AUTORITÀ NAZIONALE ANTICORRUZIONE

NETWORK OF CORRUPTION PREVENTION AUTHORITIES

Using innovative tools and technologies to prevent and detect corruption

Compendium of good practices and practical examples in the use of ICT

Italian National Anti-Corruption Authority - ANAC
Network of Corruption Prevention Authorities - NCPA

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Foreword

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The Italian National Anti-Corruption Authority was one of the original founders of the Network of Corruption Prevention Authorities (NCPA). Over the last few months, despite the difficulties, uncertainties and new challenges posed by the pandemic, the network has grown both in terms of the number of members and affiliates and in terms of cooperation activities.

In line with the NCPA objectives and with the inspiring principles of the United Nations Convention against Corruption (UNCAC), our members have continued to promote initiatives to encourage the systematic collection, management and exchange of information, experiences and good practices on the prevention of corruption, and to face the new challenges ahead of us.

This study, carried out by ANAC with contributions from the NCPA members, brings together practical examples and best practices in the use of Information and Communication Technologies (ICT) for the prevention of corruption, for the implementation of Resolution 6/7 of the UNCAC CoSP promoting the use of information and communications technologies.

The examples included in this compendium demonstrate how the use of ICT tools has been a turning point in many countries, offering unprecedented opportunities to prevent corruption through guaranteeing integrity and fostering transparency. The contributions shed new light on how the challenge of innovation is being approached by anticorruption agencies around the world.

The publication of this study represents an important opportunity to promote further public debate on the use of innovative tools and technologies to prevent and detect corruption, and to encourage the spread of good practices and lessons learned in the international arena.

I would, therefore, like to thank all NCPA members for endorsing the study and for the valuable contributions we received.

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Introduction and overview

Over the last few years, digitalization and technological transformation have improved the efficiency and effectiveness of both the public administration and the private sector.

Digital technologies also represent a powerful ally in the promotion of transparency, integrity and accountability and to foster civic engagement in the prevention of corruption, thanks to the opportunities they offer to enhance the accessibility of information, to facilitate the participation of citizens and to connect people.

The availability of huge quantities of data and the low cost to analyze them has promoted the development of data and evidence based governance, as has been evident during the recent pandemic period.

This report, coordinated by ANAC, presents a collection of best practices and practical examples in the use of Information and Communication Technologies (ICT) for the prevention of corruption provided by the members of the Network of Corruption Prevention Authorities (NCPA).

The policies and practices reported by NCPA's members - presenting a constellation of possibilities for the application of ICT to foster integrity, transparency and civic engagement for the prevention of corruption - are preceded by a chapter in which is presented in a synthetic way a compendium of the good and emerging practices, articulated on the basis of homogeneous themes.

France presents the recent experience of a Massive Open Online Course (MOOC) on preventing corruption in the local public sector, presenting how new technologies can represent a powerful alley for capacity building. In addition, France contributes a short description of the **EU Datacros Project,** a tool aimed at detecting anomalies in firms' ownership structure that can flag high risks of collusion, corruption, and money laundering. The project is funded by the European Union Internal Security Fund and it is being developed by an international consortium coordinated by Transcrime, a research center of the Università Cattolica del Sacro Cuore of Milan, in partnership with the French Anti-Corruption Agency (AFA), the Cuerpo Nacional de la Policia of Spain (CNP) and the Investigative Reporting Project of Italy (IRPI).

Georgia presents a tool to verify the completeness and the accuracy of the public officials' assets declarations retrieved from the electronic databases administered by public authorities. The new asset declaration online system has completely replaced paper-based declarations and simplified the accessibility of the content of declarations for public, encouraging citizens and interested groups to closely monitor the income and expenditures of public officials.

Greece presents an integrated anti-corruption strategy that employs technological solutions in order to enhance the operational capacity and pursue the strategic goals of the organisation. To this direction, Greek NTA has developed and incorporated modern e-tools to enhance key organisational functions and promote efficiency in operational fields such as asset declarations, auditing and complaints management.

Italy presents the ongoing activities to design and evaluate quantitative corruption indicators at territorial level, using the data coming from the National Database of Public Procurement (BDNCP) and from several

other Italian data sources. A specific deepening is dedicated to the new features of the BDNCP in terms of digitalization of public procurement data flow and of the release of data in open format.

Jordania presents innovative ways to improve its intelligent data gathering and investigation process by bringing together and enabling exploration of various databases and event information around activity and connections between people, events, organizations and vehicles to predict what might happen. The results can help to take the necessary measurements to initiate investigations and try to prevent any corruption acts that might harm the community stability from happening, enforce the law and enhance the integrity and transparency standards.

Moldova presents a platform to draft normative acts, with the possibility to view statistical data on the results of the expertise or endorsement activity and the follow-up of the subsequent procedures of promotion and adoption of normative acts by the Government, Parliament or other competent entity. In addition, Moldova present a platform to facilitate the monitoring and reporting process of the National Integrity and Anti-corruption Strategy and an e-Learning platform focused on the legislative framework on the implementation of policies for strengthening the climate of institutional integrity in the public and private sector. The general objective of the platform is to consolidate the culture of integrity in the public and private environment through the prism of information technologies.

Montenegro highlights the importance of ICT platforms in conducting corruption risk assessment, presenting the development of the web application for entering, recording, reporting and monitoring the implementation of integrity plans, as well as for assessing the efficiency and effectiveness of integrity plans, officially launched in August 2018.

Morocco presents a collaboration platform that allows a continuous interaction and exchange with several groups of stakeholders in order to implement the mission of the National Authority for Probity, Prevention and Fight against Corruption in supervision, monitoring and evaluation of public policies, strategies and practices in the field of integrity and anti-corruption. The platform will be based on traditional IT solutions which will be used in an innovative manner to bring high value-added in the fields of prevention and fight against corruption.

Palestinian Anti-Corruption Commission describes the experience of adoption of mobile access to its platform as a more streamlined and accessible method for citizens and other stakeholders.

Quebec contributed an exhaustive report on open data on public procurement and the designing of corruption and collusion indicators, as well as the use and application of qualitative and quantitative statistics to assess the impact of anti-corruption policies.

Slovakia presents an IT tool - electronic application for corruption risk management to identify and classify factors with an impact on the origin and existence of corruption risks in individual institutions of State administration.

The last chapters, contributed by **Trans-national GRECO secretariat**, presents a state-of-the art tool aimed at upgrading regulatory compliance information sharing with the block-chain distributed-ledger technology.

The wide range of applications and experiences presented in the compendium should offer a broad view of the current state of the art for the application of ICT to prevent corruption and foster integrity; however, the rapid pace of the digitalization process has an impact on the ageing of the platforms presented here. For this

reason, this exercise should be considered a starting point of knowledge and experiences sharing in the field and should encourage NCPA's members and partners and other interested stakeholders to keep on collaborating and to promote further initiatives to derive maximum benefit from ICT tools.

"Smart anticorruption" and "anticorruption 2.0". Compendium of emerging innovative ICT practices in the Network of Corruption Prevention Authorities

A series of considerations and ideas offered by participant to the study could be summarized in expressions such as "smart anticorruption ", or "anticorruption 2.0". In fact, some countries, having resolved over time the emergency to implement the basic tools for preventing and combating corruption, and having in the meantime gained a solid experience of the main practices also through profitable relationships with the relevant stakeholders, push themselves to think about anti-corruption of the future, taking full advantage of Information and communication technology (ICT) tools. It is interesting to note that the UNCAC, the main tool that in the last twenty years has worked for the convergence of the regulatory systems and practices of countries in the field of anti-corruption, does not directly mention the topic of technological tools and standards.

The topic of technologies is mentioned in general terms in the UNCAC only to encourage ways of interactions with witnesses that protect and safeguard security (Article 32. Protection of witnesses, experts and victims, par. 2, (b) "*permitting testimony to be given through the use of communications technology such as video or other adequate means*"), and where reference is made to cooperation between countries (Article 48. Law enforcement cooperation, par. 3, "*States Parties shall endeavour to cooperate within their means to respond to offences covered by this Convention committed through the use of modern technology*"). Numerous provisions - such as those included, inter alia, in the Article 7, par. 4, related to systems to promote transparency, in the Article 9 about public procurement and management of public finances, and in the Article 13 concerning the participation of society - to guarantee the principles of the Convention deal with the issue of the use of appropriate means and methodologies, making reference indirectly to the use of ICT.

After all, the UNCAC is a legal instrument that by its very nature is focused on other aspects, and it is also necessary to take into consideration that twenty years ago the development of ICT technologies had not yet manifested its disruptive consequences, capable to "change the rules of the game" in all fields of socio-economic life as well as in the field of institutions and ways of working.

Resolution 6/7, adopted in 2015 during the sixth session of the Conference of the States Parties to the United Nations Convention against Corruption, has bridged this gap allowing to read some of the articles of the UNCAC also in the light of technological progress. The Resolution, *"recognizing the significant worldwide growth of information and communications technologies in the course of the past decade"*, and *"bearing in mind the important role of e-government and the increasing use of information and communications technology tools by States parties in the conduct of public administration as a means to promote trust and confidence in Government"*, among other aspects, *"Calls upon States parties to continue developing and promoting the use of information and communications technologies […] through the use of e-government mechanisms, online platforms, smartphone applications, mobile telephone-based reporting and social media".*

Nowadays, after about 20 years from the approval of the UNCAC, in fact, the context has completely changed and ICT technologies must not only be considered as tools to translate traditional institutional processes and models into digital, but as a new component of the action of institutions, capable of generating completely new models and approaches.

Digitalization is a very broad topic and NCPA's members offered some emblematic examples of the underway process of change; emerging policies and practices based on the contributions provided can be grouped into the following specific topics:

1. online training and e-learning (e.g. France, Moldova);
2. digitalization of processes, data flows and management (e.g. Georgia, Greece, Montenegro, Moldova);
3. inter-operability of database for investigation and data gathering (e.g. Jordan, Italy, Transcrime);
4. open data, big data, statistical analysis and indicators (e.g. Italy, Quebec);
5. the future is present - blockchain and distributed-ledger technology (GRECO Secretariat);
6. collaboration and interaction with stakeholders (e. g. Morocco, Moldova, Palestine).

1. Online training and e-learning

A first, in appearance obvious but not so common, way to take advantages from ICT regards knowledge spreading about anticorruption topics. International best practices and approaches showed that the "cultural side" of anticorruption policies and practices is fundamental to address the topic, and it is at least as important as the norms, rules, procedures. The first way to "make and spread culture" in the field is training not only officials directly involved in anticorruption regulation and supervision, but also all other stakeholders potentially interested.

In **France**, nearly 50,000 local government entities, which engage around 1.8 million people, are required to implement anti-corruption compliance programs. To address the challenge of disseminating integrity standards to such a large number of elected officials and public employees scattered across the national territory, the French Anti-Corruption Agency (AFA) signed a cooperation agreement with the National Center for Local Civil Service (CNFPT) in order to release a massive open online course (MOOC) on preventing corruption. Throughout the course, participants can ask questions to experts from the AFA and the CNFPT via a dedicated forum. After finishing the MOOC, participants maintain free access to all learning materials, which they can download and reuse for raising awareness and delivering online or classroom trainings in their own organizations. With more than 25 000 participants (at the date of the present report), the online course reached diverse audiences beyond the local public sector, such as central government employees, university students, and foreign public officials. Furthermore the MOOC served as a platform to share good practices on corruption prevention with representatives from the Ivory Coast, Cameroon, Morocco, Haiti, Senegal, and the Democratic Republic of the Congo, among others.

In the same line, in the context of a wide effort to take advantage from ICT technologies, **Moldova** is developing an e-learning platform, an anti-corruption education tool for public agents from most of the professional fields. The content of the platform is focused on the legislative framework on the implementation of policies for strengthening the climate of institutional integrity in the public and private sector.

2. Digitalization of processes, data flows and management

It was unavoidable that, by addressing the issue of putting anti-corruption policies into practice in a future perspective, the general issue of digitalization would have emerged overwhelmingly.

Some countries have addressed it directly, some referring to the interoperability of databases as a means by which improving the retrieval of information for investigations, some focusing on more effective complaint and risk management procedures, others focusing on that which should be a prerequisite of anti-corruption policies and any public administration reform: digitalization. Over the years a demand for digitization emerged, both in the practices and in the culture of the anticorruption professionals and institutions and in the users themselves (citizens, stakeholders, activists, etc.). A demand often unable to become norms and regulation and to enable a top-down process, but that emerged with initiatives often spontaneous and independent, with bottom-up initiatives that anti-corruption organizations have begun to put into practice. The aspects that can be improved are all consequences of the same basic problem, namely the digitization of processes and services *as a condition sine qua non* for the coming years and the present, but on condition that it would not be a mere transposition of analogue models in digital models, but a push towards innovation that should work as a "game changer".

Digitalization with reference to anti-corruption can be declined in various ways, by way of example, as following.

- *Automation of information flows within organizations, from the acquisition of data and documents, to drafting, to reporting.*

Is this for example the case of **Greece**, where the National Transparency Authority of Greece (hereinafter NTA, or the Authority) has developed an integrated anti-corruption strategy that employs technological solutions in order to enhance the operational capacity and pursue the strategic goals of the organization. To this objective, NTA has developed and incorporated modern e-tools to enhance key organizational functions and promote efficiency in operational fields such as asset declarations, auditing and complaints management. NTA's Strategic Plan and National Anti-Corruption Action Plan (NACAP)[1] prioritize the modernization of digital infrastructure and networks along with the promotion of technological innovation, using modern e-tools and applications. Greece reports that in the following months, the introduction and operationalization of an integrated system for the electronic document management system (*hereinafter* DMS) will fully digitalize the audit function. Linked to NTA's e-platform for receiving complaints, the DMS will include a distinct audit workflow for the e-management of each individual case throughout the audit cycle, the e-monitoring of compliance to audit recommendations, and the extraction of quantitative and qualitative data and metadata, thus providing valuable input to future audit planning. Furthermore, the interoperability between the complaints' platform and the new DMS will allow each person who submits a complaint to monitor the progress of the reported case online.

With the intention of reengineering the processes making them as "digital native" as possible **Moldova** introduced the "E-expertise" software, a tool used by the employees of the Legislation and Anti-corruption Proofing Directorate for performing the corruption proofing, examining and drafting the normative acts. This software provides an interface for filling in the appropriate compartments following the anti-corruption proofing and examining, and as a result generates the Anti-corruption Proofing Report or, as the case may be, the Opinion. The generated reports, after being signed, are automatically published on the web. At the

[1] National Anti-Corruption Plan, *available at* https://aead.gr/images/manuals/esskd/2018-2021/NACAP_2018-2021.pdf.

same time, this program ensures the storage of all Anti-corruption Proofing Reports, Opinions and all related documents, such as: draft normative acts which were examined, tables with the opinion of different authorities, informative notes, etc. In this context, the "E-expertise" software provides the possibility to view statistical data on the results of the expertise or endorsement activity.

- *Digitization of processes that lead to the production of increasingly "native digital" information ready for anticorruption policies.*

This is the case for example of the establishment in **Georgia** of the public official's assets declaration monitoring system can be considered as one of the main anti-corruption mechanism of the country, launched in 2017 and administered by the Civil Service Bureau of Georgia (CSB). Launching of new asset declaration online system has completely replaced paper-based declarations and simplified the accessibility of the content of declarations for public. Copies of all submitted asset declarations are published online, encouraging citizens and interested groups to closely monitor the income and expenditures of public officials. The electronic system ensures obtaining the data necessary for verification of the completeness and the accuracy of the data on asset declared by public officials from the electronic databases administered by public authorities.

This is also the case of the integrity plan management process adopted in **Montenegro**. As of 2016, the Agency for Prevention of Corruption in Montenegro monitors the adoption and implementation of integrity plans, in line with the Law on Prevention of Corruption. All public authorities are required to submit their integrity plan to the Agency upon its adoption, as well as annual reports on its implementation. In 2018, the Agency completed the development of the web application for integrity plans, which was developed as an application software for entering, recording, reporting and monitoring the implementation of integrity plans, as well as for assessing the efficiency and effectiveness of integrity plans. The web application has two groups of users: the integrity managers and the officers of the Agency. The integrity managers can update and monitor all data related to integrity plans through an intuitive interface that is consistent with the previously defined form of integrity plan, while the officers of the Agency can monitor the adopted plans, process statistical data, as well as carry out qualitative and quantitative assessment of the implementation of risk management measures. The Agency is constantly upgrading the application, adding new and improving existing statistical reports, so the Agency is able to search and filter data from plans, reports and questionnaires by a large number of criteria. Integrity managers, as users of the application, are also enabled to generate several types of statistical reports.

Another interesting case of translation of classic anticorruption tools in a digital perspective is taking place in **Slovakia**. The corruption risk management mechanism was launched at the Government Office on 13 December 2019, when an electronic questionnaire was sent to all employees of the Government Office, as part of a pilot operation, via a unique web link. Data collection took place by 17 January 2020. Questionnaires identified and evaluated, to what extent the organization is exposed to corruption and what corruption risks could jeopardize the proper functioning of the Government Office. The questionnaire is part of the general corruption risk management that, as an objective tool, is based on evidence (facts) and is an integral part of the anti-corruption system. It enables competent authority to achieve control over corruption risks and to increase the effectiveness of corruption prevention. Each sectoral body identifies, trough corruption risk management, areas, positions, activities, processes regard to their specificities in the sectoral body that are exposed to risk. It is part of the creation of evidence for the development and implementation of effective measures to reduce and eliminate these risks in the sectoral body and its departments. Corruption risk

management, as part of the anti-corruption system, has been implemented at all ministries. Each sectoral body shall set up a system for managing corruption risks as effectively as possible and taking into account the specificities of its area of competence. In the interest of consistency, it is appropriate to base the management of corruption risks on methodological guidelines prepared by the Office of the Government of the Slovak Republic, specifically the Department of Corruption Prevention. It is envisaged to implement this model is its use in the entire State administration. This model is based on an IT platform that provides to respondents with anonymity and the ability to easily respond to the questions presented by clicking on the selected answer option. It saves much time in processing the data obtained and allows managers to quickly address the corruption risks. The tool automatically evaluates the questionnaire, including the identified corruption risks. On the basis of the evaluation, it may also indicate the measures to be taken. The IT tool - electronic application for corruption risk management allows to identify and classify factors with an impact on the origin and existence of corruption risks in individual institutions of State administration.

3. Inter-operability of database for investigation and data gathering

This is a subject strictly connected both to that of simplification (but to the simultaneous enrichment of the information available to public administrations), and to that of standardization, in the perspective of connecting the various databases for an effective use of knowledge available. As in all socioeconomic contexts, also organization in charge of anticorruption functions should improve and reengineer data sources and flows. This does not imply necessary asking stakeholders further information and data, but taking advantages of existing data sources in order to both simplify data gathering without further work overloads and to enrich the information assets for institutional purposes. It is well known that the large part of data and information to perform anticorruption functions, as for other institutional sectors, is already owned by the public sector, distributed in databases and registers in use for different purposes. The challenge is try to make the best use of this “capital”, asking stakeholders data only once, and linking then the source of information already available. Of course, the crucial aspect of the linkage of data contained in different sources and databases is the standardization, in order to allow inter-operability and the best use of available information.

In this perspective, it is for example interesting the experience of **Jordania**. Jordan Integrity & Anti-corruption Commission (JIACC) is one of two authorities in Jordan that is in charge of combating corruption besides the judicial authority. JIACC main duty is to do the necessary investigations and other legal work to fulfill its vision in combating corruption and enhancing the integrity in all government agencies, public shares companies, charity organizations, clubs, or any other entity that holds public funds. JIACC is exploring its ways to improve an intelligent data gathering and investigation process, bringing together and enabling exploration of various databases and event information around activity and connections between people, events, organizations and vehicles in order to predict what might happen and take the necessary measurements to initiate investigations and try to prevent any corruption acts. In perspective, to improve its intelligence, data gathering and investigation process, JIACC wants to implement a unified, integrated and consistent platform for accessing information in several of their own and partner backend systems, including JIACC databases, other government databases that the laws permit to collect information from, and any other databases. Access to various informational elements stored about the people, vehicles, organizations and events would allow JIACC to get better situational awareness, address any suspicious events and potential threats, to perform various investigation tasks more efficiently and events prediction.

With the aim of foster investigation and analyses data driven, the **European Union funded project Datacros** developed a tool to detect anomalies in firms' ownership structure. Datacros is a prototype aimed at detecting anomalies in firms' ownership structure that can flag high risks of collusion, corruption, and money laundering. The Datacros tool is funded by the European Union Internal Security Fund Police and developed by an international consortium, coordinated by Transcrime, a research center on transnational crime of the Università Cattolica del Sacro Cuore of Milan, in partnership with the French Anti-Corruption Agency (AFA), the Cuerpo Nacional de la Policia of Spain (CNP) and the Investigative Reporting Project of Italy (IRPI). Datacros is intended to shed light on ownership links among a set of firms (e.g. bidders in a procurement) in order to identify collusion patterns and ownership links between firms and politically exposed persons (PEP), also including low-rank and local PEPs not covered by the EU regulation's disclosure requirements. Also of interest can be complex cross-border firms' ownership structures and ownership links to off-shore and high-risk jurisdictions.

Datacros' objective is to support a wide range of authorized stakeholders in the EU and beyond, by facilitating police investigations and enhancing judicial authorities' prosecution capabilities in cases of corruption and money laundering, especially in transnational cases. Moreover, its goal is to help national and local public bodies to assess collusion risks in procurement, and allow investigative journalists, NGOs, and civil society as a whole, to check anomalous interactions between politics and business. In addition, the tool can assist national and EU authorities in mapping the role of entities from high-risk jurisdictions in public spending.

Inter-operability of database is also one of the key concept of the Italian experience in the field of corruption measurement, as it will be better described in the following paragraph and reported in the specific chapter regarding **Italy**. The general assumption of the Italian ongoing project on corruption measurement is that data owned by the Italian anticorruption authority (ANAC), linked with other socio-economic data sources managed by other public organization, could be a powerful source of knowledge to measure risk of corruption and to identify corruption red flags and early warnings.

4. Open data, big data, statistical analysis and indicators

Any debate on anti-corruption, related to those of digitalization, standardization and dissemination of data and knowledge to stakeholders, can only be strictly focused on the general theme of placing emphasis on open data and reuse of data. After all, the regulatory framework in force in the various countries regarding anti-corruption usually explicitly provides for the release of data in open format – also with reference to transparency of public data and information as a pillar of anticorruption policies and practices. In the field there are some excellences but there are still organizations for which talking about open data it is as talking about a novelty, something far to come, not yet included in the basic literacy of professionals.

International experiences on anti-corruption based on transparency such as those of the Anglo-Saxon countries (in particular the USA, United Kingdom, federal states of Australia) coincide tout-court with the release of open data, considered not only as a control tool for administrations and civil society watchdogs, but also as a source of knowledge to potentially foster business. Numerous studies show that part of the success of some start-up and companies that produced and managed apps is based precisely on the use, crossing and management of data from public sources.

The topic of open data production and release, with the one of inter-operability of data sources, is the prerequisite of policies and practices to take advantage from big data and data mining analysis, statistical analysis and production on indicators in the anticorruption field.

All these themes are the core of a project coordinated in **Italy** by the Anticorruption Authority (ANAC). ANAC has long been coordinating the project "Measuring the Risk of Corruption at Territorial Level and Promoting Transparency" – funded under the "National Operational Programme on Governance and Institutional Capacity 2014-2020" (hereinafter PON Risk Measuring Corruption or Project) – involving several national institutions and experts on the subject, and whose deadline is scheduled for the end of 2022. The main purpose of the project is to provide adequate indicators to detect corruption at the territorial level, to support prevention and integrity and to promote transparency in the action of the public administration. Within the Project, which entrusts the Authority with a central role -coherently with its institutional mission of preventing corruption- networks of inter-institutional collaboration are being created to ensure the sharing of the scientific methodologies used, of the data processed, and of the indicators developed. The Project measurement of corruption risk of is based on three pillars:

1. gathering of data contained in national databases to feed a business intelligence system capable of providing dashboards of indicators and red flags on the various aspects of corruption and maladministration;

2. construction of a set of risk indicators at territorial level and of a set of social capital and context indicators that can help in validating the risk indicators, enhance their interpretation and highlight possible correlations;

3. promotion of civic participation and dissemination of data on corruption risks, as well as on methodologies to design and validate them, to strengthen a culture of integrity.

