power” (Bauhr and Grimes 2014:292).

This premise is linked to anti-corruption policies that intend to mobilize civil society, which has become an essential actor within the second generation of anti-corruption policies. A first generation of policies implied a top-down approach in which certain civil servants would supervise other bureaucrats. These “involved efforts to overhaul civil service systems [...] incentivizing officials by increasing wage dispersion and setting formal recruitment and

¹ Nuijten and Anders (2007) make an interesting argument on how “The ‘South’ and the ‘East’ have become the main targets of the global coalition against corruption [as in these regions], corruption seems to frustrate economic development and urgently needed foreign direct investment”. While there is a “Tendency to treat corruption in the more developed parts of the world as incidental not like the structural and widespread corruption in less developed parts of the world” (Nuijten and Anders 2007:3).

² See section 2.2 for a more elaborated discussion.

promotion criteria” (Fukuyama 2018:58). Many of the measures based on this approach failed as they implied that the same governments had to supervise themselves. In contrast, a more bottom-up approach suggests that civil society should be responsible for monitoring government activities.

Recent anti-corruption measures emphasize that digital technologies offer relevant tools to conduct effective monitoring of government public procurement activities by citizens and civil society. It is argued that technology can support 'downward transparency' in which “the ruled can observe the conduct, behavior, and/or results of their rulers” (Heald 2006 as cited in Davies and Fumega 2014:v). However, the usage of these tools for anti-corruption purposes is dependent on the availability and quality of information disclosed by the government as well as the civil society's capacity to use them.

During the last decades, Mexico has witnessed the emergence of many transparency-oriented civil society organizations that seek to make use of public information to constrain corruption. Some of them have found in technology a tool to oversee government activities, particularly the one concerned with public procurement; therefore, digital technologies can be an important tool that helps citizens to participate in the detection of corruption. It seems that, at least in the case of Mexico, there are civil society organizations that have started to explore the usage of those tools and that have actually revealed some corruption cases, as seen in the study cases presented in chapters 4 and 5 of this work.

1.2 Research purpose: Objective and Research Questions

The main objective of the study is to analyze how the use of digital technologies by CSOs can contribute to the detection of corruption in public procurement in Mexico. Other research objectives will focus on 1) The motivations and resources needed for the usage of technology by CSOs 2) The type of corruption (grand or petty) that can be detected by using technology tools for accountability 3) The impact of transparency policies in the increase of CSOs' participation in the public arena.

The main question to address is: *To what extent and how does the use of technology for accountability enable CSOs to oversee public procurement activities in Mexico?* And the sub-questions that will guide this research are:

1. What is the potential of technologies, when used by CSOs, to reduce information asymmetry between bureaucrats and citizens?
2. How CSOs are exerting the right of information, and how are they contributing to solve the collective action problem in Mexico's public procurement sector?
3. What are the incentives for CSOs to get involved in transparency initiatives to detect or prevent corruption in public procurement?

1.3 Justification and relevance of the research

Recent research on the use of Information and communications technologies (ICTs) in the anti-corruption sphere has provided evidence on the effectiveness of these to support a better control of corruption (Dupuy and Serrat 2014; Bertot et al. 2010; Shrivastava and Bhattacharjee 2014; Elbahnasawy, 2014). However, this research has not fully answered the questions about “under what circumstances or how” (Kossow 2020:157), as it has not analyzed the conditions for these tools to be effective, including what type of policies or institutions are needed.

To the best of my knowledge, in the case of Mexico, we do not know much yet about how ICTs are being used by civil society in the implementation of transparency initiatives in public procurement, either which have been their challenges in carrying out these. In addition, there is a lack of information on how ICTs can increase civil society participation in governance and in the enhancement of accountability.

Moreover, there is a research gap on the potential that these tools have to detect corruption in public procurement in Mexico and on the question of whether they have helped to create public institutions that are more responsive to bottom-up pressure in specific contexts characterized by systemic corruption. To analyze the possibilities ICTs have to potentiate civil society's accountability initiatives, an empirical approach is suggested by examining two case studies in Mexico.

The first case that will be studied was set up by a group of journalists, and a non-governmental organization (NGO) named "Mexicanos contra la Corrupción y la Impunidad" (Mexicans against Corruption and Impunity). For this initiative, the organizations used transparency platforms and data to disclose a corruption scheme that was used to embezzle millions of pesos from the public budget. This scheme implied that federal government ministries granted contracts to public universities, which in turn hired phantom companies to divert public funds. Transparency platforms, the tool whereby the NGO obtained information, are websites that "focus on disseminating and otherwise making public information about government operations and activities available for the general population. Common examples of these platforms are freedom of information portals and open data portals" (Kosow and Dykes 2018:20).

The second one involved the use of data mining techniques by the NGO "Mexican Institute for Competitiveness" (Instituto Mexicano para la Competitividad, IMCO) to analyze data records regarding the federal government's contracting procedures. Data mining encompasses an "iterative process of extracting hidden predictive patterns from large databases, using AI technologies as well as statistics techniques" (Mena 1999 as cited in Aluja 2001:480).

The use of this technique enabled the organization to build a Corruption Risk Index, which assessed risks of corruption in three main areas: competition, transparency, and integrity of public procurement procedures. This helped to identify suspicious practices that may result adverse to the efficiency of the public resources. In this regard, transparency initiatives like national legislative and institutional reforms have provided an important resource for CSOs to have a crucial role in enhancing transparency and tackling corruption, and technology tools seem to have the potential to strengthen these activities.

1.4 Research methodology

This research paper employs mixed methods for qualitative research by using two case studies, conducting semi-structured interviews, and a review of key documents. The data collection encompassed six semi-structured interviews with actors that collaborated in the case studies analyzed, as well as persons that have worked in open data initiatives and in the technology sector.

The case study research was used for the possibilities it has to provide in-depth insights to understand the contributions ICTs can have in transparency initiatives. Since the use of technologies for civic purposes is a recent phenomenon in Mexico, this research method provides relevant contributions as it "investigates a contemporary phenomenon in depth and within its real-world context" (Yin 2009:16). Additionally, as this paper focuses on CSOs

initiatives, case study research can also contribute to our knowledge of organizational processes and to answer the question of how organizations are helping to solve the collective action problem, considering case study research “supports deeper and more detailed investigation of the type that is normally necessary to answer how and why questions” (Rowley 2002:17).

The selected cases are representative due to the fact that they exemplify the usage of different technologies. In one case, the examination of the data required human analysis to detect corruption, while the other encompassed more autonomous processes that could independently identify certain patterns in big datasets. The results of both initiatives also differ from each other; while the journalist research revealed a big corruption scandal that involved high-level public servants, the other identified risks and helped to create a Corruption Risk Index that contributed to raise red flags in different phases of the tender processes, where many mid-level bureaucrats interact.

To obtain precise information on these cases, semi-structured interviews with the actors involved in these were crucial for the findings and to answer the research questions. To better understand the use of technology for civic purposes, additional interviews with actors not related to the cases were conducted. Some of these actors worked at the government fostering initiatives related to the disclosure of information and the use of technology, which provided some insights to understand the processes in the supply side of information.

A set of predetermined questions was prepared to conduct the semi-structured interviews; however, it was crucial offering the respondents the opportunity to talk about issues that they considered relevant. As long as the interviewees represented different sectors, particular questions were asked for each of them. These interviews were remote and were carried out using video conferencing tools like Zoom or Jitsi, depending on the preferences of the interviewees. The duration of each interview ranged from 45 to 60 minutes. The list of people interviewed, and the interview code that will be used in the following sections can be found in Table 1. All the interviewees authorized mentioning their names.

Table 1. List of interviewees

No.	Interviewees and organization	Position	Interview code	Interview code
1	Yosune Chamizo, Animal Político	Data Analyst & Data Visualization for La Estafa Maestra.	20.08.2020	KI1
2	Manuel Ureste, Animal Político	Journalist and researcher for La Estafa Maestra	11.09.2020	KI2
3	Pablo Montes Mendoza, IMCO	Anticorruption coordinator	02.09.2020	KI3
4	Paulina Bustos, Cívica Digital	Co-founder of the civil society organization “Cívica Digital”	02.09.2020	KI4
5	Rafael García Aceves, Transparency International	Former Open Contracting Director of the Digital Agency for Public Innovation (Mexico City)	17.09.2020	KI5

		and author of the document “Opening Guide. Using Open Data to Fight Corruption”.		
6	Ania Calderón, Open Data Charter	Executive Director at the Open Data Charter and former Director of the Mexican National Digital Strategy (Estrategia Digital Nacional, EDN).	13.10.2020	KI6

Finally, the obtention of secondary data encompassed the review of Government documents:

1. Transparency and Public Information Law (Cámara de Diputados 2012).
2. General Report of the Public Account 2013 (ASF 2013).
3. National Digital Strategy (Gobierno de la República 2013).
4. Guide for implementing the Open Data Policy (Gobierno de la República 2017).

Websites related to the case studies:

1. “La Estafa Maestra: graduados en desaparecer dinero público”: <https://www.animal-politico.com/estafa-maestra/>

Documents related to the case studies:

1. Corruption Risk Index: The Mexican Public Procurement System (IMCO and OPI Analytics 2018).
2. Public procurement and Big Data: the Mexican case (IMCO 2019)

Government documents were relevant to understand the context in which the case studies were embedded, while the papers and website related to the cases provided descriptive elements. The semi-structured interviews were essential to comprehend the role of technology and the CSOs incentives. The next section offers a positionality statement considering it a necessary factor for the present research.

1.5 Considerations on positionality

In terms of positionality, during the last two years, I have been working as a researcher and consultant in topics related to anti-corruption measures and transparency, particularly in Mexico and in Latin America. International cooperation agencies financed many of these projects.

While taking part in different projects, I noticed the critical role of CSOs in public policies against corruption. Additionally, although I have not been part of any CSOs, I interacted closely with them while implementing transparency-oriented measures that involved their participation. It must be mentioned that I was not involved in any way in the case studies presented in this work, either engaged in the processes to carried them out or in the organizations. During my positions as a consultant, I started questioning the effectiveness of the complex public policies created in the country to tackle corruption, and these institutions' interests to get involved in this complex topic.

Furthermore, I developed a genuine interest in the topic. In particular, the promoted use of technological tools to detect corruption as the country's strategy against it involved creating a National Digital Platform. This is an e-platform that intends to concentrate government data, including the one related to public procurement. My motivation to write about this topic is based on this interest. Additionally, as a Mexican woman, I think that corruption is one of the most relevant problems that the country currently faces, considering that it is also the cause of other problems. Finally, and as an MA student, I believe that I have gained insights to address this topic from a critical perspective.