As coordinator of the PON, ANAC is therefore working to integrate different relevant data sources, to design methodologies for calculation and validation of indicators, to involve a wide set of institutional, academic, research, NGOs and other relevant actors to work together on the production and subsequent use of data and of indicators. Such a collaborative and participative approach, it is believed, is the most appropriate when considering the objective to maximize the practical use of the data and indicators that are collectively produced, that is, ultimately, to maximize the impact of the project itself. The Project promotes a participatory path that will produce data and indicators on corruption risk, contextualizing them at the territorial level, which can be useful for the prevention and repression of corruption, but also for policy making, for scientific and sociocultural debate and, possibly, for benchmarking. Sharing such methodologies and experiences could also be useful to further promote an international debate on the subject, to start the verification of the replicability of some of the results achieved in different context.

The main source of data within ANAC is the National Database of Public Contracts (BDNCP). Part of the data and indicators managed under the PON are taken from the BDNCP. The BDNCP is a database that collects, integrates and reconciles data concerning public contracts transmitted by contracting authorities. The system is open to interoperability, both with internal systems of the Authority, and with similar systems of other administrations. The establishment of databases and the publication of data in open format on public procurement systems is certainly not a novelty at the international level, but the BDNCP stands out for the wide coverage, quantity and quality of the data. Increased openness of the data, together with the uses of these and of other data sources within the Project, will feed an articulate ecosystem, within which we can find universities and research institutions, the media – today increasingly interested in forms of journalism "driven by data" – and non-profit organizations. Such potential is enhanced by the choice of making openly available not only the data, but also the code that produces all the analysis carried out within the project – in primis, for the computation of risk indicators, red flags, early warnings of corruption.

In general terms, ANAC keeps on investing in the BDNCP and in the public use of its contents, also cooperating with institutional and non-institutional stakeholders to improve the standardized and open release of data.

Another very interesting project related to similar issues is the one presented by **Quebec**, regarding the use of open data on public procurement to prevent and detect corruption and collusion. The project is in the path of innovative approaches around open data on public procurement and the designing of corruption and collusion indicators, as well as the use and application of qualitative and quantitative statistics to assess the impact of anti-corruption policies. It is part of a larger initiative to analyze public procurement in Québec in order to improve public systems and programs, so that awareness can be raised and corruption can be prevented and detected. The Système électronique d'appel d'offres (SEAO) is the official system for government contracting opportunities from Québec public bodies and acts as the official interface between these public bodies and private businesses. Public bodies are required to use SEAO to post notices, distribute tender documents and provide contract. By integrating and analyzing the database, it is possible to have a comprehensive perspective of public procurement in Québec since 2009. In the framework of the project several indicators that were identified in order to guide decision making on prevention and intelligence operations.

5. The future is present: blockchain and distributed-ledger technology

When we talk about ICT concepts as for example e-learning, open data, database interoperability, communication platform etc. we talk about tools and models that have been known for a long time, that are widespread in many sectors and whose names and definitions has in some cases entered the common language. However, ICT is a sector that is constantly renewing itself and that offers new conceptual models and tools, ready to use for those who have intuition and vision, as in the case of the blockchain. The contribution of **GRECO Secretariat** is focused on the powerful emerging tools of blockchain and distributed-ledger technology, and on the path to introduce them in some anticorruption and integrity related practices.

The Covid-19 crisis has shaded further light on the pressing need for private companies and public authorities to rely on new technologies in order to gather and share dematerialized relevant information at accelerated speed, sufficient trust and lower cost. This is particularly true for globally interconnected organizations that require a constant monitoring of their customers and third parties in order to comply with various laws and regulations, most notably anti-money laundering/combating the financing of terrorist (standards and associated obligations (e.g. prevention of fraud and corruption). The blockchain has emerged as a tool-of-choice for a number of key economic stakeholders. It is when combined with the distributed-ledger technology (DLT) that the blockchain becomes a powerful mechanism offering the opportunity to optimize group-wide information gathering and exchange, by essentially securing and simplifying the process. Common sense does not call for systematic use of the blockchain's DLT when other traditional, and perhaps more flexible, solutions are available. Yet, a blockchain's DLT-based information sharing platform could represent, if properly designed in compliance with relevant domestic legislation, an efficient tool to implement all sorts of preventive measures also concerning corruption and integrity breaches. Set aside the financial institutions and bank secrecy obligations, global companies across industries are now subject to heightened anticorruption compliance requirements, notably prevention of conflicts of interest and mandatory verification of business partners, in a process that could take advantage from the blockchain technology.

6. Collaboration and interaction with stakeholders

Another relevant aspect of digitalization is related to platforms for social interaction, which can offer affordable and powerful solutions to foster cooperation among anticorruption authorities/bodies and stakeholders. Introduction of new and innovative typologies of instruments to receive complaints, to communicate with other institution, to foster consultation campaign, to improve communication of results etc. are ongoing in all countries that contributed to this document.

For example, **Morocco** describes the project to introduce a collaboration platform, managed by the The National Authority for Probity, Prevention and Fight against Corruption (INPPLC), entrusted with several strategic missions in the fields of integrity, governance and anti-corruption, two of which are at the heart of its interactions with the different stakeholders:

1. Supervising, monitoring and evaluating public policies, strategies and practices in the field of integrity and anti-corruption;
2. Issuing views and recommendations regarding anti-corruption approaches and measures to all concerned stakeholders including the public sector, the private sector, civil society and others.

One key success factor common to both missions is the capability of gathering timely and accurate information and data about the said policies and practices, to analyze them in light of international and national good practices and standards, and to issue high value-added views and recommendations to the said stakeholders. In order to develop its capacities in this regard, the INPPLC will create a specialized observatory dedicated to the above-mentioned tasks and fitted with the latest state-of-the-art technologies and methods. Among the plethora of tools and techniques that will be used by the observatory, the INPPLC intends to develop a unique collaboration platform that will allow a continuous interaction and exchange with several groups of stakeholders in order to implement the above-mentioned missions. The platform will be based on traditional IT solutions which will be used in an innovative manner to bring high value-added in the fields of prevention and fight against corruption. This important project has a plethora of benefits the National Authority, the most important of which are as follows: First of all, it will allow it to develop a reliable network of experts and to enhance national cooperation in the fields of governance, integrity and anti-corruption. This will allow it to fully play its expert role as national and central authority and to implement its strategic missions of supervising, monitoring and evaluating public policies and practices in the said field. On another front, the collaboration platform will allow the authority to continuously identify matters of interest in a proactive matter, thus enhancing its reactiveness and its ability to address urgent priority subjects. Moreover, the platform will be a pivotal tool within the authority's observatory allowing it to enhance its knowledge of corruption and related subjects, thus improving its strategies, approaches and, finally, its impact on this plague. It is important to mention that the scope of the collaboration platform will cover projects in the fields of integrity, ethics, governance, prevention and fight against corruption as well as related subjects. For example, the authority might work on specific training and awareness-raising programs or improving the workflow and processes of a public administration as part of the prevention arena, develop common investigation techniques with law enforcement authorities in the field of fight against corruption, or issue views and recommendations about the upcoming code of ethics for public administrations.

In **Moldova**, The electronic platform "reLAWed" offers the possibility to the general public to get involved in the process of improving the legal framework, to act, to identify and notify / communicate deficient, incomplete or interpretable normative acts and which on application have generated or may generate acts

of corruption, abuse or other illegalities. The platform has free and open access, and through it individuals and legal entities, regardless of the field of activity, may indicate a normative act or a legal norm that in their opinion can be interpreted and favored or can generate manifestations of corruption. The reports submitted through the "reLAWed" platform, as well as the results of their examination are public and accessible on the website.

A very interesting experience on how to take advantage form ICT in the anticorruption field, and at the same time matching new behavior of citizens, is the use of a smartphone application to report cases of corruption released by the **Palestinian** Anti-Corruption Commission (PACC). In December 2019 and in line with PACC's duties, the commission officially released its in-house developed smartphone application providing Palestinian citizens with: (a) streamlined electronic tool to anonymously submit their official corruption complaints; and (b) a platform to promote, educate and raise the awareness of the public on prevention of corruption, and their participatory role in combating this phenomenon. Additionally, it provides PACC with a tool to publish its opinion surveys on various topics of interest to learn more about the public perception of corruption issues in Palestine. Similar to the general internal procedures of reporting a corruption complaint within PACC, the application follows the same steps starting with a direct complaint to the Complaints Department. In cases of concerns for personal safety, the users are given the option to submit their complaints anonymously (Ensuring the confidentiality of all attachments).

The launching of the application was accompanied by a number of measures to increase citizen engagement including: paid promotions, introductory workshops and interviews with local radio stations. This has had a great impact on engagement; since June 2020 over 60% of the complaints received came through the application and the percentage is constantly growing indicating the increase in interest. Moreover, the commission has received a number of suggestions to improve the app, as well as inquiries on how to use the application and reach certain information. To better inform and raise the awareness of Palestinian citizens, PACC uses the application as a media platform for sharing the latest developments via the "notification" function. What is important to underline is the resounding impact of the introduction of the solution and the cost-benefit ratio unbalanced in favor of the benefits. In fact, part of the relevance of using this mobile application technology rely on the relative minimal cost associated with it. Regarding the Development and due to security reasons, the Commission sought to take the in-house development approach. For this, two employees were assigned to develop the software for a period of two and a half months. Regarding the Financial cost, PACC only had to cover less than $500 USD costs for publishing its application on the iOS and Android official stores, and will continue to pay a small annual fee to keep the application in stores. This is the demonstration that the adoption of innovative tools based on ICT must not scare for the potential associated costs, and that the introduction of disruptive measures in the anticorruption field can also come from simple and low cost technological solutions, but tremendously effective and in line with the times.

As demonstrated by this last experience and as in general terms emerges by all contributions received, the core of the innovation challenge does not rely so much on the technological solutions and is not a only a matter of hardware infrastructures: the most important element and key success factor remains the ideas, the models, the approaches inspired by ICT. And people to think about them and to put them into practice.

FRANCE: E-LEARNING TOOLS FOR ENHANCING ANTI-CORRUPTION TRAINING: THE CASE OF THE AFA/CNFPT'S MOOC[2]

In France, nearly 50,000 local government entities, which engage around 1.8 million people, are required to implement anti-corruption compliance programs. To address the challenge of disseminating integrity standards to such a large number of elected officials and public employees scattered across the national territory, the French Anti-Corruption Agency (AFA) signed a cooperation agreement with the National Center for Local Civil Service (CNFPT), a specialized body in charge of training local civil servants. In accordance with this agreement, the AFA and the CNFPT have pooled their resources, experience, and expertise to design training and capacity-building solutions tailored to the specificities of local authorities. Indeed, the AFA/CNFPT's Massive Open Online Course (MOOC) on preventing corruption in the local public sector is a product of this fruitful partnership.

Hosted by the platform "France Université Numérique", the MOOC is free and accessible to everyone. Composed of 58 modules structured around 4 sessions, the online course offers a variety of resources, including videos, interviews with prominent anti-corruption leaders, testimonies of local civil servants, animated clips, case studies, quizzes and bibliographies that are regularly updated. The different sessions address:

1. the fight against corruption from historical, sociological and economic perspectives;
2. risks of corruption and other offences against probity in local public management;
3. collective mechanisms for preventing corruption;
4. individual good practices for upholding integrity.

In addition, throughout the course, participants can ask questions to experts from the AFA and the CNFPT via a dedicated forum. After finishing the MOOC, participants maintain free access to all learning materials, which they can download and reuse for raising awareness and delivering online or classroom trainings in their own organizations.

Since September 2018, 9 sessions of the MOOC were held, bringing together more than 25,000 participants in France and abroad. This e-learning tool enabled the AFA and the CNFPT to promote anti-corruption standards in an attractive and inclusive format. Moreover, positive spillover effects could be highlighted: the online course reached diverse audiences beyond the local public sector, such as central government employees, university students, and foreign public officials. As a matter of fact, the MOOC served as a platform to share good practices on corruption prevention with representatives from the Ivory Coast, Cameroon, Morocco, Haiti, Senegal, and the Democratic Republic of the Congo, among others. Besides, national schools of government and the AFA have been using the learning materials of the MOOC to support classroom trainings, in-person capacity-building seminars, and awareness-raising activities on integrity and anti-corruption. Finally, in the context of the COVID-19 pandemic, the MOOC contributed to fostering a culture of integrity remotely, in line with social distancing measures.

[2] Authored by Ms. Izadora Zubek for the French Anti-Corruption Agency, AFA

EU DATACROS PROJECT: DETECTING ANOMALIES IN FIRMS' OWNERSHIP STRUCTURE: THE DATACROS TOOL[3]

Datacros[4] is a tool prototype aimed at detecting anomalies in firms' ownership structure that can flag high risks of collusion, corruption, and money laundering. Funded by the European Union Internal Security Fund – Police, the Datacros tool is being developed by an international consortium coordinated by Transcrime, a research center on transnational crime of the Università Cattolica del Sacro Cuore of Milan, in partnership with the French Anti-Corruption Agency (AFA), the Cuerpo Nacional de la Policia of Spain (CNP) and the Investigative Reporting Project of Italy (IRPI).

Datacros is intended to shed light on ownership links among a set of firms (e.g. bidders in a procurement) in order to identify:

- Collusion patterns;
- Ownership links between firms and politically exposed persons (PEP), also including low-rank and local PEPs not covered by the EU regulation's disclosure requirements;
  Complex cross-border firms' ownership structures and ownership links to off-shore and high-risk jurisdictions.

Datacros' objective is to support a wide range of authorized stakeholders in the EU and beyond, by facilitating police investigations and enhancing judicial authorities' prosecution capabilities in cases of corruption and money laundering, especially in transnational cases. Moreover, its goal is to help national and local public bodies to assess collusion risks in procurement, and allow investigative journalists, NGOs, and civil society as a whole, to check anomalous interactions between politics and business. In addition, the tool can assist national and EU authorities in mapping the role of entities from high-risk jurisdictions in public spending.

The tool is being devised to answer end-users' queries by combining data from various sources and providing risk indicators, maps and charts of the identified anomalies in ownership chains, and graphs on the ownership structure of companies of interest. The user interface is divided into two areas (see figure below):

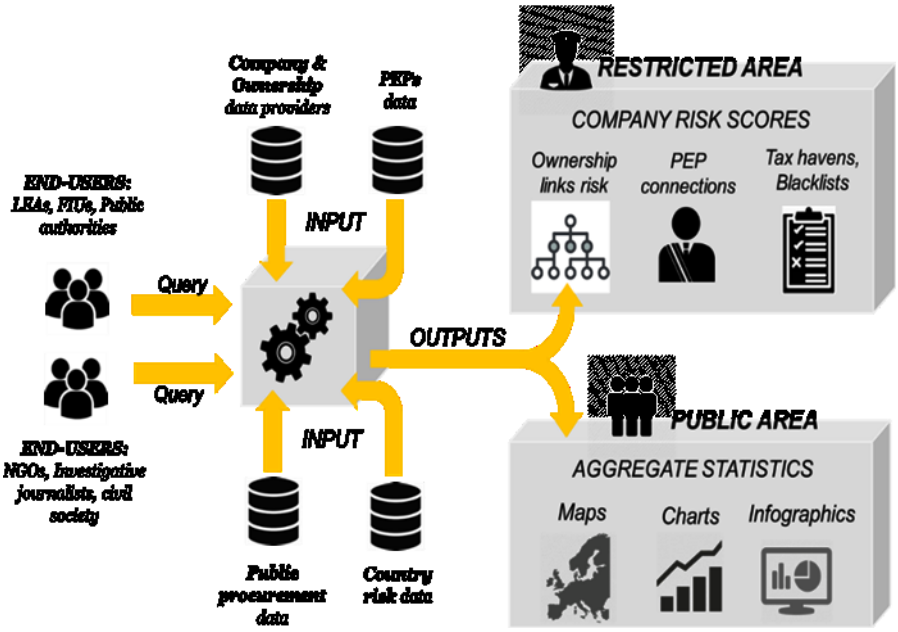
- A Restricted Area, only accessible by authorized users, that aims to assist investigative and due diligence activities by retrieving the identified anomalies at a company level. The ownership structure of a company of interest is retrieved along with the connection with tax heavens, off-shore and blacklisted jurisdictions, and PEPs ;
- A Public Area designed to enable citizens' oversight at an aggregated level. The identified anomalies are displayed via geographical maps, charts and infographics only.

Datacros is currently under approval process (at the date of the present report). The Restricted

[3] Authored by Mr. Olivier Salvador for the French Anti-Corruption Agency, AFA

[4] https://www.transcrime.it/datacros/

Area has been tested by representatives of law enforcement agencies and anti-corruption authorities, whereas the Public Area is being tested by representatives of civil society, such as investigative journalists, NGOs, and citizens. Following the test phase, the tool has been refined based on the feedbacks collected. This step may entail, for instance, fixing bugs, adding new functionalities, and improving the risk indicators. The tool has been validated by Transcrime on selected cases in high-risk sectors (e.g. public works, healthcare, energy, social assistance). The project, which was concluded by February 2021, is now under approval procedures.



GEORGIA: PUBLIC OFFICIAL'S ONLINE ASSETS DECLARATION MONITORING SYSTEM IN GEORGIA

Georgia has achieved remarkable progress in fighting corruption over the past decade. This success was largely due to strong law-enforcement and administrative simplifications that eliminated petty corruption in the public administration. [5]

Through a significant reform program, Georgia improved access to public services for all citizens. Repeated international assessments by the World Bank, the UN E-Government Development Index, and the Open Government Index of the World Justice Project observed sizable progress and highlighted the presence of strong political will and the propriety of government approaches – innovative yet unconventional methods to raise the capacity of civil servants, limit government bureaucracy and creatively use technology to achieve tangible results.[6]

Georgia may list its successful reform steps towards combating corruption, including police reform, prioritizing e-government solutions, introducing one-stop shops, modernizing public services and many more, however the reforming the civil service, enhancing professionalism throughout the public administration, promoting ethical environment among civil servants, increasing accountability and transparency at all level remains the one of the most important step forward to finally overcome the problem.

Establishment of the public official's assets declaration monitoring system can be considered as one of the main anti-corruption mechanism of the country, launched in 2017 and administered by the Civil Service Bureau of Georgia (CSB). The success of the system embeds in its innovative approach to electronically verify the data, which saves the public resources, enables CSB to fasten the decision-making process and eliminates actual monitoring time.

The amendments to the Law on Conflict of Interests and Corruption in Civil Service (CoI) adopted on October 27 2015, entered into force on January 1, 2017. The new amendments established a monitoring system of the public officials' asset declarations. The objective of monitoring of public official asset declarations is to increase accountability of public official and prevent fraud and corruption.

Launching of new asset declaration online system has completely replaced paper-based declarations and simplified the accessibility of the content of declarations for public. Copies of all submitted asset declarations are published online, encouraging citizens and interested groups to closely monitor the income and expenditures of public officials. Within 48 hours following the submission of declarations, the content of declaration is published online and is available to any interested person.

From 2017, the CSB started monitoring the entry of full and correct data into official's asset declarations and the compliance of completed declarations with the legislation of Georgia. Launching of this mechanism has resulted in an improved quality and responsibility of public officials when completing the declarations, as well as increased public trust in civil service.

[5] http://www.oecd.org/corruption/acn/OECD-ACN-Georgia-Round-4-Monitoring-Report-ENG.pdf

[6] Data Exhcange Agency. "E-Georgia – Decades of Successful Transition." LEPL of the Ministry of Jutice of Georgias.

The grounds for initiating the monitoring of an official's asset declaration are:

- A random selection by the Unified Declaration Electronic System;
- A reasoned written application;
- Declarations selected by the Independent Commission.

According to the regulations the CSB verifies approximately 10% of all declarations, including 5% randomly selected by the Declaration Electronic System and 5% selected by independent Commission, composed of 5 members (3 representatives of the NGOs and 2 representatives of Academia), on the basis of specific risk factors (positions of State-political officials, particular risk of corruption, high public interest and violations revealed as a result of the monitoring). The total number of monitored declaration could vary year by year, Based on overall number of declarations and additionally because of the number of justified written statement should be considered.

Official's asset declarations subject to annual examination shall be selected in the beginning of each calendar year. Official's asset declarations are monitored based on the principle of confidentiality, but the results of the monitoring are proactively published at the end of each calendar year.

In case violations are detected, the following course of action is taken:

- Civil Service Bureau issues a warning for non-substantial violations[7];
- In cases of administrative violations, Bureau is authorized to fine the official directly;
- Bureau refers the case to law enforcement bodies if there are elements of a criminal misconduct.

The official's asset declaration is assessed negatively if the information and documents requested by the Bureau are not submitted or are incomplete, incorrect or incompatible data. If incomplete or incorrect data are entered into the official's asset declaration willfully and there appears essential elements of an offence, the Civil Service Bureau shall forward the respective declaration and materials of the proceedings to the relevant law enforcement body for further response.

Failure to submit an official's asset declaration within the time limit is subject to a fine in the amount of GEL 1 000, for which an individual administrative act - a decree imposing a fine - shall be issued. Civil Service Bureau verifies the accuracy and correctness of the information in the assets declarations filled in by the public official and, in case of revealing the offence, imposes a fine in amount of 20% of the labour remuneration of the official concerned. However, the minimum amount of penalty is declared as 500 GEL. In case of revealing the signs of a criminal offence, the Bureau refers the assets declaration to the Prosecutor's Office.

The electronic system ensures obtaining the data necessary for verification of the completeness and the accuracy of the data on asset declared by public officials from the electronic databases administered by public authorities, namely:

[7] Amendment to the Law on Conflict of Interest and Corruption in Public Service entered into force from May 2018

- The electronic data base of the LEPL Public Service Development Agency under the Ministry of Justice of Georgia allows identification of a public official and his/her family member by name, last name, personal 11-digit number, date of birth, as well as provides the data on persons registered on official and actual addresses stated by a public official in the declaration;
- The electronic database of the LEPL National Agency of Public Registry under the Ministry of Justice of Georgia allows the electronic system to obtain the information on:
- a) The asset, on which a property right have a public official concerned, as well as his/her family members, is registered;
- b) the enterprise, non-entrepreneurial (non-commercial) legal entity in the establishment of which the public official / his/her family member is a shareholder and/or the chairperson/authorized representative/member of supervisory board of which the public official / his/her family member is;
- The electronic data base of the LEPL Notary Chamber of Georgia under the Ministry of Justice of Georgia allows the system to obtain the information about the deals concluded by the public official / his/her family member within the declaring period;
- The electronic data base of the LEPL Service agency of the Ministry of Internal Affairs of Georgia provides the information about the means of transport and weapons on which a property right of a public official / his/her family members is registered;
- The electronic data base of the LEPL Revenue Service under the Ministry of Finance of Georgia provides the information about the expenditures born by taxpayers, as well as financial benefits/incomes received by the public official / his/her family member as declared in annual income declarations;

The electronic database of the LEPL State Procurement Agency provides the information about the enterprises connected with the public official / his/her close relative / his/her family member in the calendar year in which the declaration was submitted. Additionally, Information about public officials banking accounts and transactions are submitted by public official himself/herself right after the monitoring process is started and they are requested to submit the relevant documents to CSB.

As far as monitoring system has been established already for 4 years, CSB has analysed the existing practice and procedures and initiated several steps for improvement of the system and the legislation as well. However number of obstacles still remain which CSB has to overcome for future enhancement of effectiveness of declaration monitoring system.

- First of all it is important to gain access to bank information so system will be able to check coerciveness and fullness of the account information provided by official in declaration and during the monitoring otherwise monitoring procedures relays solely on information which is provided by official;
- Majority of the violations are related to the information submitted by the public official regarding his/her family member and their assets. This is an issue CSB need to further consider based on the best international practice and expert opinions in order to be able to further develop the system.
- Increasing awareness of officials regarding declaration procedures and monitoring system is crucial for farther improvement of quality of declared information, so more trainings has to be conducted not only for officials but also public society;

- Last four year showed that eagerness of NGOs and academia is not as high as it was expected so commission was formed only once, that gives more field to think about changing grounds for selection of declarations and implementing new risked based selection system.