1.6 Conclusion

In this first chapter, I have introduced background elements to understand the importance of the topic to be studied and the questions that this research intends to answer. I also established the means and methods that will be used to answer these questions and stated my positionality.

The following chapter contains the analytical framework with the concepts and variables that will be used in the analysis. To understand the context in which the case studies are embedded, chapter 3 gives the reader a description of the phenomenon of corruption in Mexico and some of the efforts that have been made to tackle it. Chapter 4 briefly presents the case studies, while in chapter 5, the findings are presented and analyzed through the analytical framework. The closing chapter includes the answers to the research questions and provides some policy recommendations to encourage the use of ICTs for civic purposes.

Chapter 2

Analytical framework. The principal-agent relationship at the core of accountability

2.1 Defining corruption

There is a broad body of literature on corruption, which has tried to address the phenomenon using different perspectives. The literature considers its different manifestations, causes, and impacts and has underlined individual, cultural, ethical, political, and economic aspects. Still, the topic remains difficult to address, as many of the actions considered corrupt remain hidden.

Corruption has been analyzed as a social phenomenon that can be observed in social practices that involve an undesirable behavior in any kind of organization or that violate a set of relevant norms, but also as a legal construct, meaning that certain practices are defined as corrupt by the law (Pasculli and Ryder 2019). As Arellano-Gault (2019: 2) argues, corruption implies different types of behavior “linked only by an extremely abstract normative idea: the abuse of a position of responsibility (collective) to obtain a personal, individual benefit, for oneself or others.”

Despite the different standpoints, corruption in the public sector is commonly defined as “the abuse of public office for private gain” (Johnston 2005 as cited in Fukuyama 2018:51), which affects the collective public interests.

When considering this phenomenon's typology, Transparency International (n.d.) categorizes it as grand corruption, petty corruption, and political corruption. The first one refers to acts committed at high government levels, and the second one involves the abuse of power by lower and mid-level public servants in their interactions with citizens. The third one is related to the manipulation of policies, institutions, and rules in the distribution of resources by decision makers who abuse their position to maintain their status or wealth.

In addition, the World Bank makes a distinction between State capture and administrative corruption where the concept of “State capture is defined as shaping the formation of the basic rules of the game (i.e. laws, rules, decrees and regulations) through illicit and non-transparent private payments to public officials” (Hellman et al. 2000:3). Administrative corruption on the other hand, refers to “private payments to public officials to distort the prescribed implementation of official rules and policies” (Hellman et al. 2000:3). This definition can be related to grand or petty corruption, depending on the status of the public servant involved. The probability of detecting corrupt behavior increases when transparency reforms are made. Thus, in the next section, I focus on how transparency can allow the detection of corruption as it reduces the information barrier that constrains principals’ monitoring of government activities.

2.2 Transparency as a means to reduce information asymmetries

Recent efforts to tackle corruption have focused on transparency and accountability measures, meaning that the information held by the government should be accessible to all

citizens so these can monitor public officials and access or exert other rights. As some authors argue, in a democratic context, government information is of particular interest to citizens and private actors (Stiglitz 2002).

When considering that information is a source of power, which within a government-citizen relationship can create power inequality that usually works in detriment of the citizens' interests, the right of information becomes an important tool to reduce abuse of power. Therefore, the availability of government performance information by citizens allows the reduction of information asymmetries, which in the agency theory "present the primary obstacle that prevents principals from monitoring and holding agents accountable [...]" (Bauhr and Grimes 2014:293).

Information asymmetry is a typical problem within an agent-principal relationship in which "one party (the principal) delegates work to another (the agent), who performs that work" (Eisenhardt 1989:58), and which becomes problematic when "a) the desires or goals of the principal and agent conflict and b) it is difficult or expensive for the principal to verify what the agent is actually doing" (Eisenhardt 1989:58).

In the corruption field and regarding the differentiation between the first and second generation of anti-corruption measures mentioned before, the principal-agent problem occurs, in the first generation of policies, when a political leader (principal) monitors the acts of public servants (agents), while within the second, it occurs when public officials are the agents and citizens act like principals. For the purposes of this research, agents will refer to public officials while principals refer to citizens.

Obtaining the information on how the agent is acting is difficult or implies transactional costs for the principal. Transactional costs can be understood as "any use of resources required to negotiate and enforce agreements, including the cost of information needed to formulate a bargaining strategy, the time spent haggling and the cost of preventing cheating by the parties to the bargain" (Cooter 1989:65).

The promotion of freedom of information and transparency measures reduces these costs by enabling the access of principals to information that can be used to monitor the performance of the agents. Thus, the possibility of accessing public information reduces transactional costs for the principals while it increases costs for the agents when trying to keep information in secrecy.

Following this approach, transparency measures that promote access to information reduce information asymmetries and transaction costs for the principals when trying to hold bureaucrats accountable and can open spaces for citizens to bring corruption cases to light and promote investigations and sanctions. However, for doing so, principals face several constraints. Reducing corruption and fostering transparency initiatives imply collective action problems, an approach that is explained in the next section.

2.3 Solving the collective action problem to tackle corruption

The collective action theory considers two major problems to explain why citizens do not cooperate for policy change or development outcomes involving the production or equal distribution of public goods: information and motivational problems.

Information problems appear when one of the actors or groups involved has more information than the other since "stakeholders who know more tend to have significant bargaining advantages over other groups and, hence have high stakes in conserving such discrepancies" (Corduneanu-Huci et al. 2012:87). To reduce the information asymmetry that can constraint collective action, access to information regulations plays a decisive role.

Following the collective action approach, the reduction of corruption benefits all citizens³, as it would help to prevent the embezzlement of public resources that can be used to provide them with public goods and services. However, citizens cannot always act together for an outcome like reducing corruption, particularly when the expected costs for doing so are high, the actors involved are diffuse and the mechanisms to do so unknown by many.

This assumption introduces the collective action problem, which implies that even if acting collectively towards a common goal is for the best interest of all members of a society, individuals will tend to free-ride if someone else pays the costs, while they still benefit (Olson 1965). However, individuals' incentives to collectively cooperate may vary depending on several factors, particularly when the production or delivery of public goods or the policy change, in this case, the reduction of corruption, requires resources, time, and dedication. Therefore, while in some cases free riding is a "matter of individual morality in others, even if individuals (or groups) are willing to participate in the production of a public good, they might not have the necessary resources to do so" (Corduneanu-Huci et al 2012:85).

Collective action against corruption can lead to a better provision and distribution of public goods, a central concept within the collective action theory that refers to goods and services that are nonrivalrous, nonexcludable and nonexhaustible⁴, or that at least have the first two characteristics (Corduneanu-Huci et al 2012). Ostrom (2005) states that there are two attributes that define the four basic types of goods: public goods, private goods, toll goods (or club goods), and common-pool resources. These attributes are exclusion, meaning the capacity to restrict the provision of the good or service, and subtractability, which "refers to the extent to which one individual's use subtracts from the availability of a good or service for consumption by others" (Ostrom 2005:23). Table 2 shows the typology of goods based on these two features.

Table 2. Types of public goods and services

Subtractability of use			
Difficulty of excluding beneficiaries		Low	High
	Low	Toll goods	Private goods
	High	Public goods	Common-pool resources

Source: Ostrom Elinor (2005:24)

Under this logic, *public goods* are enjoyed by everyone, and its consumption does not subtract from the enjoyment by others, while the *private goods*' consumption is restricted by those who pay to use them. However, not all goods fall strictly in one of these categories. When individuals that contributed to the production of a good can exclude others from using it, we refer to *toll goods* (*club goods*) while a *common-pool* resource "is a natural or man-made resource from which it is difficult to exclude or limit users" (Ostrom 2005:79). However, the

³ However, for some authors, "in some context, corruption and patron-client networks persist because they function to provide solutions to problems that some people face" (Marquette and Peiffer 2015:14)

⁴ Nonrivalrous refers to the fact that everyone has access to the good or service and this accessibility does not deplete or limits the accessibility of others while nonexcludable means that participants can access freely to the good and it is not possible to prevent them from enjoying its benefits. Finally, nonexhaustible means that even if one individual uses a good this do not deplete it and affects what it is available for others (air, landscape, for example) (Corduneanu-Huci et al 2012).

consumption of common-pool resources subtracts from what is available for other individuals. Therefore, if we apply these categories to this research, government transparency, freedom of information, and corruption reduction would be public goods, as everyone would benefit from this, and its consumption does not subtract from its enjoyment by others.

This means that, as a public good, corruption reduction suffers from the free-riding problem. However, as I explain in the following section, this happens to a great extent because individual participation costs for producing the mentioned public good exceed the benefits. Additionally, these categorizations will be used to show how information asymmetries prevail in the principal-agent relationship since public goods like public information can become a toll (club) good in certain contexts⁵, which hampers collective action. In this setting, entrepreneurship can help to correct these asymmetries. Additionally, as I explain in the following section, policy entrepreneurs become relevant for collective action as large groups struggle to cooperate for a policy outcome.

2.3.1 Introducing the problem of collective action in large groups

The mismatch “between individual and collective incentives [that constitutes] the central social dilemma that hampers efforts to act jointly for the common good” (Corduneanu-Huci et al. 2012:82) also appears in the fight to reduce corruption, since citizens struggle to collectively act for this purpose.

The motivational problem of citizens that do not engage or act against corruption may not find its roots in rational calculations or lack of will. As empirical research has suggested (Corduneanu-Huci et al. 2012), large groups find it difficult to effectively organize and act collectively, particularly diffuse groups like citizens.

If considering that “the gains that result from collectively advocating for a policy outcome must significantly exceed the costs of mobilization” (Corduneanu-Huci et al 2012:90), only certain groups that will obtain more benefits from organizing will do it in light of the costs involved in working towards government accountability.

For instance, translating the publicly available information into valuable knowledge to hold government accountable implies expertise, time, and financial resources. Because interpretation of information entails the mentioned costs, “organized civil society is the most likely candidate to pay the transaction costs for processing available information (...) as the socially significant information saturating them still has to be obtained and interpreted which sometimes requires a significant investment in terms of time and/or financial resources” (Katzarova 2015:1231). Therefore, CSOs can overcome collective action problems more effectively.