Based on recommendations and practice, CSB is constantly improving declaration system which makes it more user-friendly and efficient. This means, that there will be less technical violations and more accuracy in submitted information. In order to ensure the principle of integrity and accountability, CSB further considers to determine the list of risk criteria when selecting the declarations for monitoring purposes, so called “Red flags" to be incorporated in the existing electronic system. Besides, it is planned to interlink the monitoring system and electronic human resource management system, in order to allow the CSB to have a unified electronic database of people employed in public institutions in the country, both for human capital development purposes, as well as to ensure the integrity of public sector by using modern and innovative risk management tools.

GREECE: TECHNOLOGY FOR TRANSPARENCY: MOTIVATIONS AND INNOVATIONS OF THE NATIONAL TRANSPARENCY AUTHORITY OF GREECE[8]

The Establishment of the National Transparency Authority in Greece

The NTA was established with Law 4622/2019 on the Organization, Operation and Transparency of the Government, Government Institutions and Central Government Administration, adopted in August 7, 2019, as an Independent Authority with anti-corruption mandate. The key tasks of the Authority are (a) to enhance transparency, integrity and accountability in the action of government bodies, administrative authorities, state institutions, and public organizations, and (b) to prevent, deter, detect, and respond to fraud and corruption in public and private bodies and organizations.

The establishment of the NTA aimed at a complete restructuring of six pre-existing key state entities namely: i. General Secretariat Against Corruption; ii. Inspectors-Controllers for Public Administration; iii. General Inspector of Public Administration; iv. Inspectors Body for Health and Welfare Services; v. Inspectors Body for Public Works; vi. Inspectors-Controllers Body for Transport, which were abolished, with the Authority undertaking the entire range of responsibilities, obligations, and rights previously exercised by them, ensuring the institutional continuity of administration and the interests of Greek citizens.

The Authority operates in accordance with the principles of control, accountability, integrity, and transparency, and is structured around three key operational pillars which are the following: (a) detection by performing inspections and audits; (b) prevention by developing integrity and accountability standards; and (c) awareness raising by promoting trust to public institutions, educating the youth, and engaging citizens in the fight against corruption. The Authority exercises its competences in all bodies and services of the general government as well as to private bodies receiving state funding or concluding any type of contract with the public sector. The Authority enjoys functional independence, administrative and financial autonomy and is not subject to control or supervision by government bodies, state institutions or other administrative authorities. The Authority is subject only to parliamentary control.

The above-mentioned institutional change as well as the efforts undertaken by NTA in reducing corruption and improving the country's rank and score in the control of corruption have been acknowledged on the international level by international organizations, such as the OECD, as well as by global civil society organizations, such as Transparency International.

[8] Chapter prepared by:
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Under the Supervision of Angelos Binis, Governor of the National Transparency Authority

NTA integrated anti-corruption strategy

Technological innovations are the driving force of the 21st century as they constantly change the way a state operates, interacts, and serves its citizens, revolutionize economy, increase productivity and enhance economic growth. Until recently, anti-corruption reforms aimed at reducing the size of the public sector, monitoring government spending and establishing standards which public officials had to satisfy and implement. The recent development of innovative infrastructure and services has attracted the interest of anti-corruption practitioners in promoting transparency, integrity and accountability. Information communication technology (*hereinafter* ICT) tools are used, among others, to reduce the unnecessary interference of public officials who could potentially abuse their authority, ensure the direct and rapid provision of information to the public, and simplify and accelerate the procedures of public administration. In fact, e-governance has been identified as the means for addressing major chronic deficiencies of the public sector such as the lack of horizontal accountability, underperformance and maladministration, to name just a few. In this context, the National Transparency Authority of Greece (*hereinafter* NTA, or the Authority) has developed an integrated anti-corruption strategy that employs technological solutions in order to enhance the operational capacity and pursue the strategic goals of the organisation. To this direction, NTA has developed and incorporated modern e-tools to enhance key organisational functions and promote efficiency in operational fields such as asset declarations, auditing and complaints management. The present paper is structured into three sections: the first section provides a brief overview of the Authority, focusing on its establishment and mandate; the second section discusses the use of ICT tools as means to enhance the Authority's strategic objectives; the third section analyses two examples indicating how technology can contribute in achieving considerable results in the fight against corruption.

Fulfilling NTA's Strategic Perspective through the use of ICT

In its first year of operation, the Authority has managed to make use of a number of technological resources that have significantly contributed in executing its mandate. To this end, NTA's Strategic Plan and National Anti-Corruption Action Plan (NACAP)[9] prioritize the modernization of digital infrastructure and networks along with the promotion of technological innovation through the use of modern e-tools and applications. The latter have been identified both as horizontal operational features and as decisive success factors for transforming the newly established NTA into a dynamic public organization in the field of anti-corruption. Under the detection pillar, NTA runs a targeted project financed through SRSP IV aiming to incorporate risk analysis tools and methodologies in the design and implementation of its annual audit plan. Parallel to seeking external expertise in order to digitalize audit planning, in house development of simple e-applications for carrying out audits enables NTA's auditors to have real-time access to standardized forms and data. In the following months, the introduction and operationalization of an integrated system for the electronic document management system (*hereinafter* DMS) will fully digitalize the audit function. Linked to NTA's e-platform for receiving complaints, the DMS will include a distinct audit workflow (see analytically below under section III, sub-section B) for a) the e-management of each individual case throughout the audit cycle, b) the e-monitoring of compliance to audit recommendations, and c) the extraction of quantitative and

[9] National Anti-Corruption Plan, *available at* https://aead.gr/images/manuals/esskd/2018-2021/NACAP_2018-2021.pdf.

qualitative data and metadata (on the basis of subject, jurisdiction, policy field et.al.), providing, thus, valuable input to future audit planning. Furthermore, the interoperability between the complaints' platform and the new DMS will allow each person who submits a complaint to monitor the progress of the reported case online. Technology is also used as a means to support policy initiatives under the Authority's other two operational pillars, namely prevention and awareness raising. NTA maintains a user-friendly web-site,[10] where it uploads press releases, news, videos, manuals, laws, reports, educational material, or other publications aiming at reducing information asymmetries, increasing transparency and public accountability while raising citizens' awareness and fostering a zero-tolerance culture against corruption. The Authority is in the process of developing micro-sites that will host targeted information and material. A concrete example is a newly developed micro-site under its main domain,[11] where access is granted only to registered users who are certified internal auditors of the public sector. The micro-site contains material such as legislation on the institutional framework, tools and best practices on internal audit, educational material and other sources as well as a forum that allows users to submit questions, receive feedback and exchange best practices, while it serves as an online network for internal auditors. The Authority undertakes a number of initiatives to communicate developments in the carrying out of its mandate through the use of social media platforms while it uses e-voting tools to promote citizens' active participation. A concrete example was the organization of a conference on "Tech4Transapency" that took place on the International Anti-Corruption Day, focusing on the digital transformation of the public administration and the use of technology in enhancing transparency and integrity where the use of the electronic platform "Mentimeter" allowed citizens' participation in a live poll.

Curbing Corruption with the Use of ICT Tools: Two Examples

This section highlights two examples of technological tools used by the NTA in the carrying out of its mandate. Both tools aim at enhancing the prevention and detection of potential cases of corruption through the facilitation of the flow of information, the simplification of procedures, the reduction of bureaucracy and the automation of processes.

Electronic Asset Declarations System

Asset declarations are considered a powerful tool in the fight against corruption as they are used to prevent, detect, investigate, and punish various forms of misconduct. The Greek asset declarations system is governed by Law 3213/2003,[12] which obliges specific categories of persons including the Prime Minister, Ministers, high ranked and senior public officials, judges, prosecutors, and journalists, among others, to submit an asset declaration form. The above-mentioned categories of persons are obliged to submit an initial declaration, regarding their assets and income, that will serve as a benchmark during the annual audits so as to determine the origin, acquisitions and/or additions to their wealth. The submission of the initial declaration is obligatory while the asset declaration form is submitted on an annual basis. The verification of the above-mentioned

[10] The NTA's website is the following: www.aead.gr.

[11] The microsite is the following: www.gpian.aead.gr.

[12] Law 3213/2003 on Declaration and Audit of Assets of Public Officials, Media Owners and Other Individuals, Government Gazette A' 309/31.12.2003.

declarations is monitored by four main oversight bodies depending on the category of the person that submits the declaration, namely the National Transparency Authority, the Asset Declaration Committee of the Greek Parliament, Unit C' for Asset Declarations of the Greek Financial Intelligence Unit and the Appellate Court Prosecutor who monitors the Internal Affairs Agency of Law Enforcement Bodies.

Until 2015, the submission of asset declaration forms was done in paper. Following an initiative of the Greek Government that aimed to enhance the use of technological tools in various aspects of the public sector, a new IT based asset declaration application was introduced under the name of "e-pothen"[13] (*in ancient Greek* "πόθεν έσχες" refers to the origin of wealth). The electronic asset declaration form consists of ten (10) main categories that refer to revenues, finance products (for example stocks, bonds etc.), ownership of safe deposit box, savings kept outside the banking system and other valuable assets, bank deposits, loans acquired, value/number of real estate items, number/value of vehicles and participation in legal entities. The e-pothen system allows for faster and easier procedures regarding the submission process and limits bureaucracy. In particular, when carrying out their audit function, oversight bodies receive a list of declarants by the end of February of each calendar year. The data from the list is inserted into the e-declaration system which flags those declarants who have not submitted a declaration. This results in a first stage of audit control, in a much faster way than that of cross-checking declarations in paper form against the list of declarants. The oversight body can check whether the number of public officials obliged to submit an asset declaration form matches general employee statistics and whether the numerical increase or decrease to previous years is plausible. The introduction of the e-based asset declaration system did not only resolve problems related to the submission of forms but also addressed a number of audit procedure issues. Oversight bodies can now determine the type of audit techniques they may adopt or even proceed to larger, wider and in-depth audits, since the data is inserted into an electronic database which is instantly accessible and interoperates with other public sector registries such as the Independent Authority for Public Revenue. In addition, they may apply risk analysis criteria and mark those asset declarations that shall be audited. The alternatives as to the type of audit checks that should be processed by an e-based system are numerous. In addition, the e-based system lays a more scientific ground for audit prioritization compared to the previous paper-based system. Overall, the electronic declaration system covered a broader scope of declarants, simplified the submission process by making the declaration form more user-friendly, dealt with a number of problems encountered in the paper-based system, facilitated further analysis and verification of declarations, and improved data management and security.

Online Reporting and Management-Assessment of Complaints

In recent years, a number of online corruption reporting initiatives have been developed globally with the aim to provide the opportunity to report bribes or other types of misconduct safely and in a straightforward manner, allowing tracking of submitted complaints. In this context, the NTA recently introduced an online complaint form that is available on its web-site where citizens can submit a complaint, by reporting a violation of law, and uploading relevant material. Citizens can provide their contact information, or choose to remain anonymous. The Authority follows a one gate-many entry points logic, as links to the NTA's portal are also available across public sector websites. Complaints may also be submitted with post or fax, or be filed at its premises, while a special e-mail address is also available.[14] The recent introduction of the online complaint form has significantly contributed to the submission of online complaints. At the same time, the management

[13] E-Pothen Platform, *available at* https://www.pothen.gr/pothen-main/main/.

[14] For the submission of complaints an e-mail can also be sent to kataggelies@aead.gr.

and assessment of those complaints poses as a challenge for the audit and control mechanisms. The issue concerns not only the handling of complaints in a uniform, transparent and objective way, but also the optimal management of the audit mechanisms' resources. Hence, the design of a complaints' evaluation system aims to solve the long-standing problem of accumulating a large backlog of complaints that need to be assessed and investigated, a task that may often pose extremely demanding taking into consideration existing human resources.

For an Authority of the capacity of the NTA, with the plethora and complexity of the complaints submitted, covering a range of topics, in areas such as public works, economy, health, education, environment, and transportation among others, the need for a system for the assessment of complaints was more than an imperative priority. With this aim, the Authority proceeded with the standardization of the management and assessment of complaints process which in the following months it will be carried out solely electronically. The complaints received are prioritized on the basis of criteria divided into two categories: the on/off criteria and the criteria scored. The on/off criteria examine the clarity of the complaint, its compatibility with the Authority's competences, any expected or completed investigation by the Prosecutor, repeated submission of the complaint, and execution time. The assessment is made on the basis of the completeness of the complaint, the adequacy of the supporting documentation, the degree of risk in relation to the impact to the society, State's financial loss, repeatability, previous misconduct of the body, that are receive a specific score and are weighed properly. Once the complaint is evaluated it is classified into one of the following categories: a complaint that the Authority will not handle and will place it in its archive; a complaint that needs more information for reassessment; a complaint that requires inspection and will be included into the Authority's inspection schedule; a complaint with significant impact to the society that requires immediate inspection. This complaint evaluation process is considered pioneering as it establishes citizens' trust in the equal treatment of complaints.

Concluding remarks

The present paper has demonstrated that technology can be used to support channels of communication for the submission of complaints regarding corrupt activities and the promotion of ethical principles across the public sector. In addition, technology can be used to raise public's awareness, strengthen citizen's social action, and restore public trust through transparency in government's actions. Until 2030, a considerable number of people will have access to internet,[15] which means access to information, enhancement of communication and social action with the help of technology. Nonetheless, technology alone cannot tackle corruption. The complete utilization of the possibilities it offers, largely depends on political, social, and economic factors, as well as on the existence of effective infrastructure. At the same time, the use of technology by criminals to promote corrupt activities must not be neglected by anti-corruption practitioners who must aim to always be one step ahead. This is why, overall, we must keep in mind that apart from innovative tools, we also need people who will give us hope in the fight against corruption.

[15] UN Secretary-General's High-Level Panel on Digital Cooperation, *The Age of Digital Interdependence,* (2019), *available at* https://www.un.org/en/pdfs/DigitalCooperation-report-for%20web.pdf.

ITALY: INCREASING TRANSPARENCY AND DIGITALIZATION TO PREVENT CORRUPTION. OPEN DATA AND CORRUPTION RISK INDICATORS

Introduction

ANAC has a strong experience of data driven regulation and of initiatives to improve the knowledge of the corruption phenomenon. The two pillars on which this activity has been developed are the **National Data Base of Public Contracts** (BDNCP)**,** on one side, and **The Project "Measuring the risk of corruption at territorial level and promoting transparency"** funded by the European Commission "National Operational Program Governance and Institutional Capacity 2014-2020" (hereinafter PON or the Project)[16], on the other side.

The National Data base of Public Contracts and the Project "Measuring the risk of corruption at territorial level and promoting transparency", that are better described in next paragraphs, are part of a comprehensive effort of the ANAC to take advantages from innovative ICT solutions and tools. The authority is in fact in a general process of digitalization of all the services offered to stakeholders, introducing platforms to improve for example the preparation of public administrations integrity plans, to enhance communication with and among integrity managers, to foster transparency policies and practices. All initiatives are characterized by the common perspective of innovation conceived as a mean to better perform the institutional mission and to better correspond to citizens needs and public good.

The **National Data base of Public Contracts** (BDNCP), managed by ANAC, collects and integrates data concerning public procurement procedures – both above and below European thresholds. The data are provided by contracting authorities through a digitalized system open to interoperability between Public Administrations. Through the BDNCP, ANAC carries out its mandate of monitoring and supervising Public Procurement.

Moreover, BDNCP promotes transparency and efficiency in the management of public procurement through:

1. digitalization and simplification of the purchasing process;

2. setting a unique reference data source for the public contract market;

3. standardizing the data collected on the life cycle of public contracts (complete adoption of EU eForms);

4. offering the public use of a database of strategic interest to the country (open data).

The BDNCP collects data on public tenders and contracts throughout the entire life cycle of the procurement process and, throughout the use of a "CIG" (Tender Identification Code), ensures a timely and effective monitoring of the financial flows generated by public procurement.

BDNCP gathers data from more than 5 million public procurement procedures per year and about 60 million contracts over the last 10 years, for a value of approximately 2,240 billion euros.

[16] The project is funded by the National Operational Programme "Governance and Institutional Capacity 2014-2020" – ERDF Fund – CUP E89G18000140006 – ASSE 3 – Specific Objective 3.1 – Action 3.1.4.

The recent publication of the contents of the BDNCP in “open data” is an important result in itself, as it enables the public use of a strategic database. The BDNCP can be used both to obtain timely information on single procurement procedures, and to obtain a series of useful statistics, reported in dashboards, concerning aggregated data.

The Italian Recovery Plan includes the Authority's proposal to create a Single Transparency Platform: a unified access point, managed by ANAC and based on interconnection with other public databases, capable of simplifying and making it less costly to publish data, while facilitating usability and comparability. This is a gradual process, which will require the involvement of various institutional actors. Moreover, the role of the Anac public contracts database has been strengthened: the BDNCP will include the database of economic operators (Virtual Company Dossier) and, through the use of IT and interoperable platforms, all information on the planning of public contracts, the selection procedure of the contractor, the awarding and execution of works.

The production of risk indicators of a quantitative nature on a systematic basis and supported by data represents an important contribution not only in terms of increasing the scientific knowledge of the phenomenon, but also to design contrast measures that could be more effective and adapted to the diversity of the contexts. The importance of this evidence-based approach resulted also from the G7 - Workshop on measuring corruption (Italian Presidency, Rome, 2017), as well as from the OCSE and UNODC statements.

The objective of the **Project “Measuring the risk of corruption at territorial level and promoting transparency”** is to offer, to the public, indicators for the measurement of corruption risks at the local level (regional, and sub-regional) in order to support the prevention of corruption and promote transparency.

The Project is based on three pillars:

1. construction of a set of corruption risk indicators at territorial level and a set of related social capital and context indicators;
2. setting of interoperability between information systems (through business intelligence) capable of providing dashboards of indicators and red flags on corruption and maladministration;
3. promotion of civic participation and dissemination of data on corruption risks.

Within the Project, ANAC and other stakeholders are working to integrate as many institutional data sources as are needed for the achievement of the abovementioned results. This involves the coordination with institutional, academic and civil society stakeholders for the definition and subsequent use of data interoperability and indicators.

Rather than focusing on indicators designed with a top-down and centralized approach, we are promoting a participatory and structured approach that will produce data and indicators useful for :

- prevention and repression of corruption at any level;
- policy making;
- scientific and socio-cultural purposes;
- benchmarking.

The National Public Procurement Database (BDNCP)

The National Public Contracts Database (the "Banca Dati Nazionale dei Contratti Pubblici" - BDNCP) represents the main source of data and the central nucleus for the circulation of information regarding Public Procurement in Italy. As provided for in Italian law, it is a national register managed by ANAC. Established in 2005 to support a data driven approach to the supervision of public contracts, it has evolved to follow the new mission of the Authority, becoming a powerful instrument of governance and to foster transparency and the digitalization of the entire Public Procurement sector in Italy.

The BDNCP represents a unique experience at the European level, so much so that in 2018 it was awarded the first prize of the "Better Governance through Procurement Digitalization" competition launched by the EU Commission, on the basis of its "completeness, data integrity, interoperability, availability of access and information analysis, governance and sustainability". The BDNCP was recognized as the best example of National Contract Register within the European Union in terms of coverage of public procurement, on the geographical, temporal and monetary value dimensions. BDNCP collects, integrates and reconciles data concerning public contracts transmitted by Italian contracting authorities. The system is open to interoperability, cooperating at application level with other systems and providing data from similar systems of other administrations. Currently, this database supports both the Authority in its supervisory and regulatory functions, and all other public administrations interested in the life cycle of Public Contracts for planning, containment of expenditure and monitoring purposes.

ANAC systematically acquires data over public procurement to feed BDNCP, ensuring a timely and effective monitoring of the financial flows generated by public procurement and the collection of large amounts of data from geographically distant public bodies.

As at the beginning of 2021, the Database provides information on about 53 million public contracts, for a total value of 24,000 billion euros relating to 38,550 Contracting Authorities and 235,000 economic operators.

Information included in the database (by procurement phases):

1. Publication
   a. CIG
   b. Publication date
   c. Expiration date
   d. Call
   e. Contract characteristics
2. Adjudication
   a. Outcome
   b. Participants
   c. Bidders
   d. Adjudication date
   e. Stipulation date
   f. Initiation date
   g. Contract duration
3. Execution
   a. Amounts cleared
   b. Contractual changes
   c. Subcontracting
   d. Litigation
   e. Certificates of Execution
4. Conclusion and testing
   a. End date
   b. Final amount
   c. Testing / regular execution
   d. Execution certificate

The aims that inspired the BDNCP were the following:

- to integrate the information collected as part of the Authority's activities into a single database;

• to have adequate data, logically aggregated, accessible, reliable, updated in real time, secure and comparable over time;

• to give the various stakeholders involved in the procurement management processes access to a "solid" database to "support decision-making".

The data concerning public contracts transmitted by the Contracting Authorities are collected, integrated and reconciled before being made accessible to the Authority itself and to other state and regional administrations

Data stored within the BDNCP allow:

- geographical studies, for example indicating how contracting authorities are distributed on the territory in relation to different types of contracts;
- economic surveys, for example showing which contracting authorities spend more, how often, and to what ends;
- surveys on the duration of procurement processes;
- identification of recurring patterns of behaviors as “red flags” of corruption.

This also explains the considerable interest that the BDNCP has generated over the years from researches working in universities and other research institutes.

The BDNCP is a vast, complex information base, fed by distributed and heterogeneous sources (from smaller, individual Contracting Authorities and Regional Observatories, to the most modern negotiation platforms of central purchasing bodies, aggregators and large Contracting Authorities). As such, it requires a considerable amount of resources to ensure the quality of the information collected and its usability over time, given the frequent variations that take place in the regulatory framework on procurement.

The BDNCP, together with the entire infrastructure for the management of data collected by ANAC data have recently been undergoing a profound architectural and technological review. The goal of this review is to help it evolve from a self-consistent tool, intended for use within the Authority, into a network hub to collect, analyse, exchange and publish data from and for stakeholders. The data collected over the last 15 years will be published with the aim of improving efficiency and transparency.

The adoption of the Big Data paradigm constituted the foundation on which a series of new projects were based. These projects, which are aimed at collaboration and integration with existing systems at national and European level, are at different stages of development , will allow ANAC to increase the level of functionality and usability of the Database..

Currently, the database is evolving along three main lines:

1) from an open data perspective, with the publication of all data relating to public contracts;

2) to respond to the need for the digitalization of public procurement in Italy;

3) to promote greater integration in the context of European databases.

These strategic drivers align the evolution of BDNCP with the Italian and European digital agenda, supporting the digitization and simplification of the purchasing process, the Once Only Principle, and the standardization of data collected over the procurement lifecycle.

The BDNCP will play a key role in the path towards the implementation of the regulation on eForms and the setting up of a Single Digital Gateway bringing key benefits .

Importantly, with the use of eForms, there will be a consistent conceptual model for procurement data at European level and this will allow for the extension of cross-border analyzes and comparisons, building indicators that are far more robust and greater overall value than those calculated with reference to one single national territory. This will bring mutual advantages for Italy as well as for other users who will be able to benefit from the wealth of knowledge that ANAC has built up over years of cooperation with universities and administrations specifically oriented to investigation (such as the Guardia di Finanza). Moreover, the introduction of eForms will allow data to be collected along the entire life cycle of the contract, whilst streamlining collection activities, since the data collected for the Contract Register will also be that required by law for publication. Moreover, eForms are natively digital documents and this should make the entire data collection process more efficient.

ANAC will also complement the introduction of eForms with the issuance of guidelines for a standard call for tenders procedure that will increase simplification without deregulating the sector.

Starting from September 2020, almost the whole set of information on Public Procurement contained in BDNCP is available in Open Data format, thus facilitating researchers and stakeholders in their task. This is an important result, because openness facilitates sophisticated forms of public use of a database of strategic interest to the country. ANAC also made available a self-service analysis dashboard for guided access to the information available there and to perform a series of useful descriptive statistics, from aggregated data to the details. Such a potential is enhanced by the choice of making openly available not only the data, but also the code that produces all the analysis carried out.