Civil society organizations become relevant actors against corruption. They can act as policy entrepreneurs who are described as “advocates who are willing to invest their resources —time, energy, reputation, money— to promote a position [or policy outcome] in return for anticipated future gain in the form of material, purposive, or solidary benefits” (Kingdon 1995:179) and that are looking for opportunities to set up their agenda and push their projects. In the next section, I address how CSOs can contribute to combating corruption and promoting transparent and accountable governments while acting as policy entrepreneurs.

⁵ See section 5.2 for a more elaborated discussion.

2.4 Civil society organizations and their role in controlling corruption

Within the development community, collective action has become a relevant component of the measures promoted to constrain corruption. Given the widespread failure of the first generation of anti-corruption efforts (Fukuyama 2018), a bottom-up approach aimed at mobilizing civil society becomes a fundamental element for transparency and accountability measures (Kisubi 1999; Brunetti and Weder 2003).

To act against corruption, many good-governance programs have promoted the active participation of civil society that can be understood as “a political space where voluntary associations deliberately seek to shape the rules that govern one or the other aspect of social life” (Scholte 2001:6). These associations can include non-governmental organizations, community groups, think tanks, labor unions, indigenous movements, faith-based organizations, professional associations, foundations, charitable organizations, and other not-for-profit organizations.

According to Álvarez (2004), civil society connects society with the political and economic subsystems and constitutes an autonomous sphere with the potential to critique the systemic actions, a possibility that is “manifested in the articulation of actions aimed at limiting the power of the State and the market, while at the same time constitute a field of defense and preservation of social and civil interests and rights” (Álvarez 2004:9). The plurality of actors that have different interests, projects, values, and resources, makes the sphere of civil society a plural and contradictory one; therefore Álvarez (2004) asserts that it is also a space of conflict and confrontation.

However, within the prevalent plurality in this sphere, there are various organizations that share agendas or interests. Similar policy positions can lead to coalition building in which certain groups may complement other organizations’ initiatives to reach an expected outcome. As Corduneanu-Huci et al. (2012:7) argue, “if under certain conditions, a single organization or individual can spark change, reform consolidation requires coalition building.” Thus, these alliances can be relevant for collective action since they help to encourage organizations and constitute a way in which stakeholders share resources, as they provide a sense of mutual support.

The policies and measures promoted to increase transparency may fail if CSOs do not find motivations to engage in anti-corruption efforts. This may be caused by a lack of trust towards the institutions in charge of sanctioning corruption or for the costs involved in analyzing the public information. Nevertheless, entrepreneurs still engage in anti-corruption efforts driven by different motivations, as I explain in the following section.

2.4.1 Motivations for collective action

As it has been said, the role of CSOs as policy entrepreneurs can help overcome collective action problems. In this section, a brief review of the debates on the entrepreneurs’ motivations to take initiatives to prevent or detect corruption is made. In this regard, “rational choice theory emphasizes the importance of material and nonmaterial incentives” (Hopkins 2016:332) as relevant drivers of individual action, however, some authors claim that institutional factors should be taken into consideration as potential elements that influence members within an entrepreneurial coalition (Hopkins 2016).

Clark and Wilson (1961) argue that incentives can be in the form of material, solidary or purposive. The former one is a tangible reward, like money or professional advancement, while the solidary and the purposive ones are intangible incentives. Solidary rewards derive

from the act of associating and include “socializing, congeniality, the sense of group membership and identification [...] they tend to be independent of the precise ends of the association”. These are different from the purposive incentives, which derive “from the stated ends of the association” (Clark and Wilson 1961:135). “These inducements are to be found in the suprapersonal goals of the organization: the demand for the enactment of certain laws or the adoption of certain practices (which do not benefit the members in any direct or tangible way, such as elimination of corruption or inefficiency from public service” (Clark and Wilson 1961: 135)

However, some approaches suggest that motivations may not only be a matter of agency among rational individuals but “it is also about ‘sets of social relations’ that structure how individuals behave” (Mintrom 2000 as cited in Hopkins 2016: 334). In contexts where change coming from collective action is possible and fast-paced, individuals are more motivated to engage in acting towards innovations. This means that they consider if institutions encourage them or not to collaborate for innovating; therefore, “even if entrepreneurial behavior is a rational response to incentives, it is based on careful measurement of the perceived utility of success against the probability of failure” (Schneider 1995 as cited in Hopkins 2016: 336).

Many anti-corruption policies undertaken by governments involve civil society's participation, creating a contextual environment for incentivizing them to participate in these efforts. Within the spectrum of measures taken to promote accountability, public procurement is a sector that has been at the focus of numerous reforms and within which civil society participation is also encouraged. In the following section, I will explain some insights to understand why several transparency initiatives have been promoted in this sector.

2.5 Government transparency and accountability initiatives in public procurement

As Mungiu-Pippidi (2006) argues, the international community has witnessed the emergence of an “anti-corruption industry” in recent years that has emphasized the adoption of legislation and initiatives related to government transparency. Transparency implies that “citizens can access to publicly available information about the actions of those in government and the consequences of those actions” (Khemani 2016 as cited in Jelenic 2019:7-8).

Underneath these measures and policies, there is the assumption that transparency will lead to accountability. This concept refers to the fact that “individuals, agencies, and organizations (public, private, and civil society) are held responsible for executing their powers according to a certain standard (Tisné 2010 as cited in Jelenic, 2019:9).

However, some authors argue that there is no linear correlation between these variables. Yu and Robinson (2012) argue that transparency initiatives are sometimes motivated for the increase of government’s credibility on the world stage, which does not mean that the government is more open or accountable. They can also be motivated to comply with donors, receive international aid, and meet international commitments and also to create a good climate for business and to ensure foreign investment (Jelenic, 2019). On the other hand, some authors argue that transparency initiatives can have an important impact on democratization as they promote civic participation and help enhance law enforcement (Linders 2012; Huijboom and Van den Broek 2011).

One of the sectors that have been more impacted by the transparency and accountability initiatives is public procurement, which comprises the “purchase by governments and State-owned enterprises of goods, services, and works” (OECD n.d, no page number). Some authors like Bates (2014) argue that part of the open government agenda is to develop competitive markets as, for example, “much of the data being opened is precisely the kind of data

that business intelligence analyst may find valuable when evaluating whether a firm should bid to run a public service” (Bates, 2014: 392). Plus, a transparent public procurement sector may guarantee certain levels of economic competitiveness.

Promoting and strengthening transparency measures is relevant for public procurement since this practice is very prone to corruption. This has multiple reasons: first, the processes involved in public procurement, where many decision makers interact in the different phases, is rather complex. Secondly, it involves great amounts of money, and lastly, the fact that it constitutes a “sector that lies at the dangerous intersection between powerful private and public interests” (Corduneanu-Huci et al. 2012:90).

The availability of information on public procurement may ensure economic competitiveness and help CSOs or government audit bodies prevent that public funds are wasted in corruption. Some technical solutions that include e-procurement systems and public information platforms have been part of the reforms promoted in this area. For this reason, in the following section, I will discuss how digital technologies are claimed to contribute to prevent or detect corruption in public procurement, particularly when CSOs use these tools.

2.6 Digital technologies: how are transparency platforms and data mining claimed to tackle corruption in public procurement?

The use of digital technologies is usually linked to e-government practices that have been implemented to modernize the public service as part of the reforms promoted by the New Public Management agenda⁶. However, it is claimed that digital technologies can also be used to include civil society into the public arena “widening its original use in the public sector (e-government) to a digital government paradigm: ICTs as enablers of different dimensions in state-society interaction” (González and Heeks 2017:14).

ICTs can be understood as “an umbrella term that includes any communication device or encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems as well as the various services and applications associated with them” (Charoensukmongkol 2014 as cited in Shrivastava and Bhattacharjee 2014:7) while digital technologies “refer to ICTs including the Internet, mobile technologies and devices, as well as data analytics used to improve the generation, collection, exchange, aggregation, combination, analysis, access, searchability and presentation of digital content, including for the development of services and apps” (OECD 2014:6).

According to Corduneanu-Huci et al (2012:136), one of the drivers of institutional transformation nowadays is technological change as it alters “the relative costs of advocating for a new structure of redistribution.” For instance, the use of technology within the public sector helps to optimize the function of the State and contributes to the reduction of corruption. For example, if digital services are provided, the spaces for interaction between citizens and public servants for possible corruption acts are reduced. Besides, social media and the Internet have become an important tool for social movements in different parts of the world.

Internet enables that government’s information is available for more people, and if governments open public sector data in formats that are easier to reuse, the possibility of technology for improving accountability is significant. For instance, some organizations like the

⁶ The New Public Management assumes that “public services would be more effective if organized according to the principals of market economics and that the management of such marketized public services would be more efficient the more it resembled private sector management practices” (Shore and Wright 2000 as cited in Mueller-Hirth 2012:655)

World Economic Forum affirm that “by going digital, governments generate a huge amount of new data about the machinery of bureaucracies that can be mined to generate new intelligence and insights, sometimes simply by cross-referencing databases” (Santiso 2019, no page number). The public procurement sector is one of the sectors where this technology for accountability purposes can have great potential.

Technology adoption appears to support anti-corruption efforts, as it leads to the public scrutiny of the information provided by the government. To understand how ICT impacts corruption, Adam and Fazekas (2018:2) distinguish “between the supply side of information (from governments to society) and the demand side of information (from society to governments)” and consider that the following technologies may help (or harm as for the possible misuse of the information collected by the government on its citizens, for example) accountability:

- Digital public services and e-government
- Crowdsourcing platforms
- Whistleblowing tools
- Transparency platforms and big data
- Distributed ledger technology and blockchain
- Artificial intelligence (AI).

The technologies that will be analyzed in this research are transparency platforms and data mining, considering that these two can be used to detect corruption in public procurement processes and that there have been attempts of its usage in Mexico by CSOs.

Even though technologies enable downward flows of information, from the government to citizens, other conditions need to be taken into consideration to expand its potential: technology literacy from both sides, government trust or civic literacy understood as “the knowledge and capacity of citizens to make sense of their political world” (Milner 2003:193).

In this chapter, I have discussed the concepts of corruption, transparency, accountability, public procurement, and policy entrepreneurs, which are key for the present paper. Regarding the analytical framework, the principal-agent relationship is the analytical tool that, alongside collective action, is used to analyze the findings. The principal-agent relationship is critical to explain the impact that technology can have in reducing the informational gap that constrains principals to oversee agents’ activities. Additionally, considering that reducing corruption and holding governments accountable imply collective action, I use this approach to identify the elements that hamper it and explore the extent to which the CSOs involved in the case studies contributed to overcome the inherent problems of collective action. To understand the context underlying these case studies, in the next chapter, I will address the most common risks of corruption in Mexico’s public procurement and the anti-corruption reforms that have been enacted in the last years.