Increased openness of the data, will feed an articulate ecosystem, within which we can find universities and research institutions, the media – today increasingly interested in forms of journalism “driven by data” – and non-profit organisations. In addition, the progressive digitization and use of electronic tools, the standardization of tendering procedures and the widespread availability of contract data are powerful tools to support transparency, competition and the prevention of corruption.

Quantitative indicators for measuring corruption risks at territorial level

In 2019, ANAC launched the project “Measuring the Risk of Corruption at Territorial Level and Promoting Transparency” with the aim of designing a set of quantitative indicators to detect corruption at the territorial level, to support integrity and to promote transparency in the action of the public administration. These corruption risk indicators, while not providing evidence of corruption, alert the authorities to its possible presence. These quantitative indicators are a powerful tool in the hands of policy makers, to facilitate the

implementation of preventive and law enforcement measures and the identification of areas most exposed to corruption. The project was designed to promote civic participation and the dissemination of data on corruption risks, as well as to share methodologies.

The Project started with the development of indicators of corruption risks in public procurement, based on the vast amount of historical data contained in the ANAC National Public Procurement Database, the BDNCP.

Some important indicators have already been developed. Amongst these are:

- number of contracts awarded under the criterion of the most economically advantageous offer,
- ratio of negotiated procedures in relation to open procedures,
- value of the negotiated procedures,
- number of contracts modified after having been awarded,
- cost and time deviations at time of execution,
- single bids,
- exclusion of all bids but one,
- an high share of contracts for just one contractor,
- shortness of the period between publication and deadline for submission of the offers,
- length of the tender evaluation period.

The data coming from BDNCP allow for a quantitative evaluation of the indicators listed above, at the level of the single public administration, for public contracts amounting to more than 40,000 Euros. Furthermore, they can be aggregated at different territorial levels (e. g. municipalities, provinces, regions, etc.).

BDNCP data also allow constructing composite index of corruption risk in public procurement, by suitably selecting individual indicators and then normalizing, weighing, and aggregating them. In the process of composite index construction can employ different pools of indicators, different standardization systems/criteria, weights, and aggregation schema. This design process should also include a final phase of validation of the composite index in order to assess its robustness, the so-called sensitivity analysis. In this respect, we have to remark that there are currently no scientific studies showing a sensitivity analysis of synthetic measures of corruptive risk in public procurement.

A further approach currently under development within the Project aims at comparing the corruption risk indicators in different geographical areas, also in order to highlight significant deviations of the indices with respect to a national average, which might be considered the “normal” situations. Such deviations, in turn, might be interpreted as indicating varying “propensity towards corruption” of different territorial aggregations. In fact, geographic proximity likely plays a role, and might be modeled using appropriate tools of spatial statistics.

Finally, the project is drawing up a scheme for measuring the risk of corruption in which the reference territorial framework takes on a very important value. This is also in view of the possibility of identifying

indicators of social, economic and environmental contexts with a link (theoretical and not necessarily statistical) with the consequences of corruption and its effects on the social context, such as the harm to the free market, the cancellation of economic competition, the acquisition of inefficient services for communities, the delivery of poor and expensive infrastructures, etc. . This strand of research aims to analyze a multiplicity of information sources from which to draw qualitative-quantitative data in order to represent the corruption phenomenon in its emerging component, identify signals of its possible hidden evolution, capture its evolution over time and identify particular risk areas, also in order to identify indicators and *red flags*.

To this end, *pillars, or domains*, have been defined, as has already been the case for many examples of measurement of complex multidimensional phenomena in the past.

In the radial diagram are presented the first *pillars* chosen for the description of the territorial context for the measurement of corruption in Italy.

"The different "pillars", furthermore, could be aggregated to produce a single composite indicator.

The publication of such indicators on a dedicated interface tool on the Web, which is part of the project, will guarantee that they will be widely usable by different categories of stakeholders and the availability of the algorithm and the code in an open format should foster their assessment and pave the ground for further research.

Once the red flag indicators are developed, data from national databases will feed a *business intelligence* system, to provide a dashboard of baseline indicators and *red flags* on the various aspects of corruption and *maladministration*.

In turn, the project will integrate these red flags with an additional set of risk indicators at the territorial level and a set of social capital and context indicators that can help in their interpretation, highlighting possible correlations with territorial and environmental factors.

The Project promotes a participatory path that will produce data and indicators on corruption risk, contextualizing them at the territorial level, which can be useful for the prevention and repression of corruption, but also for policy making, for scientific and sociocultural debate and, possibly, for benchmarking.

Such a collaborative and participative approach is the most suited to foster a collective approach to data sharing and the adoption of the indicators, to maximize the impact of the project itself. Sharing such methodologies and experiences could also be useful to promote an international debate on the subject and to verify the replicability of some of the results achieved in different contexts.

As already mentioned, another innovative aspect of the Project is the decision to "open" not only the dataset used, but also, the computer code used to analyze them. For the calculation of indicators, and in general to statistically analyze BDNCP and other data sources, a very widespread open source (and free) software has been used, "R". It responds to a wide range of needs in the statistical data analysis, including the analysis of large databases (as is the case with the BDNCP) and the use of the so-called artificial intelligence techniques. Furthermore, "R" is an open source (available under the GPL licence) and freely available software. Actually, "R" is the election software in most statistical studies.

This choice enables anyone endowed with the necessary technical skills, to "recalculate the indices at home", thus maximizing transparency and avoiding the weaknesses of a possible technocratic and up-down approach. Consequently, anybody with the necessary skills will also be in the position to modify the calculations proposed by the ANAC, or possibly proposing, calculating and publishing alternative indicators. The publication of the software codes and their modifiability could fuel an "ecosystem" of those who are able to profit from them to the obvious advantage, considering also that the public debate that would be fueled would prevent such measures from being perceived as "black boxes". This is an important topic nowadays, and it will acquire even greater relevance in the future, as artificial intelligence techniques – with their inherent "black box" character – become ubiquitous.

Secondly, this approach enables awareness-raising and training activities, both with regard to the databases used for the preparation and validation of indicators, and towards statistical techniques and analysis based on "open data" and "open source" programming languages.

The public availability of such a precious data, methodologies and procedures would then make it possible to foster transparency and the essential role that it plays for the smooth functioning of an advanced democracy.

JORDANIA: DATA MINING[17]

Background

Jordan Integrity & Anti-corruption Commission (JIACC) is one of two authorities in Jordan that is in charge of combating corruption besides the judicial authority. JIACC main duty is to do the necessary investigations and other legal work to fulfill its vision in combating corruption and enhancing the integrity in all government agencies, public shares companies, charity organizations, clubs, or any other entity that holds public funds. The annual Integrity & Anti-Corruption report that contains the Anti-Corruption investigations, cases, prevention, training and all the work to enhance the Integrity is hand delivered to His Majesty the King of The Hashemite Kingdom of Jordan. The Integrity & Anti-Corruption Law (Law # 13/2016) and its amendments stats in article (4) the duties of the commission by guaranteeing the implementation of the national integrity and anti-corruption standards. Article (4/I) and article (4/J) stated that the commission conducts all types of financial and managerial corruption by collecting all types of information and evidences to start an investigation to take the proper legal actions to resolve the corruption actions. Part of JIACC duties is to monitor the stability of the community in all aspects including social and criminal, financial, health, investment, moral, and any other aspect that might disturb this stability. This is done through collecting all types of information electronically, analyze it, and conduct the needed correlation between these pieces of information from different data sources.

In 2005, His Majesty instructed the government to draft a law to combat corruption in Jordan to fulfill the following Jordan's international treaties obligations:

1- United Nations Anti-Corruption Treaty.

2- Arab Countries Ant-Corruption Treaty.

3- 2002 Jakarta Anti-Corruption convention.

4- United Nations Resolutions to Combat Crime & Narcotics.

The constitutional process started and JIACC was established in 2006 as an independent Entity in Jordan to follow up on the Corruption aspects in the Kingdom which is one of the basic standards adopted by Transparency International (Non-governmental organization) and to enforce the laws (a law enforcement entity).

Per the directives of His Majesty to develop the anti-corruption methods in December 2019, JIACC board finished in February 2020 a study of needed amendments to The Integrity & Anti-Corruption law several laws to give JIACC more power to fulfil His Majesty directives that included:

[17] Contributed by the Jordanian Integrity and Anti-Corruption Agency, JIACC

- Criminalizes the assassination of the character and defines the appropriate punishment.

- Ensure adherence to the principles of national integrity and fight corruption by prosecuting anyone who commits any corruption acts and taking the necessary procedures for that and seize his / her assets, preventing them from travel, stop them from work from the concerned authorities, stop their salary and other financial benefits if necessary.

- The Board may, when necessary, detain the defendant up to seven days before referring them to the Public Prosecutor.

- Add money laundering crime to any corruption acts.

- Adding crimes that violate the provisions of Article (59) of the Election Law to the Jordanian Parliament No. (6) For the year 2016 (political financial and privileges gain).

- Stopping the pursuit of someone who commits a crime punishable under the provisions of this law and conducting reconciliation with him if he / she fully returned the funds obtained as a result of committing the corruption acts or He / she made a settlement on it during the preliminary investigation stage at JIACC. This act does not apply to public administrative officials, judicial, or municipal corps, officers of the security or military services, or any of its members, and every worker or employee in the government or any public administration.

- Every money obtained from any crimes mentioned in this law is considered a money laundering case and JIACC is responsible to conduct the financial investigation.

- For JIACC to investigate money laundry crimes resulting from committing any corruption crimes, JIACC council shall have all the powers stipulated in the Anti-Money Laundry & terrorism financing law in force.

Also, a new law study was finished in February 2020 called Illicit gain Law that will transfer the current Financial Disclosure Department from the Justice Ministry to JIACC to give JIACC more power to monitor the wealth of government officials, Parliament members, Judicial Authority members and other officials mentioned the in the law. Also, this new law will allow JIACC to make the Financial Disclosure Forms electronic forms by collecting digital data from different sources to monitor any changes in the wealth of these officials. And to follow the international standards of transparency, part of the financial Disclosure information can be available to the public through JIACC website after issuing a special regulation for this purpose.

The Ministers Cabinet has agreed on the reasons to amend The Integrity & Anti-Corruption law and the Illicit gain Law at the beginning of March 2020 and started to take the constitutional process for them.

Data Mining and intelligent data gathering

JIACC is exploring its ways to improve its intelligent data gathering and investigation process by bringing together and enabling exploration of various databases and event information around activity and connections between people, events, organizations and vehicles in order to have a profile of a person/s, event/s and place/s that can predict and have an insight of what might happen and take the necessary measurements to initiate investigations and try to prevent any corruption acts (criminal actions, money laundry, criminal actions money proceeds and any related cybercriminal actions) that might harm the community stability from happening, enforce the law and enhance the integrity and transparency standards. JIACC has established Digital support Directorate that includes (4) sections to provide all digital means to lift up its capabilities to cop up with the new trends in criminal actions:

1- Information Technology Section that handle current and future systems to support the investigations process.

2- Digital Evidence Section that collects digital evidence to support the investigations.

3- Digital support Section that handles all digital and cyber investigations to support the investigations.

4- Cyber Intelligence Section that will collect digital data from all open sources and other legal digital data to support the investigation process.

JIACC vision from establishing the Digital Support Directorate is to provide Financial Disclosure Directorate, Investigators, and the Integrity & Transparency Directorate with the needed digital information through building an Integrated Data & Analytical system to monitor the wealth growth, establish a suspect profile, and find the most vulnerable entities to corruption to take the necessary preventive measures. Vision of the solution is to show main user groups and the types of systems that the solution can leverage to provide better situational awareness, intelligence and investigation support. The main users of the solution are investigators that use information available for their investigative cases. Another important group are Financial Disclosure Directorate who will autofill the financial disclosure forms with the available information for the required form filler officials and monitor their wealth growth continuously. Another group are operators and dispatchers that receive various alerts linked to the people and vehicles monitored and general sensor information to coordinate immediate actions to be taken. Command staff is the ones defining overall configuration parameters of the solution and maintaining user permission through permission assignment workflows, they also review the audit records showing functions that have been used by users of the system over time.

In order to achieve JIACC vision through Digital Support Directorate, many required systems have to be put in place to function according to the international standards taking into consideration JIACC needs and limitations:

1-Case management and workflow system to handle the complaints or information from informants from the minute JIACC receive it until the proper decision is take about it by JIACC board (sent it to the prosecutor, Mirage it with a previous information or close it). The system will include the case defendant information

from several databases, previous information, statements, related documents and evidences which will be scanned and recorded with the case.

2-Investigation rooms (6 rooms) that should be equipped by cameras, voice recording, PCs, printers and needed furniture. All the testimonial process should be saved of future and quality assurance purposes.

3- Expansion of the current data storage to handle the increase in cases and information.

Establish an Integrated Data & Analytical system (data mining system) to connect over 57 databases to provide the needed information to the Financial Disclosure forms and suspects profiling reports and do the needed analysis to fight corruption and enhance the integrity and transparency pillars.

Description of the Tool

It is planned that the Integrated Data & Analytical system solution gets implemented for JIACC through one of the government solution suppliers over multiple implementation phases where:

• Phase I: Is used to deploy any pre-existing assets that are part of the solution implementation in a highly available configuration, perform their configuration and customization, implement integrations required to enable initial operational capability for the system that includes providing insights into data hosted in various local and external partner systems through integration of this data by bringing it into databases of the solution or by accessing the data remotely for queries and search, through providing correlation search and visualizing links between entities. This phase will implement the core components of the solution (hardware, software) on a new hosting infrastructure that will be created at JIACC environment. In addition, initial set of data sources would be integrated into solution and search, correlations, alerts and data analysis would be enabled.

• Phase II: Add more of reference and partner system integrations to provide more sources of data and more correlations. Objectives of the Phase II & III is to extend the initial solution deployed in Phase I of the solution implementation by adding additional capabilities via new solution components and integrating additional data sources to provide more data for investigations, correlations and data visualizations, advanced analytics capabilities to enable machine based clustering of subjects of interest and prediction of risk levels. The main goal in phase II is to integrate social network information into the solution to allow analysis of activities of users performed on social networks.

• Phase III: Add more of reference and partner system integrations to provide more sources of data and more correlations. Objectives of the Phase III is to extend the Phase I & II deployment by adding additional capabilities via new solution components and integrating additional data sources to provide more data for investigations, correlations and data visualizations.

Proposed phased implementation approach for the solution is displayed in the figure below that shows not only phased implementation, but also transitions into support and maintenance phase that is ongoing since initial implementation into productive use.

We estimate that this overall project containing 3 phases that will take around (27-30) months. Note that although transition into productive use is planned at the end of each of the phases, due to iterative approach of the project implementation, we will be involved for active feedback on developed /configured application elements multiple times during the implementation of each phase. This timeline is a rough order of magnitude estimate of the project duration that may materially change depending on the validity of our assumptions, including changes in scope of subsequent phases being implemented.

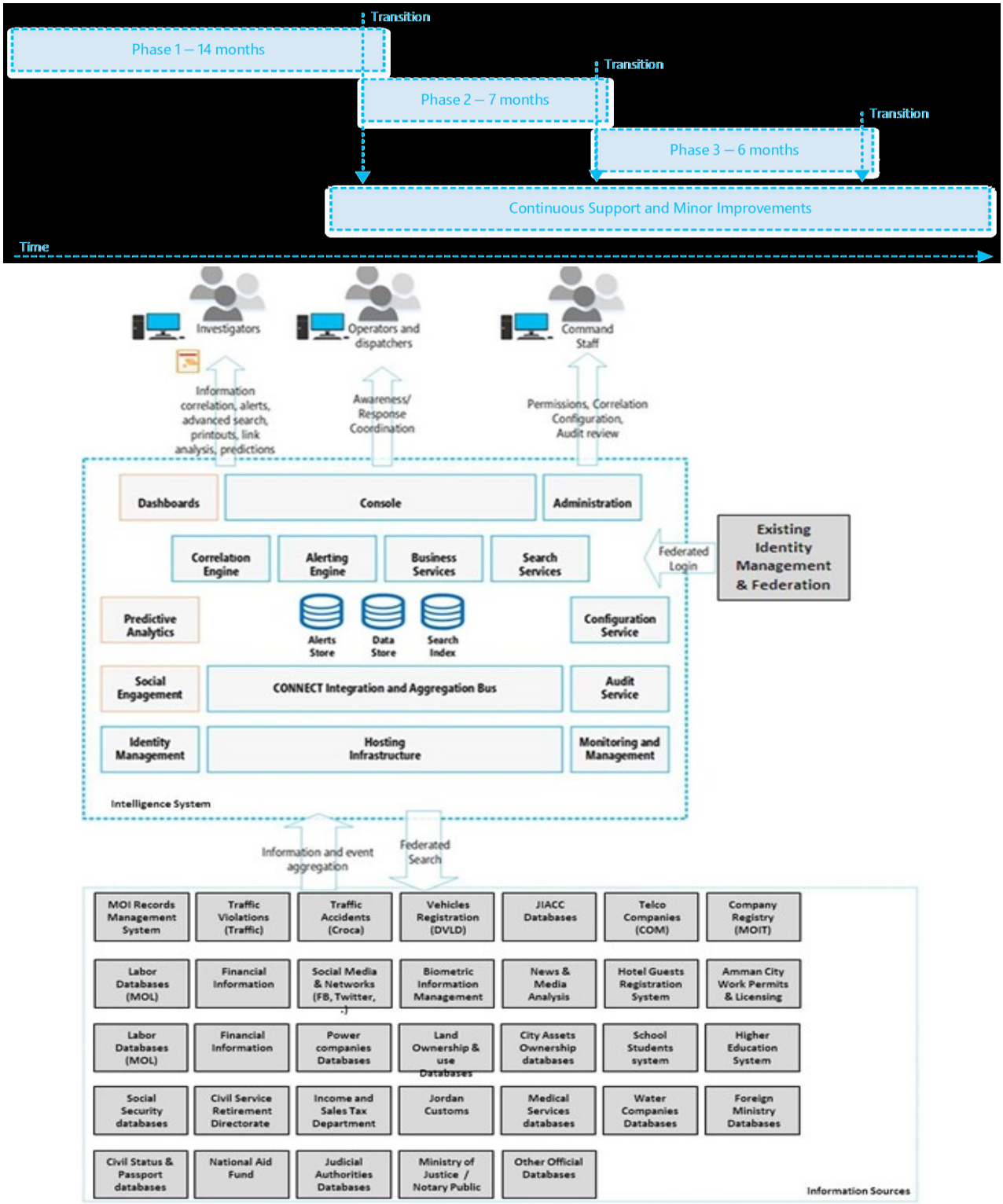


Figure 1 Implementation of the Data Mining tool: phases

Expected Outcomes

To improve its intelligence, data gathering and investigation process, JIACC wants to implement a unified, integrated and consistent platform for accessing information in several of their own and partner backend systems, including JIACC databases, other government databases that the laws permit to collect information from, and any other databases. Access to various informational elements stored about the people, vehicles, organizations and events would allow JIACC to get better situational awareness, address any suspicious events and potential threats, to perform various investigation tasks more efficiently and events prediction.

This system will provide changes in awareness, skills, abilities and access as an intermediate outcome. Besides, it will have a change in behaviour, practice and performance of the JIACC in general and the investigators in specific which will result in having more reliable information and speedup of investigation time and process more cases to reach the ultimate outcome that will deter any person from committing and corruption crimes and will affect the Kingdom's reputation in the international community and preserve the countries assets and funds to improve the wellbeing of the citizens.

The core business scenarios supported by the solution are:

• Enabling intelligence officers and dispatchers to query information in integrated data sources to get additional information on people, vehicles, organizations and events of interest;

• Visualizing information stored in the system to perform link analysis, e.g., analyze the clusters of connections, and other similar information;

• Accessing video information located in integrated video management solutions for additional video context of events happening or past events;

• Receiving events from sensors and other systems that then get correlated to other linked entities to provide better context of the event to operators or investigators or to raise alerts when immediate attention is required;

• Producing reports on top of information stored in the system and predictions derived using machine learning based models;

• Managing correlation and alert rules, access rights to various underlying data sources through system configuration.

Any threat that comes out of the solution will be shared with other security intelligence stakeholders

Implementation

JIACC senior management will oversight and direct this project that will meet on a monthly basis with implementation committee (the vender and JIACC team). The implementation committee will share joint responsibility for reporting to the JIACC senior management. The JIACC senior management will have responsibility for leading this project at a strategic level.

The Executive Review Steering Committee (JIACC senior management and Vendor project senior manager) is responsible for the following:

- Make decisions on project strategic direction.
- Serve as the final arbiter of project issues (for example, scope, priorities, and constraints).
- Approve significant Project Change Order Requests.

JIACC team will have three levels of training on this project as follows:

1- System Administrators will have the needed training to manage and maintain the system.

2- The system development team will have hand on hand training with the vender.

3- The system users will have the needed training to use the system.

Human Rights and Gender Equality

This project will not violate any laws or any human privacy acts that are applicable in Jordan. The main goal of the project is to gather information to conduct an intelligence analysis as a first objective, then to have a profiling data as a second objective and third, to have prediction of any future criminal actions to save men, women and children lives.

Other Sources of Funds: None so far.

MOLDOVA: IT TOOLS USED TO PREVENT AND FIGHT CORRUPTION

The "E-expertise" software is used by the employees of the Legislation and Anti-corruption Proofing Directorate for performing the corruption proofing, examining and drafting the normative acts. This software provides an interface for filling in the appropriate compartments following the anti-corruption proofing and examining, and as a result generates the Anti-corruption Proofing Report or, as the case may be, the Opinion. The generated reports, after being signed, are automatically published on the web page www.cna.md. At the same time, this program ensures the storage of all Anti-corruption Proofing Reports, Opinions and all related documents, such as: draft normative acts which were examined, tables with the opinion of different authorities, informative notes, etc. In this context, the "E-expertise" software provides the possibility to view statistical data on the results of the expertise or endorsement activity, such as: the efficiency of the anti-corruption proofing, statistics of risk factors and risks detected in draft normative acts, the volume of experts' work etc. Regarding the drafting of normative acts, the software ensures the working interface, the evidence of the stages of drafting, as well as the follow-up of the subsequent procedures of promotion and adoption of normative acts by the Government, Parliament or other competent entity.

The electronic platform "reLAWed" offers the possibility to the general public to get involved in the process of improving the legal framework, to act, to identify and notify / communicate deficient, incomplete or interpretable normative acts and which on application have generated or may generate acts of corruption, abuse or other illegalities. The platform has free and open access, and through it individuals and legal entities, regardless of the field of activity, may indicate a normative act or a legal norm that in their opinion can be interpreted and favored or can generate manifestations of corruption. The reports submitted through the "reLAWed" platform, as well as the results of their examination are public and accessible on the website www.relawed.cna.md.

The electronic platform "Institutional e-Integrity" was developed with the support of the project *"Curbing corruption by building sustainable integrity in the Republic of Moldova",* funded by the Norwegian Ministry of Foreign Affairs and implemented by UNDP Moldova in cooperation with the National Anti-corruption Centre. It aims to facilitate the monitoring and reporting process of the National Integrity and Anti-corruption Strategy, which contains the Implementation Reporting module "National Anticorruption Strategy", intended to report the progress and deficiencies registered by the public authorities responsible for the implementation of the Strategy. The piloting of the Implementation Reporting Module "National Anticorruption Strategy" was carried out in the process of reporting the progress made in the implementation of the Strategy (*reporting period-first semester of 2020*).

The e-Learning platform is currently in the phase of conceptualizing and preparing the content. This platform is an anti-corruption education tool for public agents from most of the professional fields. The content of the platform is focused on the legislative framework on the implementation of policies for strengthening the climate of institutional integrity in the public and private sector. The general objective of the platform is to consolidate the culture of integrity in the public and private environment through the prism of information technologies.