Chapter 3

Overview of the anti-corruption framework in Mexico

3.1 Corruption in public procurement in Mexico

In Mexico, structural corruption is usually associated with the authoritarian regime that prevailed for almost 70 years as one hegemonic party, the Institutional Revolutionary Party (Partido Revolucionario Institucional, PRI), monopolized all levels of government and created a “powerful state operat[ing] virtually free of political constraints” (Morris and Blake 2009:169) and which used the state’s resources to ensure its permanence. Some authors also consider that corruption finds its roots in the Spanish colony since the country inherited practices implemented in the colonial times like officials that obtained part of their payment from the local community and charged for services (Lomnitz 1995).

Public procurement is not exempt from the structural corruption that prevails in the country, especially considering that the sector implies the interaction between politics and the private sector. For instance, 44% of the companies that participated in the survey *Fraud and Corruption in Mexico 2008* (KPMG 2008:23) declared having made “extraofficial” payments to public servants and revealed that, on average, they use 5% of their annual income to pay bribes.

Risks of corruption in Mexico’s public procurement system can be found in every phase of the process, from the tender’s design to the supervision of the delivered service or constructed good. This happens to a grand extent as in each of the stages, different public servants, not necessarily of a high level, interact or are in charge of the decision making. For example, some of them can disclose the bid call to certain competitors before it is public to everyone or omit to reveal the evaluation criteria that the process will follow to choose the most suitable contractor.

In addition, due to the authoritarian and centralist political culture that prevails in the country, influence peddling and conflict of interests are also common corruption manifestations in the sector, particularly among high-level politicians. For some authors, the most vulnerable point of the procurement process is in one of the last stages and has to do with the awarding of the bid as procurement corruption “involves public servants with discretionary power to assign contracts or politicians pressure public officers to award them to a particular person or company” Larsson (2019:4).

In Mexico, the practice that is most prone to corruption is the direct contract award mechanism. On average, between 2010 and 2018, 72% of the public procurement procedures carried out by the federal government used this procedure, and only 14.5% of the purchases involved a public tender (Mexicanos Contra la Corrupción y la Impunidad 2019).

Arellano Gault (2018) suggests that the political and administrative system in the country is based on a stable agreement of corruption where different actors collaborate to support it. This author argues that corruption is systemic to the point in which some actors become proactive agents that organize and preserve the stability of the corruption machinery. In order to transform this social relation, which affects many areas of public life, some reforms like the Transparency and Public Information Law have been introduced, which will be addressed next.

3.2 Towards the construction of an accountable State: the right of information in Mexico

The presidential elections held in 2000 marked a peaceful transition of power and a new ruling party, after 70 years of one political party ruling the country. In this context, new mechanisms of accountability were introduced, being one of the most important the Transparency and Public Information Law, which represented the first attempt to change the opacity that prevailed within the Mexican government.

The efforts to guarantee the right of information found their roots in 1977 when it was included within the Constitution that the State will grant freedom of information. However, operational mechanisms to make it effective were never set until 2002 when the presidential power transition opened a policy window⁷ for a strong coalition of civil society organizations that insisted on including this topic into the government's agenda.

This coalition of policy entrepreneurs included more than 100 members coming from media, academia, human rights organizations and NGOs. Their work turned into an unique process if considering that "Mexican law does not recognize a citizen's right to present bills directly to the legislature, so when the group's work on the draft was complete, the first step was to convince the Congress to include it on the legislative agenda" (Luna 2003 as cited in Benavides 2015:467). In addition, they also pushed for this legal framework to include not only the federal executive branch's central agencies but other government bodies: the legislative and judicial branches, autonomous bodies (Central Bank, National Electoral Institute, for example) and public universities.

Among its precepts, the Transparency and Public Information Law established:

- a. As its main objectives to enable "all persons to have access to information through simple and expeditious procedures" and "to make public administration transparent" (Cámara de Diputados 2012).
- b. Citizens could request any type of information held by the government, excluding sensitive or classified data.
- c. Mechanisms for personal data protection.
- d. The creation of a decentralized body with operational and budgetary autonomy to guarantee the accomplishment of the right of information: Instituto Federal de Acceso a la Información Pública (now known as National Institute of Transparency, Access to Information and Protection of Personal Data, INAI), which among its obligations had the promotion of the right of information, protection of personal data, and the ruling on whether it's justified or not the denial to provide information by any government institution.
- e. Local governments had to enact transparency laws and create one decentralized institute in charge of guaranteeing freedom of information right.

The new government also made reforms to incorporate ICTs within the public sector and established mechanisms to use these in exerting the right of public information. This will be addressed in the following section.

⁷ A policy window refers to the moment when advocates find the proper conditions and opportunities to push an initiative or a policy change *Cfr* Kingdon 1995:179.

3.2.1 Technology in the new government's agenda: how did this impact the right to access information?

The new government in power promoted the use of technologies into its operations as an essential component for the transformation of the public sector. Some initiatives comprised the launching of “Tramitanet,” a website that enabled citizens to present procedures to the federal public administration and the initiative “eMexico”, which settled internet access points across the country, particularly in marginalized communities. The incorporation of technological tools also impacted public servants as the website “Declaranet” was launched for them to disclose their asset declaration.

Regarding the right to access public information, the transparency law (Article 9) establishes that the information should be made available through electronic communications. To guarantee access to public information by people with no technology literacy, it established that each obliged subject (government agencies) should have computers available, so citizens could obtain information directly or by printing it. Besides, government bodies were asked to provide technology assistance to the users that would require it. Finally, it stated that these entities “must prepare the automation, presentation and content of their information, as well as its integration online” (Cámara de Diputados 2012:5)

In 2008, five years after the transparency law was put into effect, more than 90% of the information requests filed were made through the electronic information system that was enabled to do so (Lujambio 2008). An electronic system was also prepared to allow citizens to file requests easily and receive responses through it. This system also allowed any citizen to view all the information requests and the government's responses. In the following sections, other digital government initiatives are presented, particularly those that have impacted the public procurement sector.

3.3 Digital government initiatives linked to transparency in public procurement in Mexico: The objectives of the “National Digital Strategy” on public procurement accountability

Since 2013 the Constitution establishes that the State will guarantee access to ICTs to all Mexican citizens (Article 6). For the accomplishment of this mandate, between 2012 and 2018, the government in power turned ICTs into a priority and, at least at a programmatic level, it established some measures that would enable the use of these technologies by citizens. These were intended to reach the Organization for Economic Co-operation and Development (OECD) countries' average of digitalization.

One of the main objectives within this agenda was to promote an open government through the strengthening of accountability with actions that would include “opening of data so any interested party can access and reuse them to facilitate citizen participation; which would result in collaborations between the government, civil society and the private sector” (Gobierno de México 2016), this agenda also included the establishment of a National Digital Strategy (EDN).

The EDN became the first federal public policy that included creating a National Data Policy and made open data⁸ formats a core strategy for its digitalization purposes. According

⁸ According to the Open Data Charter, open data is “digital data that is made available with the technical and legal characteristics necessary for it to be freely used, reused, and redistributed by anyone, anytime, anywhere” Besides these characteristics, the World Bank notes that open data is also “machine-readable” (Jelenic 2019: 3, 7).

to the EDN, this data should be: “accessible in a ubiquitous manner, available in free and machine-readable formats, with clear licenses that allow its use by any person, timely and reusable” (Gobierno de la República 2013:31). This strategy represented the first attempt to disclose public information using the open data format.⁹

In the following years, the new regulation was released regarding parameters to integrate the open data among government agencies, schemes of interoperability between systems of the federal public administration, and regulations on how the data would be available to the citizens. For the mentioned purposes and for leading these policies, a unit inside the president's office was established. (Gobierno de México 2016).

The implementation of these policies made possible that the country ranked as one of the highest “among OECD countries to implement open government data” (Aarvik, 2019:5), a term that is defined as “a philosophy — and increasingly a set of policies — that promotes transparency, accountability and value creation by making government data available to all” (OECD 2017, no page number).

However, one of the limitations of the EDN and the availability of open data that it promoted was that it only included data from federal government agencies which, at the same time, were in charge of determining what type of information they were making public. Therefore, only some datasets containing the information that the public bodies were able to generate following the established parameters were available.

For the current government that started in 2019, the open data strategy has not been a priority, so the datasets are not renewed periodically. However, with the outbreak of COVID-19 in 2020, civil society is pushing the government to release open data regarding the purchase of medical supplies. In addition, the National Anti-corruption System created in 2015, establishes the creation of a National Digital Platform, intended to gather databases with information from strategic sectors prone to corruption, including public procurement, and make this interoperable.¹⁰ In the next section, I address an e-procurement initiative that intends to be a website for information exchange between government and suppliers.

3.3.1 E-government initiatives in the public procurement sector: CompraNet, Mexico's e-Procurement System,

Regarding transparency in public procurement processes, the Mexican government launched an electronic system called CompraNet¹¹ already in 1996, through which public tenders were published. But it was not until 2009 that its usage became mandatory for all the federal public

⁹ Yu and Robinson (2012) address the “vagueness of open government” as there is a generalized confusion between the political and technological dimensions of the open government. They consider the existence of “one dimension that describes technology on how is the disclosed data structured, organized and published [...] The other dimension describes the actual or anticipated benefits of the data disclosure; the goals of disclosure run on a spectrum between service delivery and public accountability” (Yu and Robinson 2012: 182). Therefore, they separate technological from political openness.

¹⁰As I personally experienced, the National Anti-Corruption System represents a long-term effort to tackle corruption, it was created as a way to coordinate different actors that already existed at the federal and local levels, involved in the detection and sanction of corruption in the usage of public resources. This System is no further explained as it is not involved in the case studies that are examined here.

¹¹ See <https://compranet.hacienda.gob.mx/>

bodies that the platform could work as a repository of information regarding the public procurement procedures and ongoing works. Since its creation, the platform has evolved and has been modernized to include information that would enable audits.

However, according to IMCO (2019), CompraNet is still an incomplete platform since it only contains information regarding the contracting phase and not enough information on the planning and realization of the contract. Moreover, the data is not correctly structured and organized since the information of one procedure appears disseminated in different sections of the website or even relevant information for the procedures are in different government web sources. Finally, CompraNet uses different formats and documents; thus, information is not presented using open data formats to facilitate CSOs' analysis and reuse.