MONTENEGRO: THE IMPORTANCE OF IT PLATFORMS IN CONDUCTING CORRUPTION RISK ASSESSMENT IN INSTITUTIONS AND ELECTION CAMPAIGNS[18]

The Agency for Prevention of Corruption of Montenegro[19] is the central prevention institution in the fight against corruption, dealing with a set of prevention mechanisms in one place. Being in charge of education and supervision over public officials and authorities in terms of prevention conflicts of interest, compliance with restrictions in the exercise of public office, and in election campaigns, supervising lobbying, processing whistleblower reports, integrity plans, the Agency is a conglomerate of large data on public officials and authorities in Montenegro. In this regard, in order for the Agency to efficiently conduct data analysis and use the results to further direct its activities, information tools are needed that will support the various phases of this process and ultimately ensure transparency. The IT platforms used by the Agency in corruption risk assessment in government bodies and election campaigns are presented below.

The importance of IT platforms in conducting corruption risk assessment

1. Integrity plan

Integrity plan is an internal anti-corruption document containing a set of measures that prevent the possibilities for various forms of corruptive and unethical behavior to occur and develop, and it is the result of self-assessment of exposure of the authority to such risks.

As of 2016, the Agency for Prevention of Corruption in Montenegro monitors the adoption and implementation of integrity plans, in line with the Law on Prevention of Corruption. All public authorities are required to submit their integrity plan to the Agency upon its adoption, as well as annual reports on its implementation. The authorities are obliged to designate an integrity manager, who is responsible for the implementation of the integrity plan, as well as to establish the working group for development of the integrity plan.

The obligation of adopting integrity plans applies to more than 700 public authorities in Montenegro, sorted in ten different sectors, which include: public administration, local self-government, judiciary, healthcare, social care and child protection, education and culture.

2. Development of the web application for integrity plans

In 2018, the Agency completed the development of the web application for integrity plans, which was developed as an application software for entering, recording, reporting and monitoring the implementation of integrity plans, as well as for assessing the efficiency and effectiveness of integrity plans. The application was officially launched in August 2018.

[18] Authored by Mr. Marko Skerovic, Mr. Dusan Drakic, Ms. Marina Micunovic and Mr. Milos Vujosevic for the Agency for Prevention of Corruption of Montenegro

[19] The Agency for Prevention of Corruption was established in 2016 as an independent and autonomous institution, accountable to the Parliament of Montenegro for its work. Its mandate is regulated by the Law on Prevention of Corruption, Law on Lobbying and Law on financing of political entities and election campaigns.

Prior to the official use of the web application, documents were submitted by e-mail, and the Agency statistically processed them by manually entering all relevant data into Microsoft Excel spreadsheets and using the tools available in that program.

The web application has two groups of users - users from government bodies (integrity managers) and administrators (officers of the Agency). The functionality structures of the administrator and user modules is set forth in the relevant instructions.

All authorities received access data for the application, as well as user instructions for the application. The application has three main modules, and accordingly the Agency has developed three instructions for users from the authorities: 1) user instructions for entering the integrity plan into the application, 2) user instructions for entering reports on the implementation of the integrity plan, and 3) user instructions for filling out a questionnaire to assess the effectiveness and efficiency of the integrity plan.

Users of the application can electronically enter and continuously update and monitor all data related to integrity plans through an intuitive interface that is consistent with the previously defined form of integrity plan (the form defined in the Rules for development and implementation of integrity plan), while administrators, among other, can monitor the adopted plans, process statistical data, as well as carry out qualitative and quantitative assessment of the implementation of risk management measures.

3. Entering integrity plans into the web application

One of the main functionalities of the application is entering integrity plan, i.e. the register of corruption risks and measures, as well as monitoring and managing data related to the integrity plan.

3.1. Risk register

Integrity Plan contains a register of risks identified by a Montenegrin authority using a special methodology, so the application for integrity plans serves as a database for all identified risks of corruption and other unethical and unprofessional behavior in the public sector. Each integrity plan contains risk areas - four general risk areas, shared by all authorities, and two or more specific risk areas, relating to the specific competences of each institution.

The current methodology established the difference between two types of risks: basic (inherent) and residual risks. While residual risks represent specific and precise risks related to a particular work process or workplace, inherent risks can be viewed as a type or group of risks, so it is possible to obtain statistics on the frequency of certain types of risks in an individual institution, system / area or the public sector as a whole (all authorities).

The Report on the adoption and implementation of integrity plans in Montenegro in 2019 states that "violation of the principle of transparency" was identified as the most common type of risk in the authorities. Namely, 8.2% of all risks in integrity plans belong to this risk group. They are followed by "illegal lobbying or other non-public influence" (7.8%), "abuse of public

office or official position" (7.6%), "violation of the integrity of the institution" (7.3%) and "conflict of interest" (6, 8% risk). The mentioned report provides an overview of the 30 most common basic (inherent) risks in government bodies.
Given that the application provides statistics on the representation of risks in certain sectors (e.g. justice, education, health, local government, etc.), Montenegrin media in the previous period used and presented to the public information from the analysis performed by the Agency based on data available in the web application for these sectors.
The risk register also contains other categories of importance for the identified risks: jobs to which the risks relate, as well as already established control measures in the institution, so the application enables statistics and search of integrity plans by these categories as well.

3.2. Risk assessment

In the development of the integrity plan special attention is given to the classification of risks based on their type and importance. Assessment of risks should establish the probability of occurrence and consequences of corruption and other forms of illicit or unethical behavior. Risk classification involves the cross section between the 1) probability and 2) consequence of the risk, according to the “temperature map” contained in the integrity plan.

Once the user has entered in the application values for the probability of occurrence and consequences of corruption risks, the system calculates the final risk assessment and groups the risks into low, medium and high risks. The obtained results provide the insight into which areas of work the institutions have assessed as the most vulnerable to risks, which can help the authorities to better determine priorities in the implementation of risk management measures, and the Agency to make more relevant recommendations for improving integrity plans. In addition to the areas of risk, the application allows the Agency to obtain an overview of the structure and intensity of identified risks by individual authorities, as well as by the systems by which the authorities are classified.

3.3. Measures for reducing/mitigating risks

Based on the results of identification, assessment and classification of risks, integrity manager and the working group select adequate measures for reducing, mitigating or eliminating those risks.

Integrity managers define and enter into the application the measures that the institution plans to implement in the next two-year period, for which the integrity plan is valid. In addition to the text of the proposed measure for risk mitigation, they must also designate and enter the persons responsible for the implementation of measures and deadlines for implementation.

4. Reports on implementation of integrity plans

Every year, the Montenegrin authorities adopt and enter into the application the report on the implementation of the integrity plan for the previous year. This includes reporting on the implementation of planned measures and the current risk status.

The application user is obliged to state for each measure contained in the integrity plan whether it was implemented, partially implemented or not implemented in the previous year, which allows the Agency to obtain a comprehensive statistical overview of the implementation of integrity plans on annual basis. Data on the implementation of measures are available for specific risk areas, individual institutions, sectors and overall. In its annual reports on the implementation of integrity plans, the Agency presents statistics on the implementation of planned measures and notes possible progress in the implementation of integrity plans (at all four levels mentioned above), comparing available data from different time periods. Based on the conclusions, the Agency makes recommendations to the authorities for the improvement of integrity plans, especially in the part concerning proper and reasonable identification of risks and formulation of effective mitigation measures.

Annual reporting by the authorities also includes reassessment of risks and introduction of new values for the probability of occurrence and consequences of corruption risks. This allows the authorities and the Agency to obtain, manage and compare risk intensity data on annual basis. For example, it is possible to obtain the average risk intensity (numerically expressed on a scale from 1 to 100) in a given institution, sector or overall, for different time points, so it is possible to monitor risk status or change the risk intensity over time. Reducing the intensity of risk in specific institutions and sectors may indicate the successful implementation of measures envisaged by integrity plans.

In 2019, 613 reports on the implementation of integrity plans for the previous year were entered into the application for integrity plans. Through the application, the authorities reported on the status of a total of 10.412 risks and the implementation of 21.560 measures to reduce or eliminate risks. It was estimated that 74.9% of measures were implemented, 13.9% of measures were partially implemented, while 11.1% of measures were reported not implemented.

5. Assessment of the effectiveness and efficiency of integrity plans

Integrity plan can be amended as per the needs, development and interests of a public authority, and after a two-year period public authorities must assess the effectiveness and efficiency of their integrity plans. The assessment is conducted by filling out a questionnaire produced by the Agency. Upon finishing that process, authorities carry out a re-assessment of corruption risks and adopt a new integrity plans for the upcoming two-year period.

The Agency developed several versions of the questionnaire: a general questionnaire for all authorities and special questionnaires for three sectors (health, education and local self-government). The questionnaire contains questions related to the quality of integrity plans (e.g. whether all relevant work processes have been analyzed and included in the integrity plan) and questions related to the effectiveness of the integrity plan, i.e. the impact of measures on the work of the institution in the previous two years. Indicators include: number of irregularities, reports, complaints, penalties, initiated proceedings on various grounds, deviations from the work plan,

budget or planned and contracted value of public procurement. The questionnaire also contains questions requiring the institution to assess and state the effect of existing risk mitigation measures.

Based on individual assessments, the Agency assesses the effectiveness and efficiency of all integrity plans and provides for further recommendations for improvement of integrity plans.

In 2020, the authorities filled in the questionnaire for the second time, through a web application for integrity plans, which enables the Agency to collect questionnaires and process statistical data more efficiently. The application provides insight into the statistical data on the answers to the questions from the questionnaire, presented by a specific authority, system / sector in which the authorities are classified, or overall.

Completing the questionnaire through the application will allow the Agency to compare responses, indicators and other statistical data between different two-year periods, which can reliably show whether the desired effects and progress in the implementation of integrity plans by Montenegrin authorities have occurred.

6. Generating statistical reports

As administrators of the application, Agency officials have the opportunity to obtain statistics based on the entered integrity plans, reports on their implementation and questionnaires for assessing of the effectiveness and efficiency of integrity plans, in order to produce a better quality analysis of adopted integrity plans.

The Agency is constantly upgrading the application, adding new and improving existing statistical reports, so the Agency is able to search and filter data from plans, reports and questionnaires by a large number of criteria, such as: authority, system and subsystem in which authorities are classified, contents of integrity plans and reports (name of risk, risk intensity, area of risk, jobs to which the risk relates or which are in charge of implementing measures, existing and new measures for risk mitigation, etc.). For each search, it is possible to set the time period for which the data is required, and to search only certain versions of documents that are deemed relevant (e.g. valid integrity plan, old plan, working version of the plan, submitted report on the implementation of the plan, working version of the report, etc.).

Integrity managers, as users of the application, are also enabled to generate several types of statistical reports. Namely, integrity managers have a continuous insight into the level of implementation of measures in their integrity plans (in different time periods) or in the current status of intensity of identified risks. Both reports involve generating statistical data for the entire integrity plan or for specific risk areas in the institution.

7. Effects / Conclusions

The application for integrity plans serves as a single register of risks identified in all authorities in Montenegro. As administrators of the web application, Agency officials have the opportunity to obtain and refine statistics from submitted documents, thus producing a better quality analysis of adopted integrity plans.

The Agency prepares annual reports on adoption and implementation of integrity plans, analyses all integrity plans in Montenegro and reports on their implementation, and lays out an analytical and statistical overview of identified corruption risks and proposed measures for tackling those risks. The report provides for recommendations for improvement of integrity plans, stratified by ten different sectors/groups of authorities. Namely, all the authorities have been classified into ten systems, whereas certain number of systems has been divided into subsystems, with a view to carrying out a more detailed analysis of integrity plans. These annual reports are available on the web site of the Agency.

Integrity plan's comprehensive and proactive approach, systematic assessment of the exposure to risks, adoption and implementation of appropriate measures, allow public officials and civil servants to accept and take full responsibility for their integrity in a controlled manner, in order to further enhance and strengthen measures to effectively prevent and combat corruption and other illegal and unethical behavior.

IT platforms for the corruption risk assessment in the electoral campaigns

The Law on Financing of Political Entities and Election Campaigns prescribes obligations, prohibitions and restrictions for political entities, state authorities and other subjects to the Law, while the Agency for the Prevention of Corruption (hereinafter: the Agency) controls the financing of political entities and election campaigns.

One of the goals prescribed by the Law is to ensure transparency in the use of public resources during the election campaign and transparency in the financing of political entities and election campaigns.

The Agency continuously makes the efforts in the development of IT systems in order to efficiently process and make publicly available data in its possession, including those related to the financing of political entities and election campaigns.

Data collection in the IT system

The Agency regularly collects information and documentation related to all funds collected and spent by political entities as well as, performs controls of prescribed prohibitions and restrictions i.e. control of received documentation of service and goods providers to all political entities in the election campaign. All this data is obtained either electronically or by submitting periodic reports to the Agency which are then entered manually into the system i.e. specially developed modules in the information system. These are modules that are designed to cover the entire process of the Agency's work in this area.

The module "Control of regular operation of a political entity" stores, collects and processes information and data related to the regular operation of political entities, namely: incomes from the budget, incomes from membership fees, various income from regular operations as well as loans and credits. The module also allows control of this data. Within the module, in addition to cross-checking the plausibility of the submitted data with those collected from various sources, the verification of donators to political parties is performed through insight into the criminal records of the Ministry of Justice and is performed automatically. This verification, as well as many others performed by the Agency within its competence, is enabled by the ESB

system (Enterprise Service Bus) through which the Agency has access to the data of all relevant state institutions in real time.

The "Campaign Files" enables the Agency to record and control the information collected and submitted to the Agency during the election campaign related to income, loans and expenditure by various categories that the Agency collects from various sources, as well as the information obtained on the basis of submitted reports and excerpts. This module also stores and processes data from documents submitted by subjects to the Law (media, service providers, political entities, etc.), as well as the documents collected from various sources that prove certain actions during the campaign.

The state authorities as subjects to the law, are obliged to submit to the Agency reports on social welfare payments on a seven-day and fifteen-day basis, as well as contracts on all employments concluded during the election campaign, as well as accompanying documentation. The module "State Authority Dossier" enables Agency to record and monitor the results of the control of state authorities “in the field”.

Registry of the Reports

All reports by political entities are submitted electronically using the so-called “public part” of the Information System, which is integrated with the Agency's website and enables: downloading forms, assigning barcodes to forms, as well as sending forms, their basic processing and recording in a public database. A barcode is an identification number of a form by which data is withdrawn from the public part to the internal part of the information system.

The internal part of the information system is completely separated from the public part and enables filing and scanning of the submitted forms, after which processing and validation is being performed. After processing, the data is placed in registers, which enables further search. Data validation is the last process after which all data is available on Agency’s website. Reports which are submitted electronically are:

- Fifteen-day report on campaign contributions
- Interim report on campaign expenditures
- Report on media advertising of a political entity in the election campaign
- Report on election campaign expenditures

Transparency of all data held by the Agency

All data in the possession of the Agency, related to the financing of political entities and election campaigns, must be available to the public and this is achieved through three different forms: statistic reports, dynamic searches and campaign activity maps.

The development of the "dynamic search" system enables:

1. Easy access to information on individual money transactions;
2. Comparative analyses for selected time periods on election campaigns, political entities, types of income, types of expenditures, etc.
3. Summary review as well as review of individual transactions;
4. Export of data in a form suitable for further analysis;

The main analytical reports in the form of tables generated through Agency's IT system are also available to the public and they cover the following areas: income from private sources; income from public sources; expenditure in election campaigns, records of political entities and records of submitted reports (Table 1).

Table 1

In accordance with the Law, the Agency has developed a Methodology that describes the ways and procedures for substantial and in-depth control of activities, such as collected and spent funds of political

entities in the election campaign and, ultimately, control of completeness and plausibility check of submitted Reports of political entities. All documentation collected in this way is being processed through the established information system and the upgrading of modules that will enable their publication on the Agency's website is underway.

One of the future features within the IT system will be "the interactive advertising map" which will be posted on the website at the beginning of the election campaign and regularly updated with data from Agency's records, especially when it comes to billboards and city light but also other activities of entities with images and information on the name of service provider, political entity, period, price and other information available to the Agency and entered in its registry.

MOROCCO: USING MODERN TOOLS AND TECHNOLOGIES TO PREVENT AND DETECT CORRUPTION

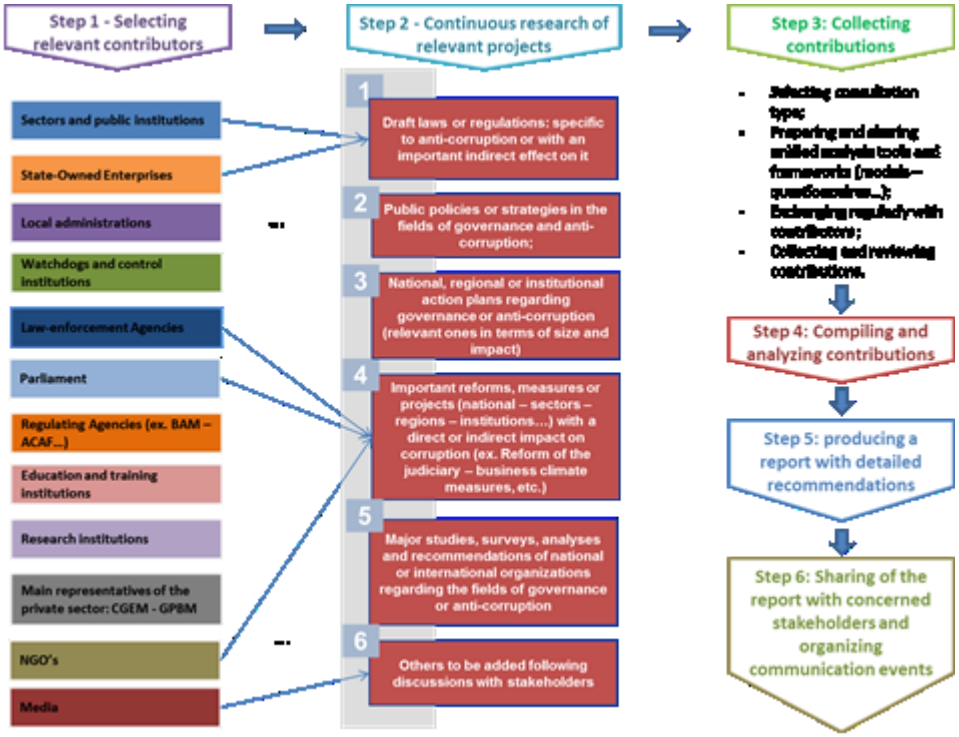
The National Authority for Probity, Prevention and Fight against Corruption (INPPLC) is entrusted with several strategic missions in the fields of integrity, governance and anti-corruption, two of which are at the heart of its interactions with the different stakeholders in these fields:

- ⇨ Supervising, monitoring and evaluating public policies, strategies and practices in the field of integrity and anti-corruption;
- ⇨ Issuing views and recommendations regarding anti-corruption approaches and measures to all concerned stakeholders including the public sector, the private sector, civil society and others.

One key success factor common to both missions is the capability of gathering timely and accurate information and data about the said policies and practices, to analyze them in light of international and national good practices and standards, and to issue high value-added views and recommendations to the said stakeholders.

In order to develop its capacities in this regard, the new institution will create a specialized observatory dedicated to the above-mentioned tasks and fitted with the latest state-of-the-art technologies and methods. Among the plethora of tools and techniques that will be used by the observatory, the INPPLC intends to develop a unique collaboration platform that will allow a continuous interaction and exchange with several groups of stakeholders in order to implement the above-mentioned missions. The platform will be based on traditional IT solutions which will be used in an innovative manner to bring high value-added in the fields of prevention and fight against corruption.

The following graphic describes the basic functioning of the platform:



In the first step of the process, the authority will select a targeted group of expert members/contributors on the basis of their capability and willingness of producing and sharing relevant data and information. The selected institutions will be approached, within the overall framework of the authority's cooperation strategy, in order to share with them the objectives, the functionalities and the benefits of the platform. Subsequently, those that will accept to be members of the platform will undergo specific trainings and be given passwords and access privileges set by the authority according to their level of involvement and the types of contributions that they will make.

The figure shows a preliminary list of potential members. A more detailed and refined list will be prepared following preliminary consultations to be held with a wide array of institutions before the official launch of the platform.

Once the members are connected and active, dedicated staff at the authority will continuously identify major projects to be analyzed based on their importance and their impact on corruption. The following is a preliminary list of general categories of projects that will be closely monitored by the authority:

- ⇨ Draft laws or regulations: specific to anti-corruption or with an important indirect effect on it;
- ⇨ Public policies or strategies in the fields of governance and anti-corruption;

- ⇨ National, regional or institutional action plans regarding governance or anti-corruption (relevant ones in terms of size and impact);
- ⇨ Important reforms, measures or projects (national – sectors – regions – institutions…) with a direct or indirect impact on corruption (ex. Reform of the judiciary – business climate measures, etc.);
- ⇨ Major studies, surveys, analyses and recommendations of national or international organizations regarding the fields of governance or anti-corruption;
- ⇨ Others to be added following discussions with stakeholders.

Selected projects among each category (not necessarily all at once) will be classified into two types: permanent projects to be monitored and analyzed on a continuous basis (ex. Public strategies and strategies), and temporary projects to be managed independently and assigned a file opening and closing date (ex. draft laws and studies).

The next step of the process will consist in matching the selected projects with the relevant stakeholders according to their expertise in the specific matter of interest. At this stage, one of three types of matching methods will be selected:

A. One institution or specific expert invited to analyze or provide information on one project directly linked to their area of expertise and not requiring additional involvement from other members;
B. A group of selected expert institutions invited to analyze or provide information on a subject requiring several view or areas of expertise;
C. An open consultation for all members of the platform on a voluntary basis: this method might still involve the official invitation of specific experts to ensure a minimum of coverage and participation.

In order to ensure a unified approach allowing for the comparability of data and analyses, the staff of the authority will propose a specific framework adapted for each type of consultation from the following non exhaustive list:

- ⇨ A questionnaire designed to collect specific information from different sources;
- ⇨ A unified analysis canvas designed to provide broad yet targeted information on complex issues;
- ⇨ An interview canvas to guide one-on-one meetings with experts;
- ⇨ Open questions to be answered by the members, each according to their knowledge about the subject;
- ⇨ Data files (ex. Excel) to be filled out by experts;

The selected framework will be posted on the platform or sent to targeted members along with an invitation containing detailed introductory information and context about the project to be analyzed. The invitation will also include specific needs for information or analyzes as well as major deadlines. Furthermore, if needed, one-on-one or group meetings can be physically or electronically held to launch major projects, mainly to ensure the necessary understanding, involvement and cooperation of the members. Indeed, some projects may require a close collaboration between different members in order to share information and produce elaborate analyses.

Throughout the consultation period, contributions will be collected and analyzed, and requests for additional information may be sent to specific members in order to ensure that the authority collects all the necessary information to produce a high-quality report. Once all the contributions are collected, a dedicated team of staff composed of subject-matter experts will be created to finalize the analysis and produce a final report

with detailed recommendations to the concerned parties. Such recommendations can take several forms including: proposed reforms, projects, changes to administrative processes, new laws and regulations of modifications to existing ones, new strategies or action plans to tackle specific anti-corruption matters, recommendations for trainings and capacity-building, etc. .

In the final step of the process, the report will be completed and approved by the authority's governing bodies that will decide whether to send it to selected concerned parties or to publish it publicly on its portal (as well as on the collaboration platform). This step might be followed with dedicated communication events in the form of press releases, conferences and workshops, exchange and information meetings, etc.

The work process of the collaboration platform described above is meant to guarantee the required effectiveness and efficiency of such mechanism. It might be modified and adapted along the way to take into consideration operational constraints or opportunities.

Benefits of the proposed project and impact on corruption:

This important project has a plethora of benefits the National Authority, the most important of which are as follows: First of all, it will allow it to develop a reliable network of experts and to enhance national cooperation in the fields of governance, integrity and anti-corruption. This will allow it to fully play its expert role as national and central authority and to implement its strategic missions of supervising, monitoring and evaluating public policies and practices in the said field. On another front, the collaboration platform will allow the authority to continuously identify matters of interest in a proactive matter, thus enhancing its reactiveness and its ability to address urgent priority subjects. Moreover, the platform will be a pivotal tool within the authority's observatory allowing it to enhance its knowledge of corruption and related subjects, thus improving its strategies, approaches and, finally, its impact on this plague.

It is important to mention that the scope of the collaboration platform will cover projects in the fields of integrity, ethics, governance, prevention and fight against corruption as well as related subjects. For example, the authority might work on specific training and awareness-raising programs or improving the workflow and processes of a public administration as part of the prevention arena, develop common investigation techniques with law enforcement authorities in the field of fight against corruption, or issue views and recommendations about the upcoming code of ethics for public administrations. Needless to say that the potential impact of such projects is very important provided that the necessary resources be allocated, and we intend to do so.

PALESTINE: THE USE OF MOBILE APPLICATION TECHNOLOGY IN RECEIVING COMPLAINTS AND CORRUPTION PREVENTION: PALESTINE EXPERIENCE

Description of Technology

According to the Palestinian Anti-Corruption Law (2005) and its amendments, the competences of the Palestinian Anti-Corruption Commission (PACC) include: (a) **raising awareness** through educating and promoting a culture of non-tolerance for corruption; (b) **prevention** by enhancing and developing the measures needed to prevent corruption crimes; and (c) **law enforcement** by conducting preliminary investigations on all submitted complaints. In December 2019 and in line with PACC's duties in the aforementioned axes, the commission officially released its in-house **developed smartphone application** providing Palestinian citizens with: (a) streamlined electronic tool to anonymously submit their official corruption complaints; and (b) a platform to promote, educate and raise the awareness of the public on prevention of corruption, and their participatory role in combating this phenomenon. Additionally, it provides PACC with a tool to publish its opinion surveys on various topics of interest to learn more about the public perception of corruption issues in Palestine.

How it works: Internal and External Elements

Similar to the general internal procedures of reporting a corruption complaint within PACC, the application follows the same steps starting with a direct complaint to the Complaints Department. In cases of concerns for personal safety, the users are given the option to submit their complaints anonymously (Ensuring the confidentiality of all attachments). Bearing in mind that only the director of the department has access to the complaints which are stored on the Commission's dedicated servers, they then begin by tasking the employees with conducting a preliminary investigation to determine which cases qualify as corruption to proceed with. Alongside the director's use relating to the Complaints Department work, the Media Department in coordination with the Information Technology Department utilize the platform to publish any relevant content on corruption prevention, raising awareness, activities and recent news.

Regarding the **external** elements and legal context, both the Palestinian law, and AntiCorruption Law (2005) and its amendments allowed PACC to determine the best procedures and practices needed to enable its efforts. In parallel and with the launch of its National Cross-Sectoral Strategy for Integrity and Anti-Corruption 2020-2022, PACC addressed the need for utilizing technology in the Palestinian society and the growing need for automation and digitization which in turn helps the provision and exchange of information and ultimately enables transparency.

Reflecting the supportive external context, PACC has taken active measures towards improving the environment regulating its work by releasing the "Regulation of Protection for Reporters, Witnesses, Whistleblowers and Experts in Corruption Cases, Relatives and

Confidents" which in turn helps in encouraging the public to work alongside the Commission. Furthermore, PACC continues its efforts to build bridges of trust with the public by working towards the release of the Right of Access to Information law.

Problems solved by the application: Advantages Overview

2.1 Citizen engagement:

Prior to the launch of the application, the commission relied on a number of methods for reporting including: directly reporting at the headquarters, reporting via a written complaint to PACC email address, reporting via a phone call or using the digital form provided on the website to report. Building on this, and for the purposes of encouraging the participatory role of Palestinian citizens in the fight against corruption, PACC has taken a number of steps to better support the electronic format of reporting (Application + Website) by utilizing dedicated backup units to safely, securely and anonymously store all information received from reports.

The launching of the application was accompanied by a number of measures to increase citizen engagement including: paid promotions, introductory workshops and interviews with local radio stations. This has had a great impact on engagement; since June 2020 over 60% of the complaints received came through the application and the percentage is constantly growing indicating the increase in interest. Moreover, the commission has received a number of suggestions to improve the app, as well as inquiries on how to use the application and reach certain information.

2.2 Raising awareness and corruption prevention:

Whilst PACC pays lots of attention to engaging citizens in reporting corruption to ultimately lead to prosecution, there's a lot of focus first and foremost on raising awareness and the preventive aspects. This is highlighted as part of PACC's competences to coordinate with the media to exercise an active role in promoting a culture of integrity within the Palestinian society.

To better inform and raise the awareness of Palestinian citizens, PACC uses the application as a media platform for sharing the latest developments via the "notification" function. This function allows PACC to quickly share its latest news and activities, corruption prevention campaigns, as well as the importance of following preventive measures to ensure an environment that rejects corruption and promotes a culture of integrity.

Available data on the most common forms of corruption in the Palestinian society point towards: favoritism, nepotism, breach of trust, misuse and exploitation of office. An example of utilizing the application as a prevention platform could be news on a case that's related to the aforementioned forms, the outcome of its prosecution and how it's criminalized under both the Palestinian Anti-Corruption law and UNCAC. Such example can serve as an important tool to inform citizens of the various forms of corruption, and how it contributes to the promotion of integrity culture.

2.3 Process simplification and anonymity:

The introduction of the application simplified the process of learning about prevention and reporting corruption in regards of: (a) reducing the barrier to accessing information and submitting complaints where citizens are introduced to another tool alongside the Commission's website. Both the app and website allow for submission of complaints reducing the need for a personal visit to the headquarters in Ramallah. Such benefit is especially critical in the time of dealing with a health crisis such as COVID-19; (b) Ensure increased security and anonymity where citizens aren't necessarily compelled to provide a personal identification with their submission. Such benefit complements PACC's goal of protecting whistle blowers and witnesses by

minimizing the possibility of the reported person learning about the submission and in turn harming the reporter. Moreover, the application design does not allow for historical data or auto-filling of personal details of reporters; and lastly (c) the introduction of dedicated storage servers fully controlled by PACC which drastically reduces the chances of losing any evidence or documents, and ensures that all submitted data remains encrypted from the moment it leaves the source until it reaches PACC's servers where it is only available to the Complaints Department.

2.4 Data collection and analysis:

Financial, technical and human resources cost

Part of the appeal of using mobile application technology, is the relative minimal cost associated with it. Regarding the **Development** and due to security reasons, the Commission sought to take the in-house development approach. For this, two employees were assigned (Analyst, and Programmer/Developer) to develop the software for a period of two and a half months. Regarding the **Financial** cost, PACC only had to cover less than $500 USD costs for publishing its application on the iOS and Android official stores, and will continue to pay a small annual fee to keep the application in stores. For **technical** and maintenance needs, the two main employees responsible for development continue to oversee the maintenance and updates of the application, whilst one employee from the Media Department is responsible for the digital media aspects.

Example case on the benefit of the application

Whilst it was always an option to use the other methods for complaints submissions and to include evidence of suspected acts of corruption, PACC mobile application is arguably the most streamlined tool for this purpose. An example of a submitted case benefiting from this technology included an attachment of **recorded video evidence** showing clear misuse/exploitation of office. Moreover, the submission included a description explaining the evidence, and highlighting the parts where the alleged act was committed. The strength and clarity of the evidence in this case indicated a clear act of corruption and consequently drastically reduced the period of the preliminary investigation needed before the case was transferred to the corruption court for prosecution.

Multilateral Cooperation: future plans

Referring to the competences of PACC, it is responsible for keeping all declarations of financial assets and request any related information. As the financial disclosure statements serve as a base to enhance and enable the principle of accountability, PACC's focus now is on **utilizing the application** to automate, streamline and improve the process of submitting and storing the statements. Enabling this in the future will require cooperative efforts with all relevant official bodies responsible for reporting internal financial disclosures.

Additionally, PACC is looking into the future possibility of utilizing the application as a portal to track progress, communicate and cooperate with relevant partners on implementing the National Cross-Sectoral Strategy for Integrity and Anti-Corruption 2020-2022.

Usability during the time of COVID - 19

Since the preparation phase of the National Cross-Sectoral Strategy for Integrity and AntiCorruption 2020-2022, PACC has focused on the crucial role of empowering the Palestinian citizens to actively participate

alongside PACC in fighting corruption and pave a path towards reform. This meant that all Palestinian local players with their different expertise in the field of anti-corruption were invited to participate in forming an inclusive strategy that puts citizens at its core. To best support this goal, the application had to be accessible to all citizens by providing an overview of corruption and its forms through the educational material, and encourage citizens by minimizing the barrier to reporting.

In light of the COVID - 19 pandemic, the Commission is seeing a constant shift towards using the electronic methods (Website/Application) for reporting compared to others; since the beginning of 2020, PACC noticed that the majority of submitted complaints came through the application. This can be attributed to a number of reasons including: the general movement restriction and health concerns related to the COVID-19 virus; and an increasingly supportive legal environment combined with the additional features provided in the application such as anonymous reporting, speed-up procedure and accessibility, and time saving.

QUEBEC: THE USE OF OPEN DATA ON PUBLIC PROCUREMENT TO PREVENT AND DETECT CORRUPTION AND COLLUSION IN QUÉBEC[20]

Introduction

New ideas about governance and the development of public administration have been fodder for discussions around open data on public procurement and the designing of corruption and collusion indicators, as well as the use and application of qualitative and quantitative statistics to assess the impact of anti-corruption policies.

This document discusses the issue of corruption in public procurement, the reasons behind it, and corruption and collusion schemes, as well as the development of corruption and collusion indicators and how they can be used to detect and prevent corruption and collusion in Québec.

Studies specifically into corruption in Québec have only focused on certain high-risk sectors, such as construction and health care. Comprehensive analysis of public procurement is also limited by the information made available and the ability to integrate required databases. These constraints also limit the planning measures that can be taken to prevent corruption within government agencies. This research project is part of a larger initiative to analyze public procurement in Québec in order to improve public systems and programs, so that awareness can be raised and corruption can be prevented and detected.

We hope that the database developed for this purpose and its uses and practical applications will be shared with the scientific community, along with the improvements required to incorporate other databases and make use of automated tools and algorithms, big data and artificial intelligence.

Creation of the database

Système électronique d'appel d'offres (SEAO)

SEAO is the official system for government contracting opportunities from Québec public bodies and acts as the official interface between these public bodies and private businesses. Public bodies are required to use SEAO to post notices, distribute tender documents and provide contract details[21] (description of the work, conditions on which the work is to be carried out, eligibility requirements, compliance requirements, list of required documents, tender opening procedure, and contract award rules).

The database was initially developed in 2009, when it became mandatory to post public calls for tender.

[20] Authored by Domink Blais and Luis García. Edited and Proofread by Daniel Dufault for the Commissaire à la Lutte Contre la Corruption (CLCC) – Unité Permanente Anticorruption (UPAC) Direction du soutien à la gouvernance. Montréal, October 22, 2020

[21] SEAO website: https://www.donneesquebec.ca/recherche/fr/dataset/systeme-electronique-dappel-doffres-seao

Data and format

We developed our database using the information available in Données Québec, a collaborative hub for open data relevant to Québec.[22] Information in the open data about public contracts was extracted from certain fields in the SEAO database. As the files were provided in XML format, we converted the monthly and yearly files for use in Excel, then the statistical analysis software SPSS.

Information about contracts posted on SEAO came from government ministries and agencies, organizations in the education system, organizations in the health and social services network, municipal governments and other municipal organizations. The open data on SEAO mainly contained information about:

1. **Notices**: signed contracts and information about related notices
2. **Expenses**: additional expenses associated with a contract
3. **Contracts**: finalized information about completed contracts

Limitations of the data

The database somewhat limits how the data can be used for reporting. The main obstacles that were identified are:

- Missing or incomplete data.
- Typographical errors.
- Duplicates of some notices and contracts.
- The fact that the name of a tenderer that has answered more than one call for tenders through SEAO may vary from one tender to another due to typographical errors or extra characters or words being added. Tracking the tenders submitted by a business over a given period of time is therefore not always possible.
- The fact that SEAO data are available for download in monthly or yearly sets. All these files must therefore be assembled into one file, and the variable types and measures for each field must be homogenized for integration.

Description and analysis

Database overview

By integrating the database, we are able to have a comprehensive perspective of public procurement in Québec since 2009. We can also search and analyze the database according to various criteria and in detail depending on our needs and the aspects we wish to analyze.

Table 1 provides information about public procurement for the period from 2009 to 2020.[23] In total, the database contains 874,253 notices and 387,560 contracts for a total $170,778 million. See the table for details.

[22] The data can be downloaded at:

[23] Contract information available until August 2020.

Table 1. SEAO database: 2009–2020

Année	Avis	%	Contrats	%	Montant M$	%
2009	36 737	4.2%	16 628	4.3%	6 767	4.0%
2010	42 085	4.8%	19 139	4.9%	7 056	4.1%
2011	68 769	7.9%	28 206	7.3%	10 032	5.9%
2012	77 925	8.9%	32 508	8.4%	12 257	7.2%
2013	91 079	10.4%	38 802	10.0%	15 495	9.1%
2014	87 172	10.0%	35 433	9.1%	14 419	8.4%
2015	88 468	10.1%	34 650	8.9%	12 830	7.5%
2016	85 913	9.8%	34 609	8.9%	12 468	7.3%
2017	83 417	9.5%	36 739	9.5%	18 595	10.9%
2018	78 307	9.0%	38 854	10.0%	19 284	11.3%
2019	79 000	9.0%	42 720	11.0%	22 296	13.1%
2020	55 381	6.3%	29 272	7.6%	19 279	11.3%
Total	**874 253**	**100%**	**387 560**	**100%**	**170 778**	**100%**

Analysis and results by sector

For analysis purposes, we use the same major sector categories as SEAO; nine of these sectors account for 74% of total procurement (in millions of dollars).

We selected Utilities (S14) to analyze in further detail as an application case study, because it is the third largest category and accounts for 7% of procurement in terms of number of contracts, for a total $8,119 million (14% of procurement).

Table 2. By sector, 2009–2020

Catégorie SEAO	Contrats	%	% cumulé
C03 - Autres travaux de construction	38 777	10%	10%
C01- Bâtiments	34 731	9%	19%
S14 - Services publics	**25 760**	**7%**	**26%**
G21- Fourniture et équipement médicaux et pharmaceutiques	24 977	6%	32%
S3 - Services d'architecture et d'ingénierie	24 240	6%	38%
O1- Indéterminé	23 157	6%	44%
S9 - Entretien et installation de biens et d'équipement	20 886	5%	50%
C02 - Ouvrages de génie civil	19 511	5%	55%
S13 - Services de soutien professionnel et administratif	17 832	5%	59%
S4 - Traitement de l'information et services de télécommunications	15 595	4%	63%
G8 - Matériel et logiciel informatique	15 287	4%	67%
S7 - Services de santé et services sociaux	11946	3%	70%
G22 - Produits divers	10 784	3%	73%
S16 - Services pédagogiques et formation	9 233	2%	76%
G27 - Instruments scientifiques	8 071	2%	78%
S15 - Services de communication, d'impression et de publication	6 659	2%	79%
G6 - Matériaux de construction	5 968	2%	81%
G28 - Véhicules spéciaux	5 714	1%	82%
S5 - Services environnementaux	5 269	1%	84%

Catégorie SEAO	Montant M $	%	% cumulé
C02 - Ouvrages de génie civil	29 142	17%	17%
C03 - Autres travaux de construction	25 928	15%	32%
C01- Bâtiments	23 399	14%	46%
G21- Fourniture et équipement médicaux et pharmaceutiques	10 639	6%	52%
S7 - Services de santé et services sociaux	9 223	5%	58%
S14 - Services publics	**8 119**	**5%**	**62%**
S4 - Traitement de l'information et services de télécommunications	7 023	4%	66%
S3 - Services d'architecture et d'ingénierie	6 825	4%	70%
G8 - Matériel et logiciel informatique	6 689	4%	74%
O1- Indéterminé	5 228	3%	77%
S13 - Services de soutien professionnel et administratif	4 668	3%	80%
S9 - Entretien et installation de biens et d'équipement	3 669	2%	82%
S11- Services financiers et autres services connexes	2 570	2%	84%
G22 - Produits divers	2 194	1%	85%
S5 - Services environnementaux	2 161	1%	86%
G31- Équipement de transport et pièces de rechange	1976	1%	88%
S17 - Services de transport, de voyage et de déménagement	1896	1%	89%
S15 - Services de communication, d'impression et de publication	1678	1%	90%
S16 - Services pédagogiques et formation	1468	1%	90%

Application case study on Utilities (S14)[24]

In this case study, we used the same codes and categories as SEAO to identify major sectors. SEAO uses 57 categories that fall under four contract types: goods, services, construction, and other.

Table 3. Database by SEAO category, 2009–2020

Catégorie SEAO	Contrats	%	% cumulé	Montant M$	%	% cumulé
1 - Approvisionnement	4 629	1%	1%	1 037	1%	1%
2 - Services	**101 450**	**29%**	**30%**	**30 643**	**21%**	**21%**
3 - Travaux de construction	148 181	42%	72%	46 293	31%	52%
5 - Autres natures de contrats	97 592	28%	100%	71 041	48%	100%

Contracts in the **goods** categories are mainly for the acquisition of physical, tangible or virtual goods. They usually do not include services, but they may include installation, operating or maintenance costs.

Contracts in the **services** categories are mainly for the acquisition of technical or professional services. They generally involve work by people.

[24] See further down for a more detailed application case study on the snow removal sector.

Contracts in the **construction** categories are for the performance of construction work, whether for buildings or infrastructure. The Building Act (chapter B-1.1) governs these contracts, under which contractors must hold the required licence.

SEAO uses **UNSPSC**[25] categories and codes to classify contracts. When a public body posts a notice or a contract through SEAO, it must select a category and one or more UNSPSC codes.

For the period from 2009 to 2020, the database had 42,637 notices and 25,760 contracts for a total $8,119 million for the Utilities (S14) sector (see the distribution by year in the table below).

Table 4. Distribution of contracts by year in SEAO, 2009–2020

Année	Avis	%	Contrats	%	Montant M$	%
2009	1 410	3.3%	930	3.6%	301	3.7%
2010	916	2.1%	626	2.4%	208	2.6%
2011	3 302	7.7%	1 474	5.7%	500	6.2%
2012	4 036	9.5%	1 875	7.3%	625	7.7%
2013	6 121	14.4%	4 136	16.1%	664	8.2%
2014	5 197	12.2%	3 123	12.1%	2 381	29.3%
2015	4 834	11.3%	2 821	11.0%	520	6.4%
2016	3 996	9.4%	2 325	9.0%	508	6.3%
2017	3 891	9.1%	2 286	8.9%	498	6.1%
2018	3 481	8.2%	2 244	8.7%	596	7.3%
2019	3 531	8.3%	2 653	10.3%	939	11.6%
2020	1 922	4.5%	1 267	4.9%	378	4.7%
Total	**42 637**	**100%**	**25 760**	**100%**	**8 119**	**100%**

Corruption and collusion risk indicators

We identified 14 indicators that were tailored to the Utilities (S14) sector and drew up a list of businesses ranked according to these indicators. This method is used to delineate sectors of interest in order to guide decision making on prevention and intelligence operations. These indicators provide a way to sort through the data by narrowing the focus to, for example, specific contracts and/or businesses.

Below are definitions for the 14 indicators used and the list of 25 businesses identified for analysis.

1. **Worth ($M):** The worth of all the contracts awarded to the business from 2009 to 2020, in millions of dollars.
2. **Number of notices:** The number of notices that the business bid on from 2009 to 2020.
3. **Number of contracts:** The number of contracts granted to the business from 2009 to 2020.
4. **Contract/notice percentage (%):** The ratio of contracts to the number of tenders expressed as a percentage.
5. **Single tenderer (number):** The number of contracts that only one tenderer bid on during the period under analysis.
6. **Single tenderer (number) / contract percentage (%):** The ratio of contracts that only one tenderer bid on to total contracts expressed as a percentage.

[25] *United Nations Standard Products and Services Code* (*UNSPSC*).

7. **Sum of procedure types:** The sum of all procedure types as defined by Mihály Fazekas: 0 = open tender; 1 = invitation only; 2 = negotiation; 3 = other.
8. **Length of tender period (in days):** The number of days between the date of publication of the call for tender and the tender closing date (the most appropriate indicator for each contract).
9. **Average length of tender period:** The average duration of the tender period for all tenders by the business during the period under analysis (in days).
10. **Number of compliant tenders:** The number of compliant tenders.
11. **Compliant tenders / total tenders percentage (%):** The ratio of compliant tenders to the total number of tenders expressed as a percentage.
12. **Length of decision period (in days):** The number of days between the tender closing date and the contract award date (the most appropriate indicator for each contract).
13. **Average length of decision period (in days):** The average duration of the decision-making period (in days).
14. **Final contract >= 100% (number of times):** The number of occurrences in which the value of the final contract was two or more times the value of the initial contract (final contract vs. initial contract >= 100%).

Note that there are a number of inconsistencies and missing values in the indicators and the calculated periods, as some fields in the database still need to be corrected. We recommend ideally using automated tools to make such corrections.

SEAO 2009-2020 - Secteur services (S14) : Indicateurs de corruption et de collusion

Indicateur	1	2	3	4	5	6	7	8	9	10	11	12	13	14
NEQ	Montant (M$)	Nombre d'avis	Nombre de contrats	% Contrats/ avis	Un seul soumissionnaire (nombre)	% Un seul soumissionnaire (nombre)/ contrats	Somme de type de processus	Longueur des soumissions (en jours)	Moyenne de la longueur des soumissions	Nombre de soumissions conformes	% soumissions conformes / soumissions totales	Longueur de la période de prise de décision (en jours)	Moyenne de la longueur de la période de prise de décision (en jours)	Contrat final >=100% (nombre de fois)
3340563140	98.0	750	670	89%	647	97%	1 898	3 026	4	82	11%	3 026	5	1
1165310831	95.1	641	617	96%	608	99%	1 777	807	1	27	4%	807	1	
1148357057	72.9	705	629	89%	615	98%	1 780	3 145	4	86	12%	3 145	5	
1167268128	65.7	792	760	96%	735	97%	2 186	1 334	2	44	6%	1 334	2	
1144280717	64.3	3	3	100%	0	0%	6		-		0%		-	
1167280206	54.1	729	716	98%	710	99%	2 079	679	1	17	2%	679	1	
1161581104	53.6	471	450	96%	440	98%	1 300	817	2	29	6%	817	2	
1160633906	52.3	30	18	60%	10	56%	6	388	13	26	87%	388	22	6
1146435301	51.7	124	52	42%	14	27%	9	3 265	26	95	77%	3 265	63	10
1169058147	51.6	1	1	100%	1	100%	2		-		0%		-	
1166291337	45.5	645	638	99%	635	100%	1 886	210	0	5	1%	210	0	
1162713870	37.8	161	53	33%	13	25%	21	3 750	23	140	87%	3 750	71	11
1144299279	37.1	148	27	18%	3	11%	3	4 670	32	136	92%	4 670	173	19
1170241336	32.1	307	295	96%	289	98%	867	449	1	14	5%	449	2	
1142482703	31.9	108	24	22%	0	0%	1	4 544	42	95	88%	4 544	189	16
1144242949	31.5	17	16	94%	13	81%	3	578	34	13	76%	578	36	1
1142775999	30.3	279	259	93%	252	97%	761	893	3	18	6%	893	3	
1146557013	29.4	90	23	26%	1	4%	-	4 220	47	78	87%	4 220	183	15
1141673567	28.4	33	28	85%	13	46%	9	632	19	22	67%	632	23	2
1165715484	25.4	20	9	45%	0	0%	1	366	18	19	95%	366	41	1
1142760280	24.1	59	28	47%	9	32%	11	2 041	35	48	81%	2 041	73	16
1169411510	23.8	195	180	92%	176	98%	525	712	4	18	9%	712	4	
1163744866	23.4	142	75	53%	24	32%	116	1 730	12	120	85%	1 730	23	3
1142538520	21.7	21	17	81%	12	71%	2	817	39	18	86%	817	48	1
3368599133	19.6	101	47	47%	16	34%	21	3 300	33	68	67%	3 300	70	9
1171077796	19.5	344	338	98%	337	100%	1 006	215	1	5	1%	215	1	
1142611939	19.5	40	17	43%	4	24%	7	1 160	29	35	88%	1 160	68	2

Connection to schemes in closed operational files

Scheme: System of collusion within a system of corruption – False competition within a market

The method set out in this section was used to find signs of false competition in public procurement markets.