Despite the challenges and difficulties that might arise when accessing public procurement information through electronic means, CSOs in Mexico have been using technology to detect corruption. In the next chapter, their experience in doing so is analyzed using the two case studies introduced in chapter 1.

Chapter 4

Case studies: CSOs fighting corruption in Mexico

4.1 The role of civil society organizations in anti-corruption efforts

As suggested in Chapter 2, CSOs can play a decisive role in solving the problem of cooperation against corruption due to their capacity to embody a diffuse group like “citizens”, for their capacity to access and analyze public information and for their interests in reaching certain policy outcomes.

This is also the case for Mexico, where civil society began to be more noticeable during the late 1980s due to its participation in specific areas like electoral frauds, legal recognition of CSOs, and the consequences of the North American Free Trade Agreement in the country. However, it was until 2000 with the new political party in power, that the government actively promoted the development of CSOs, and “constituencies that were previously represented by social movements became part of a larger number of civil society organizations intended to support the 'public interests' particularly in the fields of freedom of information, human rights and the rule of law” (García 2017:113).

In Mexico, CSOs have become a vital component of democracy as they – when they act as principals – can hold the agents accountable and impose certain limits to the State action (Scholte 2001 as cited in García 2017). Like in other countries, CSOs have been involved in the promotion of government accountability and have had an important role as policy entrepreneurs for fostering anti-corruption policies. For instance, as it was argued in the previous chapter, CSOs led the efforts that enabled the implementation of the transparency law and more recently participated in the creation of the legal framework that created the National Anti-corruption System.

Many of these organizations have put their efforts and resources in overseeing government activities, as it can be seen in the case studies that are explained below, and that shows that the mobilization of their resources can contribute to solve the collective action problem involved in the fight against corruption. In the next sections, I will introduce the background of the two study cases, while in chapter 5, I will present the analysis of these.

4.2 La Estafa Maestra: explaining a diversion of public funds scheme

In 2016, journalists from one of the most important digital media in Mexico, Animal Político, read the annual reports published by the Superior Audit Office of the Federation¹² (Auditoría Superior de la Federación, ASF) about a suspicious scheme and possible misuse of public resources by universities that were hired for federal bodies to provide goods and services. If the ASF detects any irregularity within any government body, it can emit a recommendation,

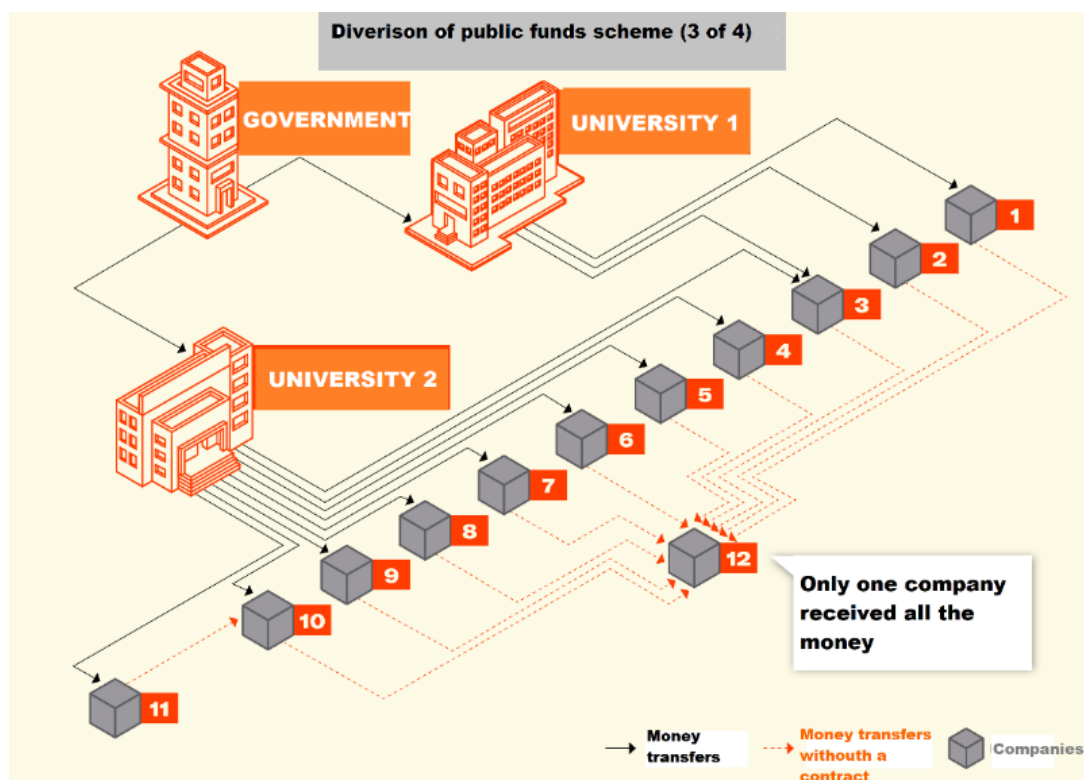
¹² The ASF is the national auditing body with technical and managerial autonomy and “in charge of supervising the use of federal public resources in the three Powers of the Union [legislative, executive and judiciary]; the autonomous constitutional bodies [Central Bank, National Electoral Institute, The National Human Rights Commission, etc]; the states and municipalities; and in general, any entity, natural or legal person, public or private, that has captured, collected, administered, managed or exercised federal public resources” (ASF n/d).

ask for clarifications, and/or promote sanctions with the judiciary system but without any binding power.

ASF reports noticed a suspicious scheme in which federal ministries would made contractual agreements with public universities from different states to provide services that they could not accomplish and for which they had to hire different companies. The federal government bodies were taking advantage of a scheme that is provided by the Federal Law of Acquisitions in which public universities are exempt of the tendering process for the assignation of contracts if they have the capacity to supply the good or service and, in case they have to hire a third party, the amount of this contract cannot exceed the 49% of the amount of the agreement with the public body (Congreso de la Unión 2014). Therefore, public universities and government bodies can make contractual agreements (*convenios*) without going through a competitive tendering process.

The journalistic research carried out by Animal Político, and the NGO Mexicanos contra la Corrupción y la Impunidad (Mexicans Against Corruption and Impunity) traced the money used in these agreements between universities and public entities and found out that 11 federal bodies assigned illegal contracts appraised 8 billion pesos, around 320 million euros, to different companies through public universities. In the extensive research, these organizations found that this scheme was used since 2010, but due to a large amount of information, it was only possible for them to focus on 73 agreements held by 11 public bodies between 2013 and 2014 with universities. The research revealed that from the public resources that were transferred to universities, these kept between 10% and 15% as a type of reward, and the rest of the resources were transferred to 186 shell or irregular companies in four different schemes (Figure 1),

Figure 1. One of the schemes of public funds diversion



Source: Adapted from <https://www.animalpolitico.com/estafa-maestra/>

Many of these shell companies were owned by common citizens who were asked to appear as holders, many of them were impoverished persons that did not know they were owners of a company and that these had been awarded big contracts; however, they recognized having signed some papers¹³. In addition, according to the ASF reports, these companies did not prove they provided the services to which they were hired. As long as there was no trace of who really owned those companies, it was not possible to determine where the money went.

In addition, Animal Político and the NGO Mexicanos contra la Corrupción y la Impunidad found out that from the 186 companies that received a contract, 128 had irregularities: they did not have an address, or the registered ones were not real, the company was shut down right after getting the contract, they were not registered at the Ministry of Economy (an indispensable requirement to operate) or their registered activity did not have any relation with the type of work they were hired to do (Animal Político, n/d).

Until here, I have introduced the facts on the diversion of public money and the mechanisms used by federal government agencies in La Estafa Maestra. In the following section, I will bring some descriptive background on how IMCO and OPI constructed the Corruption Risk Index and some insights on what this revealed.

4.3 The creation of the Risk Index in Public Procurement

In 2018, IMCO and OPI, a Mexican technology company, launched the Corruption Risk Index. By obtaining and analyzing government's information, these organizations integrated and created a database containing information of 700 thousand federal public procurement procedures that took place between 2012 and 2017.

By creating this database that contained 6 million data lines and 230 million cells, they assessed risks of corruption using 43 variables in different spheres: competition, transparency and integrity. The index analyzed the public information of 537 Buying Units (Unidades Compradoras¹⁴) of the federal bodies, which represented more than 2.3 billion pesos, 10% of the public expenditure between the years 2012 and 2017 (IMCO and OPI Analytics 2018).

For integrating the dataset to find these variables, the organizations used the information contained in CompraNet; however, as this was insufficient for the aimed objectives, they offset the omissions by making information requests to obtain the data regarding all the participants of the tender process, as only the winners were public. In addition, they used other databases located in other federal government agencies' websites that were useful to identify the risks. For instance, they used an existing list of shell companies and companies that have been sanctioned by the tax authorities so they could determine if these participated in the public procurement procedures that were analyzed.

Based in this dataset, the index provides a grade for each Buying Unit analyzed the risk was weighted according to the amount allocated to the contract. In addition, the index allowed to identify the following facts (IMCO and OPI Analytics 2018):

- The riskier Buying Units and in which federal entities they were.

¹³ This was revealed during the fieldwork the journalists carried out when visiting many of the companies' addresses.

¹⁴ These are departments of the public institutions that have been registered and authorized by the fiscal authority to carry out tenders and contracting procedures through CompraNet, the electronic system for public works tenders. One single public entity can have different Buying Units.

- Only three institutions concentrated 56% of the federal government expenditure in contracting procedures.
- From the 129,411 bidders that during this period won a contracting procedure, the 1.9% (2,512 suppliers) represented 80% of the amount allocated in public contracting procedures.

As in La Estafa Maestra, the integration and evaluation of the database to analyze risks of corruption for the creation of the aforementioned index was not free of several constraints. However, this work was to a great extent enabled by the use of technology tools, which helped CSOs to reduce the costs involved in the analysis of big amounts of information. This is explained in the following chapter, where the findings of the research are developed and analyzed.

Chapter 5

How are civil society organizations using technology to detect corruption in public procurement?

5.1 The use of transparency platforms and data mining for civic purposes

Within the two case studies analyzed, the use of technology tools was crucial for detecting corruption. By using them, organizations could access and systematize the publicly available information. This section aims to address the first sub-question, which concerns the potential of technology to reduce information asymmetries between citizens and bureaucrats when used by CSOs.

For researching La Estafa Maestra, journalists used transparency platforms from the national and local levels. According to Kossow and Dykes (2018), these tools constitute critical anti-corruption applications that “provide information on government operations that could expose corrupt behavior,” while one of their challenges is that they “need an active audience able to use data in an effective way” (2018:20). For the authors, transparency platforms “address the dual nature of corruption as a collective action and a principal-agent problem” (2018:21). The information being publicly available may have a deterrent effect on public servants to adhere to corrupt behavior, although the success still relies on an active civil society willing to request information.

However, the availability of transparency platforms does not mean that the path to exert this right is exempt from challenges. One of the interviewees revealed¹⁵ that this investigation involved 500 information requests via these platforms to obtain the contractual agreements between the public entities and universities and the contracts between universities and the shell companies.

This interviewee expressed that this part of the process became rather complex, as they needed to have several accounts for each local transparency platform and one for the national one. This highlights the problems caused by the fact that the government does not offer a single portal that integrates all the information from different government levels. As stated in another interview, sometimes public servants have to upload data in national and state platforms: “there are five different processes to capture the same information. There is no communication between those platforms, so we miss the information that put together could be more useful.”¹⁶ Creating a single platform that offers information from local and national levels is still a technical challenge for the Mexican government, but it is being addressed by the National Digital Platform that has been mentioned before.

Additionally, despite the fact that the current transparency law prescribes that digital formats should be preferred over physical ones when answering information requests, the information received by the journalists was provided using physical formats, which complicated its analysis. Statistics show that, in 2019, 97.3% of the information requests were presented through electronic means, while the answer for 70.4% of the total requests received was submitted through electronic communications (INAI 2020). This implies that some government bodies do not have the capacity or are not willing to answer through these means.

¹⁵ Personal interview with KI2

¹⁶ Personal Interview with KI3

The dispersion and the different formats in which public information is generally stored within the government and delivered to the citizens make it difficult to analyze it using technology tools. These problems were also faced by IMCO when elaborating the Risk of Corruption Index. In this case, technology was used to solve the mentioned problems on information accessibility, as the organization used a mechanism to automatize the extraction of a large amount of data, particularly from Compranet but also from other government web sources.

The information was obtained using the web scraping technique¹⁷ that consisted of extracting all the information and documents of each public tendering procedure between 2010 and 2017. Web scraping is defined as “a set of techniques used to automatically get some information from a website instead of manually copying it [...] scrapers are focused on transforming unstructured data and save them in structured databases” (Vargiu and Urru 2012:44). Therefore, organizations programmed an algorithm¹⁸ to extract the procedures’ information from Compranet (IMCO and OPI Analytics 2018) and created a dataset that, as mentioned, contained 6 million data lines and 230 million cells.

To analyze this dataset, they used data mining techniques to find patterns that could demonstrate possible corruption risks. According to Aluja (2001) data mining is “an extension of a traditional statistical practice that is Data Analysis. In addition, there is a contribution from specific techniques coming from AI, particularly the ones related to algorithms integration, automation of the process and the optimization of the cost” (Aluja 2001:492).

This method allowed the organizations to analyze this large data set to find patterns and by “statistical calculations and using Python and STATA”¹⁹ the organizations involved could analyze this amount of information efficiently and reduced the costs of examining it with more traditional methods. For instance, using data mining implies the analysis of observations to find relationships between variables or indicators that show possible corruptive actions in different public procurement stages. For example, the detection of a short submission period of the tender may raise a red flag because this reduces the possibility of other tenderers to participate and have a competitive process, which can be a sign that a specific supplier or contractor may be benefited.

Once the database was created and filled using the web scraping technique, IMCO and OPI defined certain indicator functions to determine the absence or a strong presence of a variable using a scale between 0 and 100 (IMCO and OPI Analytics 2018). These variables determined the following indicators: lack of competition, lack of transparency, and violations of the law or anomalies in the procedures.

For instance, regarding competition, IMCO and OPI analyzed features like percentage of the tender procedures with only one bidder, the number of different awarded enterprises for every 100 contracts, concentration index of the 4 enterprises with the highest sum awarded, etc.

In the transparency scope, they evaluated the percentage of tenders that did not comply with the publicity of the information, percentage of awarded procedures without the contract published or that did not have any annexed document, etc. Finally, they also considered some

¹⁸ Algorithms are a “specific procedure for solving a well-defined computational problem [its development] requires an understanding of the alternatives available for solving a computational problem, including the hardware, networking, programming language and performance constraints [...] an accompanying notion is the design of a particular data structure that enables an algorithm to run efficiently” (Encyclopedia Britannica, n.d)

¹⁹ Personal interview with KI3

anomalies in the procedures like contracts allocated to shell enterprises, the percentage of tenders which period to receive offers was less than 15 days, etc.

As these two cases revealed, even though the right of information constitutes a remarkable achievement that enables principals to overlook agents' activities, it does not entirely solve information asymmetry since they faced different difficulties when accessing public information.

In the case of La Estafa Maestra, the use of transparency platforms facilitated the information requests but integrating and systematizing the data once obtained was still a problem for the organizations involved, mainly because this was not received in electronic formats. For the Corruption Risk Index, obtaining the information available on websites was enabled by techniques used to extract the information, while another method was required for the analysis.

However, even though technology can contribute to reducing information asymmetry, its utility still relies on the availability and quality of public information. For instance, when trying to access information related to the government expenditure during the Covid-19 outbreak, one of the interviewees stated: "There was a section called 'Covid medicine expenditure' in CompraNet, but when we tried to access, there was no information available, so even if we wanted to use the web scraping technique we wouldn't be able to do it."²⁰

Regardless of this limitation, technology still has great potential to reduce informational gaps as it supports CSOs systematize and analyze public information. As I try to explain in the following section, some of these organizations have also generated technological tools that have helped them translate the information into valuable knowledge for principals.

5.1.1 Creating technology tools for detecting corruption

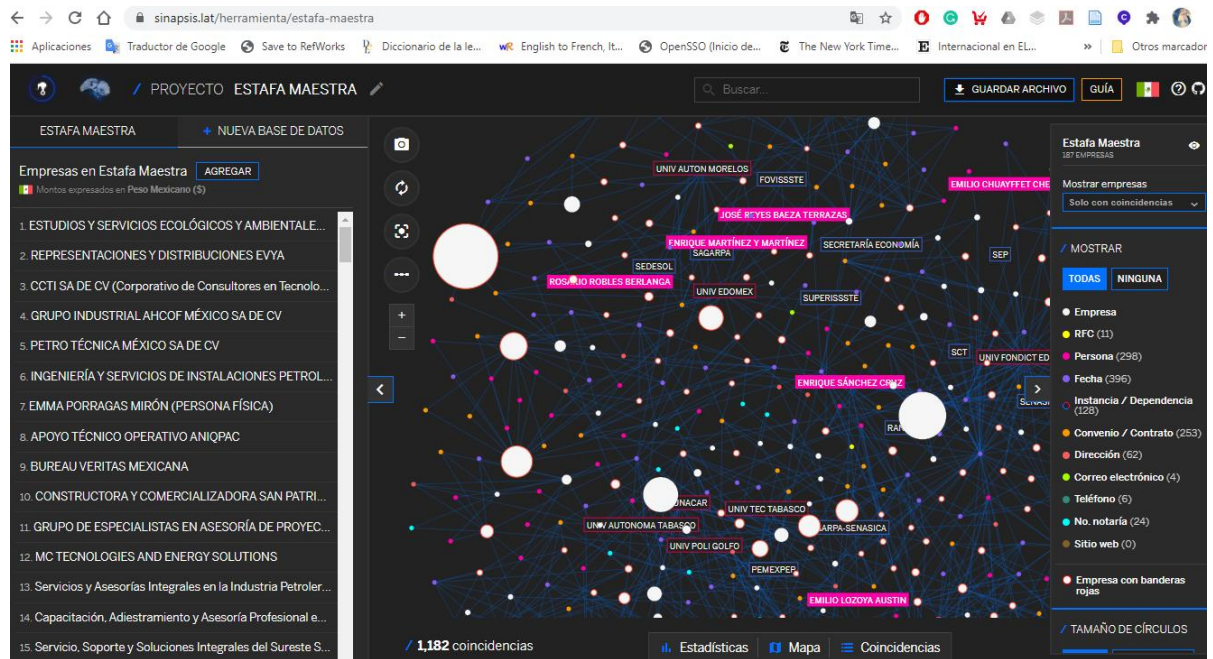
The journalistic investigation provided evidence of something that is barely addressed in the literature about technology and corruption: the technological tools that, complex or not, CSOs have developed to process public information. For La Estafa Maestra research, the information was coming from different public institutions and was delivered in different formats, so the journalists manually created and filled a database. This implied ordering, systematizing, and categorizing the information by themselves: "The complexity involved in doing this process in such a manual way took us to develop a software that would allow us to work with this database and that helped us to see the relationships between the shell companies."²¹

"Sinapsis" (Figure 2) became a tool (sinapsis.lat) that was decisive to find the connections within a database with more than 16 thousand cells and between the 186 companies. This tool helped reveal the corruption network by having a proper visualization of the data obtained.

²⁰ Personal interview with KI3

²¹ Personal interview with KI1

Figure 2. Look of the interface of “Sinapsis”



Source: Accessed at <https://sinapsis.lat/herramienta/estafa-maestra> on August 20, 2020

As an interviewee revealed, “this software was developed while the investigation was ongoing. Normally software is developed to address an existing problem and then through certain parameters you develop it, but in our case, we did it at the same time: as new needs arose regarding the information that the reporters were finding or receiving”.²²

This study case suggests that data visualization tools can become crucial for doing a rapid and valuable analysis of the data, thus reducing the costs for organizations. The effectiveness of these tools, particularly in the field of anticorruption, relies in the fact that, by systematizing the information, they can quickly reveal connections and patterns that could indicate corruption. Therefore, they can have a potential use in the reduction of information asymmetries as they help to create meaningful information for principals who become aware of how agents are performing.

This case also shows that interpreting information is necessary as the mere act of publishing information does not make the government more accountable, which highlights the importance of policy entrepreneurs that are willing to interpret it and can afford the costs implied in doing so. In the next section, I explain the different costs involved in carrying out these initiatives by CSOs and how this explains their relevance in solving the collective action problem.