Some operational files proved that within a system of corruption, there was also collusion between businesses so they would each have a share of the market. Both engineering firms and construction companies engaged in this type of collusion. Corrupt city officials decided the winners in advance. When looking for situations where this type of scheme may arise, dominance of a market by one company or a small group of companies can be a clue that collusion or corruption is afoot.

The idea is that, in order to achieve consistent market shares, competitors may come to an agreement with each other and involve someone who can rig the calls for tender (such as a city official or an engineer employed by the city). The data from SEAO can be used to determine several indicators of market dominance, the most telling being the following:

Concentration ratio of winning businesses in a particular industry (CR4)

If more than 60% of contracts for a given sector in a given year are won by four businesses or fewer, this constitutes market dominance.

Limited number of tenderers per contract over a given period

Market dominance can also be analyzed by considering the average number of tenderers per contract in a given industry in recent years. The lower the average over a long period of time, the higher the risk of market dominance.

The risk of collusion is high if the average number of tenderers is relatively low (three to four) and the number of winning businesses is limited (CR4 greater than 80%).

It should be noted that some industries are specialized, which means the number of tenderers will be smaller. The number of tenderers must therefore be considered in the specific context of the industry. If the industry requires little expertise or expensive equipment, there should be no fewer than three tenderers per contract on average.

Accessibility of an area and population are also factors that must be controlled for when assessing the average number of tenderers per contract. The average may be lower in a small town or remote area.

Market share in an industry over the past five years

To create this indicator, a trend analysis of the past five years is necessary. The number of tenders and the number of contracts won must be taken into consideration to determine the success rate.[26]

The success rate is the key variable to watch over five years. If the success rate for each of the various competitors remains consistent, this may be a case of market division involving collusion.

[26] Number of contracts / number of tenders = success rate (e.g.: 5 contracts / 10 tenders = 50% success rate).

The amount of money that businesses win from contracts is also a good control variable: if the winnings among competitors remains proportionally consistent over the years, again, this may indicate a risk of collusion in the form of market division.

Competitors with unusually low success rates

Low success rates can also be a sign of market dominance by a small group of companies. If some businesses have an unusually low success rate despite a high number of tenders over a given time period, this may be evidence of complementary bidding.

This practice may be used to prevent a call for tenders from being cancelled due to a low number of tenderers. It may also be used to manipulate the price of a call for tenders by creating false competition.

Since a bid bond (cash deposit) is required to bid on a call for tenders, it would not make sense for a business to make several bids on contracts in an industry if it knows that it will rarely (if ever) win. Companies that submit complementary bids are often subcontractors hired by winning businesses.

Rotation of winning businesses and clearly discernible trends

Another market division tactic to keep an eye out for is the alternating of winning bids. If businesses are awarded contracts in the same order over time, this may be a case of market dominance by a small group of companies, and the possibility of collusion must be considered.

Furthermore, if a clear trend in who wins the contracts can be discerned when analyzing a given period, this may be due to collusion. Such practices may be used to divide the share of a particular sector or the territory in a given geographical area.

The more of these indicators that appear, the higher the risk of collusion, in which case direct, comprehensive action is required to contextualize the data under analysis.

Connection to relational databases containing data from open sources

The following sections provide examples of how data from SEAO can be analyzed. Some of these sections are still being developed, but may be included in an updated version of this report.

Connection to database of political donations (Élections Québec)

We have data about political donations made between 2000 and 2010. The data is in a text-searchable PDF file that lists all the political donations.

Public health sector / COVID-19 pandemic

We searched the SEAO data for certain keywords and contract types in order to analyze the impact of the pandemic on the awarding of contracts. The rules for granting contracts were amended in order to meet demand given the urgency of the situation, leading to a huge number of forward contracts being awarded. Using this procedure for public procurement may lead to abuse by both winning businesses and work providers.

Several indicators were created based on data from SEAO and open sources to identify the most problematic contracts.

Connection with the Registry of Lobbyists database

For the time being, data from the Registry of Lobbyists is only available through a basic search (e.g., one business or person at a time). We plan to set up a partnership so we can access all the data and more efficiently analyze them in relation to the SEAO data.

The Registry of Lobbyists is particularly useful for drawing connections between the businesses that win the biggest contracts and any lobbying activities they may have engaged in.

These data could also be used to compare the lobbying contracts granted in different sectors of the economy. Particular sectors of interest could be identified, and prevention and intelligence efforts could be adapted to trends in lobbying.

Connection to the list of government grants

Data on government grants are also a good source of information that can enrich our analysis of SEAO data. They can also be used to identify work providers that are given substantial grants and businesses that receive government assistance.

At this time, it will take a significant amount of work to make this type of data accessible and usable for analysis.

Application case study – Snow removal sector

In our analysis, we used two UNSPSC[27] codes for the snow removal sector. These codes fall under two SEAO categories:

- **72102901** (snow removal services) in the Maintenance, Repair, Modification, Rebuilding and Installation of Goods/Equipment (S9) sector
- **72191501** (snow removal) in the Utilities (S14) sector

For the period from 2009 to 2020,[28] the snow removal sector database contains 12,880 notices and 6,190 contracts totalling $1,993 million (see the distribution by year in the table below).

Table 5. Notices and contracts granted annually

Conclusions and recommendations

- ✓ Using this type of data with red flag indicators can help detect potentially problematic cases. This method can be easily applied to different industries; it limits the number of cases, making it easier to detect businesses that are at risk of engaging in collusion and/or corruption.
- ✓ The next key step in the SEAO data analysis is incorporating automation. Working automation into the process will make it possible to integrate several databases in order to enhance the analysis, and to develop specific algorithms for each sector, which will reduce production time.

[27] United Nations Standard Products and Services Code (UNSPSC).

[28] Contract and notice information available until August 31, 2020.

- ✓ We also recommend updating the database on a monthly basis and conducting more extensive analysis and reporting, focusing on:
  - The year (for example, 2018, 2019 or 2020)
  - The election period (for example, 2009–2012, 2013–2016 or 2017–2021)
  - The companies or group of companies that account for a significant share of the market
  - Major cities
  - Major public bodies
  - Other sectors identified as being the most at risk
- ✓ The application case study found some distinctive characteristics of the snow removal sector in Québec:
  - A high number of the contracts are small, worth more than $250,000, but with many additional contracts exceeding their initial value by more than 100%.
  - The companies have high success rates, and many of the awarded contracts received a single bid.
  - Given how the sector is concentrated, we recommend focusing our prevention and detection efforts on the biggest contracts between the identified businesses and public bodies. In particular, we suggest focusing on contracts with indicators of high bid success rates, single-tenderer contracts, and contracts that exceed their initial value by 100%.
  - Further analysis of the identified businesses will be required to determine the nature of the relationship between the businesses and their shareholders, directors and nominees.
  - We also recommend using the lists of businesses and public bodies as a complementary strategy for prioritizing our prevention and detection activities.
- ✓ Overall, challenges remain in terms of updating, correcting, cleaning and obtaining complete data and integrating other databases.
- ✓ Ideally, automated processes should be used. Some progress has been made thanks to the use of certain tools, training on the software required and coordination with the intelligence team on this matter.
- ✓ Lastly, new tools and techniques for processing unstructured data will lead to great strides in the application of collusion and corruption indicators. Furthermore, identifying and cataloguing new corruption schemes will make it possible to develop machine-learning algorithms, in addition to using big data, artificial intelligence and various applications in this area to optimize our prevention and detection operations.

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SLOVAKIA: EVIDENCE-BASED CORRUPTION RISK MANAGEMENT THROUGH IT TOOL[29]

On 12 December 2018, the Government of the Slovak Republic approved the Anti-Corruption Policy of the Slovak Republic for the years 2019 – 2023 by its Resolution No. 585/2018. The material comprehensively regulates the anti-corruption policy of the Slovak Republic and improves the system of anti-corruption prevention. The main idea has been to replace the formalistic approach to the fight against corruption by an approach that emphasizes the effectiveness of anti-corruption measures whose impact the citizens would perceive. The document is addressed mainly to the central state administration bodies, but also to all levels of public authority, including organizations established by the Government. The general public has also had the opportunity to participate in the improvement of the document through lodging their observation via the intersectoral observation procedure. Individual bodies and institutions should incorporate this anti-corruption policy into their sector-specific anti-corruption programs to add value and improve the measurable effectiveness of the anti-corruption measures. In these programs, as well as measures, they should take into account their characteristics, and the context of its scope and sectoral competencies, the working environment, relationships, circumstances and context of the activities, procedures, duties and responsibilities performed, and, in particular, the identified corruption risks. Anti-corruption policy for the period from 2019 to 2023 sets the vision of contributing through consistent implementation of anti-corruption activities at all levels of public power to enhanced inclusive economic growth, strengthening security and legal certainty, increasing living standards, self-confidence and quality of life of the citizens in Slovakia. It has been inspired by the recommendations of international organizations such as GRECO, OECD, UNCAC and non-profit organizations. Its main objective is to reduce and eliminate the space, extent and opportunities for corruption in all areas of public administration, business sector, and public services, as well as to increase anti-corruption awareness among public sector employees and public authorities. The priorities of the Anti-Corruption Policy of the Slovak Republic are these:

1. to promote and protect the public interest by reducing the space and opportunities for corruption;
2. to improve the quality of the legislative and legal environment;
3. to improve the conditions for business.

The task of identifying and analyzing corruption risks in Slovakia resulted from point B.3 of the Resolution of the Government of the Slovak Republic no. 585/2018 to the Anti-Corruption Policy of the Slovak Republic, in which the government imposed the obligation to:

- create the position of an anti-corruption coordinator,
- implement efficient corruption risk management and identify areas exposed to corruption,
- adopt, on the basis of the assessment and evaluation of corruption risks, sectoral anti-corruption programs with sector-specific anti-corruption system measures, and publish it on its website.

[29] Contributed by the Government Office on Corruption Prevention and Crisis Management, Slovak Republic

In February 2019, in connection with this resolution, each ministry established the position of anti-corruption coordinator. This coordinator, in cooperation with other employees, coordinates the anti-corruption activities of the ministry, including a new model of corruption risk management. The government also recommended setting up a position of an anti-corruption coordinator and the implementation of corruption risk management to the President of the Judicial Council, the General Prosecutor and the President of the Association of Towns and Municipalities. To maintain the consistency and coherence of corruption prevention in the Slovak Republic, the Anti-Corruption Coordinator of the Office of the Government of the Slovak Republic is also the administrator of the electronic questionnaire for the identification and evaluation of corruption risks. He also makes necessary adjustments and updates. As part of corruption risk management, surveys are carried out, and the obtained data are analyzed and processed. The anti-corruption coordinator provides to managers the relevant results of the assessment and evaluation of corruption risks and consults with them on the proposals for measures to mitigate and, if necessary, eliminate corruption risks in their area of competence. Subsequently prepare a structured catalog (register) of corruption risks on the basis of predetermined criteria and a list of anti-corruption measures, which archives together with the achieved results and identified corruption risks.

Corruption risk management, as an objective tool, is based on evidence (facts) and is an integral part of the anti-corruption system. It enables competent authority to achieve control over corruption risks and to increase the effectiveness of corruption prevention. Each sectoral body identifies, trough corruption risk management, areas, positions, activities, processes regard to their specificities in the sectoral body that are exposed to risk. It is part of the creation of evidence for the development and implementation of effective measures to reduce and eliminate these risks in the sectoral body and its departments. Corruption risk management, as part of the anti-corruption system, has been implemented at all ministries. Each sectoral body shall set up a system for managing corruption risks as effectively as possible and taking into account the specificities of its area of competence. In the interest of consistency, it is appropriate to base the management of corruption risks on methodological guidelines prepared by the Office of the Government of the Slovak Republic, specifically the Department of Corruption Prevention. It is envisaged to implement this model is its use in the entire State administration. This model is based on an IT platform that provides to respondents with anonymity and the ability to easily respond to the questions presented by clicking on the selected answer option. It saves much time in processing the data obtained and allows managers to quickly address the corruption risks. The tool automatically evaluates the questionnaire, including the identified corruption risks. On the basis of the evaluation, it may also indicate the measures to be taken. However, the measures are proposed by the respondents. For the sake of transparency, each central administration / ministry shall publish its sectoral anti-corruption program. It enables the public and journalists to monitor the implementation of measures taken to increase the effectiveness of corruption prevention and the mitigation/ elimination of corruption risks. The identification of risks and proposals for measures should form a substantial part of the sector-specific anti-corruption program of each public institution in the Slovak Republic. The most frequent corruption risks identified, as well as measures proposed to mitigate them, shall be part of the annual evaluation report of the Government of the Slovak Republic.

Corruption risk management at the Office of the Government of the Slovak Republic

The Office of the Government of the Slovak Republic, through the Corruption Prevention Department, is the main coordination unit for anti-corruption prevention in relation to the State administration. The powers and responsibilities of this department are legally established. It is a central contact point in the field of corruption prevention for all bodies and levels of public administration. It also provides methodological guidance in the management of corruption risks. In its activities, it closely co-operates with state authorities that perform tasks in the field of anti-corruption, and helps to organize and coordinate joint activities of these bodies with a view to reducing and eliminating corruption risks and increasing the effectiveness of anti-corruption prevention. Based on the approved Anti-Corruption Policy of the Slovak Republic for the period of 2019 - 2023, the Office of the Government of the Slovak Republic prepared its Sectoral Anti-Corruption Program. The addressees of this anti-corruption program are the employees of the Government Office. Its purpose is to provide them with a set of concrete steps to prevent corruption, in particular by managing corruption risks and reducing the space for their emergence and existence. Its main priorities are as follows:

- strengthen the Government Office's credibility as an institution that promotes and protects the public interest through its activities by reducing the space and opportunities for corruption;
- increase the efficiency of the management of anti-corruption activities at the Government Office and strengthen the anti-corruption culture;
- set out a trend (strengthening leadership, or "trend-setting") in introducing effective preventive procedures to reduce the space and opportunities for corruption.

The primary goal of this program is to promote the culture of public integrity and create a corruption-free environment in the Government Office, where any manifestations of corrupt behavior and conduct are not tolerated. As a support tool to achieve this goal, is the effective functioning of the anti-corruption management system and the consistent application in practice of all relevant requirements according to the international standard of ISO 37001. The proposed objectives and measures in this program result from the practical application of internal regulations implementing the ISO 37001, as well as utilization of a questionnaire survey. The purpose is to achieve demonstrable effectiveness of the established management of anti-corruption activities as a system and at the same time to harmonize internal regulations and application practices. Sustainable improvement of corruption risk management, implemented through IT tool, which means the task of developing and streamlining to identify and eliminate corruption risks in time, is integral part of this system at the Government Office. When updating the sectoral anti-corruption program, the requirements of ISO 37001 standard are taken into account, as well as the experience gained during its implementation at the Office of the Government of the Slovak Republic, but especially the information resulting from the survey of corruption risks at the Government Office. The forms and methods of corruption and corruption risks are different with regard to the competencies of individual ministries. For example, the profile of corruption risks in the authorities or departments that grant permits or licenses is different from the profile of corruption risks in the processes of allocating funds in infrastructure projects or in the area of territorial development or in the exercise of public power. The management of corruption risks at the Government Office includes the identification and analysis of corruption risks, the determination of their significance, the determination of measures to eliminate or mitigate them, the implementation of the measures taken and the evaluation of their effectiveness and efficiency. The IT tool was developed by experts from the Government Office, in cooperation with a private company, with the assistance of the University of Matej Bel. The IT tool - electronic application for corruption risk management allows to identify and classify factors with an impact on the origin and existence of corruption risks in individual institutions of State administration.

Philosophically, it is based on the basic equation of prof. Klitgaard, who metaphorically explains that the space for corruption appears where there is a monopoly of power, discretion and on the other side the minimum deducibility of liability C = M + D - A. However, it was supplemented by other factors that affect the conditions of corruption. The corruption risk management mechanism was launched at the Government Office on 13 December 2019, when an electronic questionnaire was sent to all employees of the Government Office, as part of a pilot operation, via a unique web link. Data collection took place by 17 January 2020. Questionnaires identified and evaluated, to what extent the organization is exposed to corruption and what corruption risks could jeopardize the proper functioning of the Government Office.

Corruption risk levels are usually expressed numerically by assigning a value to each risk. The assessment of corruption risks takes into account the degree of significance and impact of corruption risk. The degree of significance of corruption risk is the result of the point evaluation of the probability of the impact and consequence of corruption risk: influence x probability = degree of significance of corruption risk This statement of the significance of corruption risk should be determined for each corruption risk and will help in compiling an overall overview of corruption risks. Based on the obtained data, measures are taken to minimize and eliminate the identified corruption risks. 45% of the Office's employees took part in the survey, and we used its results to prepare a catalog of corruption risks. The results of the survey indicate the level of awareness of the basic terminology and characteristics of corruption and corrupt behavior, as well as the views of employees on corruption and its reporting. Despite the fact that the questionnaire was not filled in by all the employees of the Government Office of the Slovak Republic, it is possible to generalize the conclusions and universally apply them. The research sample was sufficiently diverse that we could assess the individual phenomena examined in detail and identify certain tendencies in the knowledge or behavior of employees, which indicate the views of all employees of the Central Office of the Slovak Republic. After completing the questionnaire, employees had the opportunity to provide their observations, as well as to suggest specific steps and thus personally participate in solving the corruption-related problems. Each identified and assessed corruption risk includes specific measures to mitigate or eliminate it, as well as the deadlines and responsibilities of specific persons. The questions relate, for example, exposure to corruption risks in the areas of integrity, transparency, confidentiality of information, accountability, whistleblower protection, staff status, responsibilities and obligations, management system, tone from the top, nature of work. This IT tool automatically evaluates the questionnaire, including identified corruption risks. On the basis of the evaluation, it may also indicate the measures to be taken. The survey is carried out once a year and obtained data can be compared with others to examine the effectiveness of the measures taken.

Below are a few examples of the questions from the questionnaire survey:

1. Is there a system for monitoring the transparency of all processes and activities in your organization?

2. Does the organization have effective measures to eliminate conflicts of interest?

3. Do you think that your organization has effective whistleblower protection against retaliation?

4. Do you think that this protection system has failed in the last 3 years?

5. Is there a clear way to keep an employee liable for abuse of power?

6. Has it happened during the last three years that an official has had to pay for the damage he/she caused?

After completing the questionnaire survey, employees had the opportunity to comment, as well as to suggest specific steps, so that they could personally contribute to solving the problems. Respondents most often perceived these risks:

- absence of criteria for the application of sanctions,
- involvement of a risky partner or employee in the project,
- insufficient motivation of employees to comply with anti-corruption measures,
- non-compliance with the procedures for preventing corruption and the fight against corruption is not penalized,
- existence of conflicts of interest,
- the result of the decision is influenced by an external party.

The most significant and most frequently identified corruption risks were included in the Government Office's catalog of corruption risks, and subsequently corresponding measures were taken to reduce or eliminate them. Key actions include:

- adopting an internal directive on measures in the field of corruption prevention, which regulated, for example, gifts policy, conflict of interest,

- adopting of the anti-corruption policy of the Office of the Government,

- acquaint the employees of the Government Office with the anti-corruption policy and anti-corruption objectives of the Government Office,

- retraining of government office staff with regard to the ISO 37001 requirements,

- providing further education for employees of the Government Office in the field of anti-corruption prevention.

Through the analysis of documents, processes and the way of managing corruption risks, gaps and shortcomings in the management of these activities were identified. Following this, the Corruption Prevention Department has developed clear and comprehensible regulations as a regulatory element for creating an anti-corruption environment, which provide a supportive basis for proposing better anti-corruption measures. More effective processes and procedures have been set up to reduce corruption risks, prevent corruption and create an anti-corruption environment. A functional, clear and comprehensible system for the management of anti-corruption activities has been created, which respects the overall context in which the Government Office operates. Measures arising from the requirements of ISO 37001 and mechanisms for the prevention of corruption were also incorporated into the existing structures and processes as an integral part of the overall system of management and strengthening of the anti-corruption environment at the Government Office. This system facilitates the elimination of potential corruption risks at the Government Office at an early stage and thus prevent any corruption in advance. One of the key potential risks identified at the Government Office may be the risk of the third party influencing the results of the decision-making. Therefore, one of the opportunities for improvement is the adoption of the Act on Lobbying by the National Council of the Slovak Republic, or the establishment and implementation of integrity principles at the Government Office and in public administration, including constitutional officials, members of the government and other public officials. We also recommend introducing a Code of Ethics

specifically for Ministers, State Secretaries and their advisers and promoting a culture of integrity not only in Government Offices, but in all public authorities of the Slovak Republic. The use of the corruption risk management software tool will be carried out regularly at least once a year and will be updated in the light of the risks identified. In accordance with the requirements of the ISO 37001, the Corruption Prevention and Crisis Management Section also launched a personal questionnaire through the said software, which evaluates the degree of exposure of each employee of the Office of the Government of the Slovak Republic to corruption risks in relation to a specific position was assessed. The purpose of the questionnaire survey was to obtain information for the needs of processing the input analysis for the project of implementation of the management system against corruption in accordance with ISO 37001 Standard and related legislation at the Central Office of the Slovak Republic. As part of the results of the survey, the Corruption Prevention Department created a catalog of corruption risks, which is a factual and evident basis for taking measures to mitigate or eliminate corruption risks in the organization.

In particular, the following criteria shall be taken into account when assessing corruption risk:

- the degree of exposure of the job position to corruption risk,
- quality and efficiency of the anti-corruption management system,
- the scope of the decision-making powers,
- the effectiveness of support for the promotion of ethical conduct, anti-corruption culture and culture of public integrity in the performance of duties,
- transparency of decision-making procedures,
- the effectiveness of control mechanisms, taking into account control mechanisms
- the quality of the whistleblower protection system,
- exercise of personal responsibility.

The unique software solution for corruption risk management allows the Government Office to provide it for use by other organizations throughout the public sector. The following institutions have already launched the survey:

- Ministry of Economy of the Slovak Republic,

- Office of the Judicial Council of the Slovak Republic,

- Industrial Property Office of the Slovak Republic,

- Office for the Regulation of Network Industries,

- Public Procurement Office,

- Statistical Office of the Slovak Republic,

- Office of Geodesy, Cartography and Cadastre,

- Ministry of Agriculture and Rural Development of the Slovak Republic,

- Ministry of Culture of the SR,

- Ministry of Health of the SR.

As part of the continuous improvement of the system, the Corruption Prevention Department is currently working on reformulating the questions, simplifying them and supplementing them in sensitive areas such as public procurement or the area of European funds. The department also plans to create independent surveys in the future, focusing only on the organization, organizational unit and job position of the employee. Based on information obtained from other institutions that have already launched the survey, we plan to compare individual corruption risks in individual departments in the future and set possible trends and measures at the state level, which will serve as a basis for updating the National Anti-Corruption Program.

GRECO: UPGRADING REGULATORY COMPLIANCE INFORMATION SHARING WITH THE BLOCKCHAIN'S DISTRIBUTED-LEDGER TECHNOLOGY[30]

The Covid-19 outbreak has shaded further light on the pressing need for private companies and public authorities to rely on new technologies in order to gather and share dematerialized relevant information at accelerated speed, sufficient trust and lower cost.[31] This is particularly true for globally interconnected organizations that require a constant monitoring of their customers and third parties in order to comply with various laws and regulations, most notably anti-money laundering/combating the financing of terrorist (AML/CFT) standards and associated obligations (e.g. prevention of fraud and corruption). The blockchain, which has gained seamless attention over the past four years as an innovative and secured information sharing software,[32] has emerged as a tool-of-choice for a number of key economic stakeholders such as, initially, financial institutions,[33] as well as intergovernmental organizations[34] and companies across industries.[35] It is when combined

[30] Authored by Ms.Charlotte Gunka (independent) and Mr.Gianluca Esposito for the Secretariat of GRECO

[31] R. van Hoek, M. Lacity, "How the pandemic is pushing blockchain forward", Harvard Business Review, April 27, 2020.