5.2 Overcoming collective action problems

This section intends to answer the second sub-question on how CSOs are exerting the right of information and how they are contributing to solve the collective action problem. I try to demonstrate that principals might be less motivated in engaging in anti-corruption efforts due to the costs involved in accessing information and in carrying out transparency initia-

²² Personal interview with KI1

tives. Therefore, CSOs become relevant actors that can overcome the constraints that hamper collective action. In addition, and as suggested in chapter 2, the constraints for large groups to cooperate also increase the relevancy of policy entrepreneurs to tackle the collective action problem. At the same time, the findings provide elements that indicate that, in contexts like the Mexican, public information is a club good rather than a public good as it is intended to be.

The right to access public information allows CSOs to carry out the work that is analyzed in the case studies. The enactment of laws on this right guarantees the reduction of the costs to obtain the information by the principals while increasing the costs for the agents by keeping it in secrecy. However, the use and analysis of this information involve different costs like time, human resources and specialist knowledge.

For instance, in the case of La Estafa Maestra, getting the information, systematizing it, and doing fieldwork²³ took approximately one year, and, at the last stage of the research, the journalists were asked by the media Director to work 24/7²⁴. Despite being a small media, three journalists were allocated in the project, two from the digital media and one coming from the NGO Mexicans Against Corruption and Impunity²⁵. As the project became wider, it was needed to hire people with expertise in technology. This situation was also faced by IMCO, who hired tech specialists.

Additionally, when the information was not submitted through electronic means by the government bodies, the costs to obtain it increased. As one of the interviewees stated²⁶:

Pemex²⁷ responded that they could give us the information but not digitally as the contractual agreements were huge, so they said that if we wanted them, then we would have to pick them up or they could send it by mail post for six or seven thousand pesos. As we knew, there was a huge case here, the media paid, but if you are a researcher without the resources, what do you do? For me, it is a way to say: I give you the information, I do not deny it, but you have to come for it or pay.

According to the Mexican Constitution, all citizens have the right to access public information; thus, this information is a public good, and transparency reforms should benefit all principals. However, as the case studies suggest, there are some constraints to access and use public information. As it is suggested, if the transaction costs involved in accessing information and overseeing government activities exceed the benefits principals would get of doing so, then they won't collaborate in the production of the public good (reduction of corruption).

Considering these constraints, public information represents an example of how goods that are intended to be public can involve exclusion practices among participants, particularly in countries like Mexico where inequalities impact the way certain rights are exerted. Firstly, accessing public information implies an awareness of the existence of this right; filing information requests demand a certain level of literacy, using transparency platforms requires access to Internet, which is limited, and traveling to government offices requires time and financial resources. These implications make public information a club good since many principals remain deprived of accessing it, which hampers collective action and produces information asymmetries.

²³ Journalists visited more than 100 fiscal addresses of companies and their shareholders. Many of these addresses were private houses in which a company was never set up.

²⁴ Personal interview with KI2

²⁵ Personal interview with KI1

²⁶ Personal interview with KI2

²⁷ Pemex is the state-owned oil Mexican company.

These factors contribute to the existence of collective action problems in the fight against corruption, which also arise due to the difficulties of large groups to cooperate. These problems can be solved through the participation of entrepreneurs that, by acting to achieve their own objectives, can also draw claims for a better development outcome. In this regard, CSOs represent part of the “subgroups in society that stand to benefit from providing the good, even without cooperation from other members, as long as they have strong preferences for the good and their individual benefits exceed the costs of the production of a public good or participation in it” (Corduneanu-Huci et al. 2012:250). For this reason, CSOs have an essential role in demanding accountability since their efforts can have positive spillover effects for principals and, at the same time, they get benefits.

Another way to overcome collective action problems implies coalition-building in which two or more stakeholders that share a similar agenda claim or act jointly for a policy change, considering that they can also provide different but complementary types of resources, like expertise or particular knowledge. In the next section, I address how coalitions were relevant to overcome certain constraints like the lack of technology literacy in the case of the initiatives that are analyzed.

5.2.1 Merging civic literacy and technical knowledge: coalitions between organizations for collective action

Supporters of a development outcome can form a coalition to achieve a common objective, particularly when there are different constraints for collectively act against corruption. In this section, I attempt to provide elements to answer the second sub-question on how CSOs are contributing to solve the collective action problem in Mexico’s public procurement sector. I analyze how the creation of coalitions between organizations that are more civic literacy-oriented with organizations focusing on technological solutions can positively contribute to accountability initiatives in this sector. At the same time, this coalition permitted the analysis of large amounts of data and contributed to the reduction of information asymmetries.

For the Corruption Risk Index, IMCO joined efforts with technology organizations or partnered with other actors to achieve their objectives. These social action coalitions can be defined as “self-conscious, freely-organized, active, and lasting alliances of elites, organizations, and citizens sharing partially overlapping political goals - including but not restricted to the control of corruption – and a basic commitment to peaceful reform” (Johnston and Kpundeh 2004:2).

To develop the Corruption Risk Index in 2018 and the one that will be released in 2020, IMCO turned to technology-oriented organizations. These alliances became relevant to overcome the constraints that the organizations were facing to obtain, systematize and analyze the great amounts of public information that were available in government web sources.

For developing the upcoming Index (2020) IMCO partnered with “Cívica Digital” an organization that was founded by software developers and whose main objective is to create technology with civic purposes. For one of its co-founders, technology can have a different use rather than entertainment or commercial purposes. She states that the creation of this organization arose from the need to include technology in citizens’ daily life and particularly within its relation with the government, while trying to bring more people working with technology to solve social problems.²⁸

Transparency-oriented organizations’ technological capabilities problems appear to be a constraint that is not considered in the government commitments to promote accountability through opening data or the use of digital tools by civil. To face this challenge, organizations

²⁸ Personal interview with KI4.

in Mexico have partnered with other actors. One of the interviewees working in the technology sector stated: “many civil society organizations that I know are very good in their topics, but they don’t have enough technical capacity to process information or to see the information potential”²⁹. A member of IMCO stated: “we do have a team working on the technology area, but we don’t have enough programmers that can work full time on projects like the Index.”³⁰

Some interviewees stated that this type of collaboration enriched the project as the different knowledge involved provided different solutions and contributed to the outcome, as it was mentioned in one of the interviews:

We told Cívica Digital what we needed to find, the data and the sources we had so we asked how can we make it? We interchange a lot of ideas, we tell them how we needed to structure the data, and sometimes it happened the other way around, and they would say: We understand what you need, why don’t we use this method instead? It is a great collaborative work between the two parts.³¹

Many anti-corruption measures have endorsed the use of tools that require certain technology knowledge, like the use of transparency platforms or the disclosure of information in machine-readable formats. The merge of civic and technology literacy can represent a constraint for collective action if it is not fulfilled and, somehow, deepens the exclusion practices that make public information a club good. This constraint can be solved through associations between actors that share objectives or agendas.

However, the prevalence of these coalitions and these initiatives does not denote that corruption will effectively be reduced since, if corruption acts are detected by them, there should be effective institutional mechanisms to promote sanctions. In contexts of systemic corruption like the Mexican, CSOs may help to correct information asymmetries between agents and principals and to solve the collective action problem. Nevertheless, their actions may not have a chance of success due to, for example, a lack of political will to sanction corruption. Despite being aware of this possibility, they still engage in transparency initiatives. In the next section, I try to explore the incentives of the CSOs involved in the case studies to carry out these projects.

5.3 Incentives to engage in anti-corruption efforts

Although CSOs’ efforts to detect corruption in public procurement may not result in effective sanctions against the perpetrators, they still decide to undertake these initiatives. For this reason, I attempt to give some insights that, based on the interviews, demonstrate some factors that influence their motivations to start these projects. In addition, I hypothesize that in conducting these efforts, different factors interplay, including material, nonmaterial, personal, and organizational factors. This section addresses the third sub-question on the incentives CSOs have to implement anti-corruption measures and will follow Clark and Wilson’s (1961) major types of incentives: material, purposive and solidarity, introduced in chapter 2. It will also consider Hopkins (2016) argument on the importance of institutions in encouraging innovation³².

²⁹ Personal interview with KI4.

³⁰ Personal interview with KI3.

³¹ Personal interview with K13.

³² I am aware of the conceptual distinction between institutions and organizations, and I will use Hopkins (2016) approach on institutional incentives under the assumption that organizations are

As part of Animal Político and IMCO's agenda, corruption constitutes a main area of research. Among different topics like competitiveness, environment, security, and justice, IMCO includes anti-corruption as a strategic area of analysis. At the same time, Animal Político has corruption as a main area of journalistic research alongside drug trafficking, accountability, migration, and gender. To conduct their activities, these organizations receive financial resources from different donors and sources³³, for instance, and as Wilson (1961) suggests (as cited in Hopkins 2016: 334), "the central distinction between private- and public-sector entrepreneurs is the absence of a profit function." This implies that the possibility of CSOs to become policy entrepreneurs depends on the benefits they can obtain from engaging in anti-corruption efforts, which, to a great extent, relies on their accessibility to financial resources.

As an interviewee described, the editorial decision to work in the case of La Estafa Maestra came after an editorial meeting where the media director mentioned the ASF reports in which a diversion scheme was informed. The interviewee revealed that "He asked a colleague and me to review more of these reports, to see if this scheme was repeated in different years as we were possibly in front of a bigger network of corruption."³⁴

Finding this network had different implications for the media as it became a famous case within public opinion, which brought prestige to the organization. From one side, journalists found the institutional encouragement through their leader³⁵ to carry out the research; on the other, there was a possibility to conduct an investigation that could be potentially recognized for its results. This suggests that organizations in which employees have institutional encouragement and positive nonmaterial incentives like prestige, for example, are more likely to engage in innovation.

Whereas La Estafa Maestra won the Journalism *Award Ortega y Gasset 2018*, there are elements to suggest that solidary incentives that refer to "intangible rewards arising out of the act of associating that can be given to, or withheld from, specific individuals" and that can include recognition (Wilson 1973 as cited in Johnston and Kpundeh 2004:9), may play a significative role for CSOs to participate in anti-corruption efforts.

Likewise, one of the interviewees considered that the research contributed to the shift of the political party in power after the 2018 elections since the case summed to the series of corruption scandals that took place during the six-year presidential term between 2012 and 2018.³⁶ Due to this and alongside the fact that the former head of the Ministry of Social

a type of institutions that "bring together individuals or social groups with a common policy goal" which interact with the institutional context (Corduneanu-Huci et al 2012:116).