[32] D.J. Battistini, "Using blockchain technology to facilitate anti-money laundering efforts", Economic Crime Forensics Capstones, La Salle University, August 31, 2016; D.M. Aluise, H. Jackson, "Financial Regulation Case Study: Bank Secrecy Act, Anti-Money Laundering Law Compliance, and Blockchain Technology", Harvard Law School, CSP-023, August 2017; M.J.W. Rennock, A. Cohn, and J. Butcher, "Blockchain technology and regulatory investigations", Practical Law Practice Note, Thomson Reuters, February 2018; K. Rutter, "If at first you don't succeed, try a decentralized KYC platform: Will blockchain technology give corporate KYC a second chance?", R3 Reports, July 22, 2018; P. Aarvik, "Blockchain as an Anti-corruption Tool – Case examples and introduction to the technology", U4 Anti-corruption Resource Center, Issue 2020:7, 2020.

[33] J.P. Morgan, "Largest Number of Banks to Join Live Application of Blockchain Technology", January 20, 2020. In 2017, J.P. Morgan's Interbank Information Network (IIN) launched as a pilot the firm's first scalable, peer-to-peer network powered by blockchain technology. In 2020, IIN has grown into an expanded network of 397 banks located in every major markets, including Latin America, Asia, Europe, the Middle East and Africa.

[34] C. Lagarde, "Addressing the Dark Side of the Crypto World", IMF Blog, March 13, 2018; World Bank Group, "Distributed Ledger Technology (DLT) and Blockchain", FinTech Note n°1, 2017; N. Aggarwal and L. Floridi, "The opportunities and challenges of blockchain in the fight againt government corruption", Digital Ethics Lab, Oxford Internet Institute, 19th General Activity Report (2018) of the Group of States Against Corruption (GRECO), Council of Europe, March 2019; Z. Aliyev, I. Safarov, "Logos, mythos and ethos of blockchain: an integrated framework for anticorruption", submitted as part of a competitive call for papers on integrity and anti-corruption in the context of the 2019 OECD Global Anti-Corruption & Integrity Forum, 20-21 March, 2019, Paris, France.

[35] N. Le-Boucher, "The Blockchain, Transformation Vector for the Future of the Automotive Industry", Groupe Renault, May 14, 2020; Y-M Leporcher, F. Goujon and Dr. B. Chouli, "Les Blockchains. De la théorie à la pratique, de l'idée à l'implémentation", Eni, 2nd edition, December 2019; M. Andonia, V. Robua , D. Flynna , S. Abramb , D. Geachc , D. Jenkinsd , P. McCallumd , A. Peacockd "Blockchain technology in the energy sector: A systematic review of challenges and opportunities", Renewable and Sustainable Energy Reviews, Vol. 100, pp. 143–174, February 2019; J. J. Sikorskia,

with the distributed-ledger technology (DLT) that the blockchain becomes a powerful mechanism offering the opportunity to optimize group-wide information gathering and exchange, by essentially securing and simplifying the process.

The World Economic Forum noted in May 2020 when releasing its Blockchain Deployment Toolkit[36] that, if there were still some doubts over the value of the blockchain's DLT, the Covid-19 crisis has blown them away (I).[37] Evidently, certain technological and practical improvements still need to be consolidated to turn the blockchain's DLT into an operational tool.[38] In light of the risk of enforcement actions resulting from compliance failures during the Covid-19 lockdown,[39] this paper will focus on the legal considerations that concurrently circumscribe and enhance the adoption of the blockchain's DLT as a due diligence data sharing platform for prevention of financial and corporate crimes (II).[40]

Blockchain's DLT as a Tool for Efficient Regulatory Compliance Information Sharing

While the terms blockchain and DLT are often used interchangeably to designate the technology behind the Bitcoin cryptocurrency, they refer to two separate but complementary softwares. The blockchain is a computer program that employs algorithm and cryptography to enable a highly secure recording of information structured as a sequence of data "blocks", which relate to each

J. Haughtona, M. Kraft, "Blockchain technology in the chemical industry: Machine-to-machine electricity market", Applied Energy, Vol. 195, pp. 234-246, June 1, 2017.

[36] "Redesigning Trust: Blockchain Deployment Toolkit", World Economic Forum, April 2020.

[37] M. Obaid AlMuhairi, "Why COVID-19 makes a compelling case for the wider integration of blockchain", World Economic Forum, May 8, 2020. On May 22, 2020, the World Economic Forum has also issued its Presidio Principles to provide foundational values for a decentralized future, which are based on four elements: (i) transparency and accessibility (the right to information about the system), (ii) agency and interoperability (rights for participants to own and manage their data), (iii) privacy and security (the right to data protection), (iv) accountability and governance (the right for participants to understand available recourse).

[38] Many blockchain platforms are still considered immature for large-scale production work that comes with the accompanying and requisite systems, security and network management services. The risk of cyber-attacks is also present as for any other data platform, especially for public and permissionless blockchain's DLT. *See* K. Costello, "Gartner Reveals Seven Mistakes to Avoid in Blockchain Projects", Gartner, Press release, June 12, 2019; Y-M Leporcher, F. Goujon and Dr. B. Chouli, "Les Blockchains. De la théorie à la pratique, de l'idée à l'implémentation", *op. cit*., pp. 425-456. However, as Dr. Catherine Mulligan, member of the United Nations (UN) Secretary-General's High-level Panel on Digital Cooperation and Expert and Fellow with the World Economic Forum, noted to the UN Chronicle: "Blockchain is still new and will evolve many times before it can be fully integrated into society. We have seen similar trajectories before in the technology industry; examples include the Internet of things, mobile telephony and even the Internet itself. Every one of those technologies went through various iterations before it was fully integrated and used within society. Many technical, social and political obstacles had to be slowly but surely overcome."

[39] In a memorandum addressed to all U.S. attorneys March 16, 2020, U.S. Attorney General William P. Barr stated that "Every U.S. Attorney's Office is thus hereby directed to prioritize the detection, investigation, and prosecution of all criminal conduct related to the current pandemic".

[40] *See* also European Commission, "Study on Blockchains – Legal, governance and interoperability aspects", SMART 2018/0038, February 2020.

other following an unalterable logical relationship.[41] In turn, a distributed ledger or DLT describes a specific type of database that allows access and sharing of recorded information with synchronicity among a network of trusted participants (i.e. computers or "nodes"), possibly located across multiple sites, with no ("permissionless") or limited ("permissioned") external/central administration.[42] A distributed ledger will generally consist of individual but clustered registers, maintained "private" or "public" by each trusted participant of the network.

When information is recorded to the distributed ledger using the blockchain, the entire network has an unrestricted and simultaneous access to each node's encrypted data register. The participants are able to update the distributed ledger only by adding new chains of data "blocks" replicated identically across the entire network, often following a pre-agreed algorithmic "consensus mechanism",[43] with constrained editing and deleting options.[44] Network's participants can be part of the same entity group or belong to different organizations, be located in the same country and/or abroad, and serving common but not similar interests (e.g. banks in a correspondent banking relationships or a financial institution with its supervisory authority).[45]

As a result, the blockchain's DLT is seen as a credible tool ensuring a more rational exchange of information than other existing databases. Traditional databases are structured as centralized data gathering and storage platforms, or decentralized but rather complex networks, which require the dissemination of information by at least one administrator between different users. Within a group of institutions, stored information are generally managed by one single entity and access to a unique server is authorized to vetted users, whose activity is subject to the controlling entity's approval. In contrast, the blockchain's DLT provides for a shielded peer-to-peer network with no intermediary, built upon a consortium of several entities that decide to mutualize their knowledge in order to avoid duplicating the same data collection work and facilitating consultation of information by each entity.

The instrumental features of the blockchain's DLT are obvious in the context of mandatory information exchange by group financial institutions for AML/CFT purposes. The DLT enables synchronized and streamlined group-wide distribution of information recorded by each entity, while the unmodifiable and encrypted nature of the blockchain offers traceability and security to the exchange of sensitive data, notably in application of customer due diligence (CDD) obligations and

[41] "Distributed Ledger Technology (DLT) and Blockchain", World Bank Group, *op. cit.*, p. 2. The precise definition of the blockchain and the DLT is often controversial and the choices of terminology in this paper are only meant to provide readers with some clarity over these intricate concepts.

[42] "Distributed Ledger Technology (DLT) and Blockchain", World Bank Group, *op. cit.*, Figure 2, p. 7 and p. 12.

[43] *Ibid.*

[44] The methods to accept additions to the distributed ledger vary across different networks and DLT. Public blockchain's DLT like Bitcoin rely on a system of economic incentives to allow a network of thousands of nodes to agree on each new data "block" added to the ledger. In contrast, permissioned distributed ledger will rely on existing trust relationships between network participants to coordinate a consensus approval. *See* J. Stark, "Applications of distributed ledger technology to regulatory and compliance processes", R3 Reports, December 14, 2017.

[45] N. Patel, "Blockchain KYC/AML utilities for international payments", R3 Reports, November 6, 2017.

third party verification.[46] The Financial Action Task Force (FATF, the international AML/CFT standard setter) keeps recalling private and public entities, including during the Covid-19 pandemic,[47] that effective information sharing is a cornerstone of a well-functioning AML/CFT framework.[48] In the European Union (EU), the May 2018 Fifth Anti-Money Laundering Directive (5AMLD)[49] introduced enhanced CDD requirements for obliged entities dealing with high-risk countries[50] and increased focus on information sharing within group financial institutions, between financial institutions not part of the same group,[51] as well as with and between AML/CFT competent authorities.[52]

Concretely, the blockchain's DLT emerges as a cost-saver for the financial sector, but not only, considering the growing regulatory compliance expectations faced by companies across industries. In France, for example, the amount of fines imposed by the French banking supervisor (the "ACPR") has been multiplied by 14 in two years, rising from €4.9 million in 2016 to €70 million in 2018.[53] Meanwhile, the consulting firm McKinsey & Company estimated in June 2019 that blockchain's DLT-based solutions for customer's identification could create up to $1 billion of savings in operating costs for retail banks globally, reduce regulatory fines by $2 billion to $3 billion, and lower annual losses from fraud by $7 billion to $9 billion.[54] Despite the preliminary costs associated with switching from a centralized to a DLT system, increased supervision[55] and growing risks of enforcement

[46] A. Bouchenafa, N. Goulli, "La blockchain pour optimiser le KYC", Revue Banque, n°841, February 2020.

[47] FATF, "COVID-19-related Money Laundering and Terrorist Financing – Risks and Policy Responses", May 2020; Statement by the FATF President, "COVID-19 and measures to combat illicit financing", April 1, 2020.

[48] FATF, "Consolidated FATF standards on information sharing", June 2016, last updated in November 2017; FATF Guidance, "Private sector information sharing", November 2017.

[49] Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018, amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU. The 5AMLD should have been transposed into all EU member states' national laws on January 10, 2020.

[50] Paragraph 12 of the 5AMLD's preamble; Articles 18a and 20a of the 5AMLD.

[51] Paragraph 46 of the 5AMLD's preamble.

[52] Paragraphs 17, 18 and 19 of the 5AMLD's preamble; Articles 50a and 57a of the 5AMLD.

[53] A. Bouchenafa, N. Goulli, "La blockchain pour optimiser le KYC", *op. cit.*, p. 1.

[54] M. Higginson, A. Hilal, E. Yugac, "Blockchain and retail banking: Making the connection", McKinsey & Company, June 7, 2019. In October 2012, the ACPR issued a €500 000 fine against a bank sanctioning its AML/CFT failures, including in relation to group-wide exchange of STRs-related information between the mother entity and subsidiaries located abroad, notably in Switzerland (ACPR, Decision against credit institution A, n°2011-02, October 24, 2012).

[55] With regard to the implementation of AML/CFT standards by financial institutions, the European Commission released on May 7, 2020 a series of measures that it plans to adopt to step up the fight against money laundering and terrorist financing, including granting in the first quarter of 2021 supervisory powers to an EU organization (probably the European Banking Authority). It is currently up to each Member State to individually supervise the implementation of the EU AM/CFT rules and this situation has created gaps in how these rules are supervised. *See* European Commission, "Commission steps up fight against money laundering and terrorist financing", May 7, 2020.

actions[56] demand speeding up the adoption of long-term efficient information sharing mechanisms to effectively prevent money laundering, terrorist financing and other related criminal activities.

Having said that, implementation of a blockchain's DLT-based information sharing platform, especially within financial institutions but also other global corporate organizations, has to comply with various domestic laws and regulations that define information exchange possibilities for companies and, at the same time, contribute to safeguard individual rights and public interests.[57]

Domestic Laws as Practical Safeguards to Blockchain's DLT-based Information Sharing

For AML/CFT purposes, a number of factors are to be assessed by financial institutions to decide whether a blockchain's DLT-based information exchange can be adopted at group level. The FATF expects countries to impose and monitor adoption of information exchange policies and procedures by financial groups (i.e. parent company, all branches and majority-owned subsidiaries, in domestic and cross-border environments)[58] to effectively identify, manage and mitigate money laundering and terrorist financing risks. This should include, but is not limited, data related to clients and beneficial owners identification (Know-Your-Customer (KYC) information), as well as account and transaction monitoring (including suspicious transaction reports (STRs) and enhanced CDD analysis).[59] The exchange modalities will also depend upon various elements such as provided products and services, geographical location, existing legislative and regulatory frameworks, confidentiality and sensitivity of the information, as well as current risks and context.[60]

Overall, countries have similar understanding of KYC information but disparities are observed with respect to STRs sharing,[61] which makes the blockchain's DLT less suitable for that purpose. In France, for example, STRs are confidential and disclosing a STR is forbidden except to Tracfin, the French financial intelligence unit (FIU).[62] However, the STR's underlying information, and the fact that the STR has been submitted, must be shared with all the group entities locally and abroad (under condition with entities located in EU high-risk jurisdictions), following strict confidentiality safeguards (e.g. only with authorized persons, such as financial security staff).[63] In contrast, in the

[56] *See*, notably, press releases issued in March and April 2020 by the U.S. Department of Justice and Securities and Exchange Commission, the U.K. National Crime Agency and Financial Conduct Authority, and the French Autorité des Marchés Financiers (AMF) and Autorité de Contrôle Prudentiel et de Résolution (ACPR).

[57] This paper does not deal, however, with the contractual possibilities that can be relied upon to conclude a blockchain's DLT-based sharing engagement between institutions part of the same group, or between entities of different groups. For financial institutions, such agreement could be based on an outsourcing relationship (called "*prestation de services essentiels externalisés*" in France), a defined mandate, or, more narrowly, a third-party reliance.

[58] FATF Recommendations, Interpretive Note to Recommendation 18, paragraph 4, February 16, 2012 and updated.

[59] FATF Guidance, "Private sector information sharing", *op. cit*., pp. 8-9.

[60] *Ibid.*

[61] Across EU countries, group-wide exchange of information for AML/CFT purposes will be sometimes mandatory, authorized or recommended. *See* S. Mouy, "Le KYC partagé bientôt une réalité", Revue Banque, n°388, February 2020.

[62] Article L. 561-18 of the French Monetary and Financial Code.

[63] The list of jurisdictions considered by the EU as High Risk Third Countries was last updated by the European Commission on May 7, 2020. It is now aligned with the lists published by the FATF by adding the following countries:

United States, banks (including U.S. branches of foreign banks) can share STRs, but with their parent entity only, whether located in the U.S. or abroad.[64] In other countries, group-wide exchange of STRs-related information may be subject to the domestic FIU's prior approval or consultation, and may even be forbidden in some cases.[65]

Bank secrecy rules in certain jurisdictions protective of clients' interests may further constrain the implementation by financial institutions of a blockchain's DLT-based information sharing at group level. Although the FATF requires countries to ensure that bank secrecy laws do not inhibit implementation of the AML/CFT standard, certain jurisdictions remain extremely restrictive and even a legitimate interest, security concerns or client's express consent may not allow banks to unveil a financial secret.[66] According to the 2020 Tax Justice Network's Financial Secrecy Index, the ten top ranked countries are unsurprisingly the Cayman Islands, the U.S., Switzerland, Hong Kong, Singapore, Luxembourg, Japan, Netherlands, the British Virgin Islands and the United Arab Emirates (UAE), with the Cayman Islands and UAE reaching the highest secrecy scores. In Switzerland, for a data transfer to a group entity located abroad, the consent of each current and prospective client will be necessary beforehand depending on the recipient entity's jurisdiction and reciprocity of information exchanged.[67]

Furthermore, specific trade and state secrecy laws guarding national interests, notably in China, prohibit certain cross-border information transfers between group entities no matter the industry (i.e. financial and other sectors, such as manufacturing or energy). Enabling review and information sharing from or with a Chinese entity through a blockchain's DLT platform seems impossible[68] since it would certainly infringe the Chinese State Secret Law.[69] Chinese state secrets are broadly defined as any "matters which have a vital bearing on state security and national interests and which are entrusted to a limited number of people for a given period of time",[70] which could be embedded in

the Bahamas, Barbados, Botswana, Cambodia, Ghana, Jamaica, Mauritius, Mongolia, Myanmar, Nicaragua, Panama and Zimbabwe. The list is not yet final and needs to be approved by the European Parliament and the EU Council of Ministers.

[64] Financial Crime Enforcement Network (FinCEN), guidance previously issued on January 2006. An additional guidance was issued in November 2010, providing the following: a depository institution that has filed a STR may share the STR, or any information that would reveal the existence of the STR, with an "affiliate", provided the affiliate is subject to a STR regulation. *See* FinCEN, "Sharing Suspicious Activity Reports by Depository Institutions with Certain U.S. Affiliates", Guidance (FIN-2010-G006), November 23, 2010.

[65] French financial institutions have to report on a yearly basis legal obstacles that they met in the area of information exchange with their branches or subsidiaries.

[66] FATF Guidance, "Private sector information sharing", *op. cit*., p. 5.

[67] Tax Justice Network, Narrative report on Switzerland, Financial Secrecy Index 2020, February 2020.

[68] M. Griffiths, "China's laws can make cooperation with foreign investigations "impossible""; Global Investigations Review, October 31, 2019.

[69] Revised Law of the People's Republic of China on Guarding State Secrets, which came into effect on May 1, 1989 and later amended on April 29, 2010 ("Chinese State Secret Law").

[70] Article 2 of the Chinese State Secret Law. The law further sets out a broad list of what constitute state secrets, including, without limitation, secrets relating to "national economic and social development", "science and technology" and "material decisions of national importance" (article 9), and "other matters that are classified as state secrets by the National

CDD files. In the same way, the 2016 Chinese's Cybersecurity Law[71] clearly inhibits foreign entities dealing with China to adopt a blockchain's DLT platform, since this law seems to authorize unilateral extractions of companies' data being investigated under Chinese criminal law from servers and hard drives located outside of China.[72] China has also introduced in October 2018 an International Criminal Judicial Assistance Law,[73] equivalent to a "blocking statute" such as the ones in place in France[74] and in Switzerland,[75] which require approval by governmental authorities before any evidence or state sensitive information can be provided out of the country, notably in the context of a criminal proceeding.

However, privacy and data protection laws that have long been seen as preventing blockchain's DLT-based information sharing may represent compatible individual safeguards, notably the measures provided by the EU General Data Protection Regulation (GDPR).[76] The GDPR imposes strict rules over collection, processing, storage and transfer of personal data by organizations located in the EU, or outside the EU if offering goods or services to individuals in Europe. Despite some remaining issues, the French data protection regulator (the "CNIL")[77] and the European Parliament[78] have encouraged the use of "private"[79] and "permissioned"[80] blockchain's DLT solutions for group-wide

State Secrets Bureau". The concept of state secret captures data that belongs to state, provincial or local governments, as well as to state-owned enterprises. See M. Sng, J. Tang, S. Pettigrove, "China: handling internal investigations", The Asia-Pacific Investigations Review 2018, Global Investigations Review, September 21, 2017.

[71] Cybersecurity Law of the People's Republic of China enacted on November 7, 2016 and implemented on June 1, 2017.

[72] B. Zagaris, "The CLOUD Act and Similar non-U.S. legislation", Academy of International Financial Litigators, November 30, 2018.

[73] R. Rohlfsen, D. Zhang, Y. Zhang, M. Yang, and G. M. Atkins, "China Enacted "Blocking Statute" for International Criminal Judicial Assistance", Ropes & Gray LLP, February 25, 2019.

[74] Law n°68-678 of July 26, 1968 amended by Law n°80-538 of July 16, 1980. *See* also Report requested by the French Prime Minister, "Rétablir la souveraineté de la France et de l'Europe et protéger nos entreprises des lois et mesures à portée extraterritoriale", June 26, 2019.

[75] Article 271 of the Swiss Penal Code.

[76] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), directly applicable within EU member states since May 25, 2018.

[77] Commission Nationale Informatique et Libertés (CNIL), "Première analyse de la CNIL - Blockchain", September 2018.

[78] European Parliament, "Blockchain and the General Data Protection Regulation – Can distributed ledgers be squared with European data protection law?", Study, Panel for the Future of Science and Technology, July 2019.

[79] In a private system, the distributed ledgers are accessible only to the participating nodes in the network (as opposed to anyone even outside the trusted network when the blockchain's DLT is public).

[80] In a permissioned system, computers at each node need some degree of permission of an administrating entity to access the network and make changes to the distributed ledger (as opposed to a permissionless system where there is no managing focal point). Permissions for different participants can give them different levels of access to varying functions, such as viewing records, transacting, and/or making updates. Although access controls can include identity verification, each

information sharing. In particular, the concerns over the immutability of the blockchain data could be addressed by encryption techniques making registered information virtually inaccessible after a certain time.[81] A number of safeguards would nevertheless need to be introduced, including the adoption of binding corporate rules,[82] a prior data protection impact assessment shared with the relevant data protection regulators, and the designation of a data controller who can justify of the lawfulness of the data processing operated (e.g. compliance with CDD obligations). Informing the client about his or her rights and the purpose of the blockchain's DLT-based information exchange is mandatory (e.g. through contract clauses), whereas written consent will be necessary if local requirements vary from the GDPR.[83]

After all, despite the specificities of the financial sector's regulation, it appears that legal constraints over the implementation of the blockchain's DLT-based information sharing could be overcome. Common sense does not call for systematic use of the blockchain's DLT when other traditional, and perhaps more flexible, solutions are available. Yet, a blockchain's DLT-based information sharing platform could represent, if properly designed in compliance with relevant domestic legislation, an efficient tool to implement all sorts of preventive measures within group organizations. Set aside the financial institutions' AML/CFT and bank secrecy obligations, global companies across industries are now subject to heightened anticorruption compliance requirements, notably prevention of conflicts of interest and mandatory verification of business partners[84] (i.e. clients, suppliers, agents, intermediaries, etc.).[85] In response to the Covid-19 crisis, the Network of Corruption Prevention Authorities has issued a statement on May 11, 2020 calling upon regulators and private entities to "seriously and expeditiously integrate qualified instruments of corruption prevention in their decision-making processes and operations".[86] This includes for the NCPA enhanced transparent storage of relevant data and facilitated use of dedicated computer-based databanks, which could efficiently be implemented with the blockchain's DLT.

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node is managing its own register and the latter is duplicated automatically among the entire network. *See* N. Zelensky, "Distributed Ledger Technology", AML White Paper, Association of Certified Anti-Money Laundering Specialists.

[81] CNIL, "Première analyse de la CNIL - Blockchain", *op. cit.*, pp. 9-11.

[82] Binding corporate rules (BCRs) are data protection and governance policies adhered to by companies established in the EU for transfers of personal data outside the EU within a group of companies. BCRs must be approved by the competent data protection national regulator following the procedure set forth in article 63 of the GDPR, and they need to contain several information, including but not limited to an accountability regime, a code of conduct, training and audit procedures, as well as a process to update the BCRs.

[83] A. Bouchenafa, N. Goulli, "La blockchain pour optimiser le KYC", *op. cit.*, p. 3.

[84] *See* also, K. Spiers, "Applying Blockchain to Third-Party Risk Management: What Questions Should Be Asked and What Does the Future Hold?", Ethical Alliance, May 18, 2020.

[85] In France, since December 2016, failure to thoroughly conduct effective third party verification is severely sanctioned by fines of €200 000 for the entity's CEO and €1 million for the legal entity. Article 17 of the Law n° 2016-1691 of December 9, 2016 related to transparency, the fight against corruption and the modernization of public life ("Law Sapin II").

[86] Statement by the NCPA, "Corruption prevention must play a key role in the global response to Covid-19", May 11, 2020.