³³ According to Animal Político website, the media get financial resources from: Subscriptions, Ford Foundation, Mexican Business Council (Consejo Mexicano de Negocios) and Facebook. Ford Foundation's funds are being used to train journalist to carry out corruption-related investigations; while the organization holds a consultancy contract with the Mexican Business Council aimed at providing them with relevant information for their management bodies' periodical meetings; the one with Facebook is to work towards the detection of fake news (Animal Político 2019, <https://www.animalpolitico.com/blog-invitado/hacia-el-2020/>). While many projects implemented by IMCO are financed by international cooperation agencies like USAID (KI3)

³⁴ Personal interview with KI2

³⁵ Within organizations, leaders are able to "monitor their boundaries, sanction free riding and reward compliance. The internal institutional constraints on leadership matter very much for the organizational effectiveness of collective action" (Corduneanu-Huci et al 2012:114).

³⁶ Personal interview with KI2

Development (Secretaría de Desarrollo Social, SEDESOL) is currently (2020) being prosecuted for allowing the diversion of public resources and other charges³⁷, the informant mentioned that: “When you see that because of your investigation one of the politicians involved in the corruption network is facing justice, obviously, journalistically, it is a satisfaction. The problem is that there is one being prosecuted while eleven government bodies were involved”.³⁸

This highlights the relevance that purposive incentives can have within organizations, which can be understood as the satisfaction that arises from the “accomplishment of a significant goal – often the formal purpose of the organization” (Wilson 1973 as cited in Johnston and Kpundeh 2004:9), and that prevail despite the discouragement that may be found in the institutional context regarding the judiciary system in Mexico, for example.

Contributing to the organization’s goal and not to the reduction or detection of corruption *per se* can be a strong incentive in some cases. One of the members of IMCO involved in the creation of the Corruption Risk Index mentioned that, at the beginning of the project, the organization did not have in mind doing the index but only an analysis of whether CompraNet was correctly functioning or not. However, he mentioned: “once we were exploring the website, we found out that if we gathered the information contained in it and included other government databases, we could obtain valuable information to do an aggregate analysis. We detected anomalies in CompraNet but also the potential of the information, so we thought we could use it to detect irregularities in the contracts, instead of only irregularities on the website as it was planned”³⁹

The Index had a certain mediatic impact that caused some government bodies to send a letter replying to some of the organization’s imputations; however, no further actions were taken (no process improvements, for example)⁴⁰. Despite the low impact the index had, IMCO keeps releasing it periodically since, as it was revealed during an interview, they will publish it again in 2020. Parallel to the material incentives that this research had, the fact that people working in the project had motivations that seemed goal-oriented (purposive incentives) also stands out.

As it has been suggested in this section, CSOs have greater incentives to mobilize against corruption than principals. The existence of these incentives constitutes a relevant motivation for organizations to engage in anti-corruption efforts. In the final chapter, I present the conclusions to summarize the analysis and answer the main research question about how the use of ICTs enable civil society to oversee public procurement activities in Mexico as well as the sub-questions. Finally, some policy recommendations are included.

³⁷ According with the interviewee (KI2), the main charges for which she is being prosecuted are minor charges associated with the misuse of public resources.

³⁸ Personal interview with KI2

³⁹ Personal interview with KI3

⁴⁰ Considering that IMCO’s Index did not revealed any particular corruption case but only helped to determine the existence of red flags and risky practices that prevail in public procurement processes.

Chapter 6

Conclusions and Recommendations

The case studies that have been analyzed provide evidence on how digital technologies are positively supporting civil society organizations' anti-corruption efforts aimed at overseeing public procurement activities. However, organizations still face several challenges in making effective use of these technologies. These challenges comprise internal constraints like the lack of technological capabilities (not enough persons working in this area or not specialized knowledge within the organizations) and external constraints like the barriers to access public information in standardized formats and properly organized.

Despite these restraints, technology proved to be a tool that is contributing to solve the informational problem in the principal-agent relationship as the use of transparency platforms, data visualization tools, and data mining are creating opportunities to reduce the information gaps that can result in corruption in public procurement. The potential of technology in the reduction of information asymmetry has to do, to a large extent, with the possibility of using it to manage great amounts of information that otherwise would remain meaningless to citizens.

In addition to the analysis of information, digital technologies help CSOs with the collection of information, in particular information that is not offered in a standardized, structured and uniform way by the government. Techniques like web scraping are contributing to solve this since it provided a way to facilitate the automatic collection of unstructured data of multiple sources. Nevertheless, its use still depends on the information available in governments' web sources, as one of the interviews revealed.

As the case studies prove, the mere fact of disseminating information does not translate into greater levels of accountability since the information has to be processed and used to effectively oversee public procurement activities. These efforts cannot be made by principals alone since many resources, and specific expertise is required to scrutinize the information. In addition, in large groups the 'collective action problem' comes at play. The roles of CSOs to overcome these constraints have been highlighted, as they get benefits while its actions can have positive effects for citizens.

Citizens' free-riding behavior has arguably been the result of different constraints that obstruct the capacity of principals to oversee government public procurement activities, for example, the transactional costs to access and analyze public information. I suggest that public information in Mexico has become a club good due to the barriers that impede access to it by principals. These barriers can include a lack of awareness of the right of information, lack of resources to obtain and analyze information, or the absence of technology literacy. And from the supply side of information, public bodies may not have the capacity or willingness to fulfill their obligations related to transparency.

In Mexico, CSOs are not only playing a determinant role in fostering transparency initiatives in public procurement but, by partnering with other organizations, particularly the ones related to technology, they are overcoming the challenges of accessing and analyzing public information. However, it is also needed to consolidate a stronger coalition in the country to pressure the government to be accountable. Additionally, the research revealed that the anti-corruption efforts in which CSOs engage in Mexico had been motivated by the interplay of different incentives, including material, purposive, and solidarity.

With regards to the main question, our findings suggest that the potential of the technologies, when used by civil society, are based on the opportunities they provide to:

- a. Obtain greater amounts of information that is not adequately systematized and that is dispersed in different government web sources. For instance, the web scraping technique demonstrated to be a tool that helped get the information and build a coherent database in a rapid way, thus, reducing costs for CSOs.
- b. Ease the accessibility for information exchange as it was proved that, through the usage of transparency platforms, the organizations requested information from different government bodies located in different states in the country. This fact exempts them of the costs implied in physically making an information request, which could also easily deter organizations or citizens from doing it.
- c. Systematize and analyze great amounts of information considering that by using data mining techniques and creating data visualization tools, organizations were able to find patterns and relationships contained in the public information and that could indicate possible corruption acts.

Therefore, digital technologies like web scraping, data mining and data visualization tools are contributing to the reduction of information asymmetry and reducing the costs of analyzing great amounts of data. However, the interaction of technical and civic knowledge alongside reliable information is required to use these tools effectively.

As I have mentioned, transparency laws do not necessarily lead to an accountable government. For instance, cases like La Estafa Maestra prove that despite the fact that the right of information exists, public servants still adhere to corrupt behavior. However, this behavior not only prevails despite transparency regulations, but politicians adapt and create more complex corruption networks and structures that are difficult to identify, even if information is available. In this regard, technology can contribute to detect these networks.

The enactment of administrative reforms like transparency laws are based to a great extent on the principal-agent relationship that makes certain behavioral assumptions. These suggest that agents are self-interested and opportunistic individuals that will take advantage of information asymmetries for personal gain. These regulations assume that agents will be encouraged and motivated to change this behavior if they consider that their actions are prompt to social scrutiny and that sanctions can be applied against them, meaning that there will be higher costs for remaining opaque. However, changes are not this linear, particularly in the context of systemic corruption like the Mexican. This implies that several contextual challenges should be considered when applying these normative frameworks.

Transparency laws and reforms are necessary conditions to reach a more accountable government; however, these are not sufficient to prevent agents from ceasing corrupt behavior. For instance, the existence of an external incentive like law or sanctions is not enough.

Regarding the audience that may be interested in the information related to public procurement, like CSOs, media, or business, the recommendations presented below are aimed to provide possible solutions to the difficulties organizations faced while conducting their transparency initiatives:

Open quality data. As the research revealed, the organizations struggled to access valuable data to carry out their anti-corruption work and to construct the variables that enabled them to find risks or patterns in the public procurement processes. Efforts to ensure accountability in this sector should include the availability of useful information for civil society, and, for achieving this, the Mexican government can follow existent data models and

adapt them to its capacities. For example, releasing information based on the Open Contracting Data Standard⁴¹ can provide guidance to understand which information should be disclosed to facilitate social audits. In addition, this information should be contained in one single web source like CompraNet.

Understand users' needs. To encourage the use of public information, government bodies should consider the information preferences of the potential users and the tools they rely on to analyze and systematize it, which implies offering the data in proper formats. For instance, in the public procurement area, publicizing the information in machine-readable formats is preferred. It is important to establish stronger mechanisms to ensure that public bodies are identifying their audiences and their informational needs, which will lead to a more proactive transparency. One of the functions of the INAI, as an independent institution, is ensuring that government bodies are detecting information that is relevant for a specific group of the population and making it available for them, considering their needs and the tools they have to analyze it.

Enable mechanisms to receive citizen feedback. For transparency initiatives to have a real echo and impact in the reduction of corruption, external audit bodies like the Superior Audit Office of the Federation should provide channels of communications for citizens to provide feedback of any tender that has a red flag related to risks of corruption. Responses to this feedback should be provided and published on platforms so every citizen can access it.

Finally, this research contributes to the studies related to the use of digital technologies in transparency initiatives and to the emerging literature on civic technology (Dantec and Corbett 2019; Adam and Fazekas 2018; Shrivastava and Bhattacharjee 2018; Mackey and Cuomo 2020). By analyzing how ICTs are supporting civil society in their anti-corruption efforts, the research shows how these tools reduce transactional costs related to the interpretation of big amounts of information and how they can help reduce information asymmetries between principals and agents. The research has also intended to find the limits of the usage of these tools, which seem to be related to the provision of suitable data and technical knowledge. In addition, it has also contributed to the analysis of the type of corruption that ICTs can address. Finally, technologies can help detect either petty corruption, considering the Corruption Risk Index, or grand corruption, as la Estafa Maestra proved.

Further areas of analysis should consider exploring how CSOs are overcoming the challenges they face to access information when the available information is either not relevant or accessible. Yet, CSOs decide to implement projects to oversee government activities and create tools to analyze public information and find suspicious patterns. Future research could also consider which types of ICTs can have an impact on changing civil servants' behavior.

⁴¹ "Open Contracting Data Standard (OCDS) is an open data standard for the publication of structured information on all stages of a contracting process: from planning to implementation. It has been designed to facilitate publication and analysis of data and documents related to all stages of a contracting process" Source: <https://standard.open-contracting.org/latest/en/>

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