

Data and Integrity in Public Procurement in Emergency Times

The CO.R.E. Data Principles for Procurement Integrity*

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ABSTRACT. Transparency becomes significantly relevant to disclose the decisions made by contracting authorities and to enhance public procurement. However, in times of emergency, compliance with transparency obligations is often called into question. It is necessary for public administrations to promote new mechanisms of transparency and new ways to manage them to strengthen public integrity. This article focuses on the conditions necessary for the proper functioning of transparency mechanisms in times of emergency (Principles of AIR, availability, interoperability and reusability). It also examines data-protection regulation as one of the widest limit of transparency in public procurement. Finally, the article also presents the CO.R.E. Data Principles for Procurement Integrity, a proposal to improve transparency, to enhance integrity and to prevent and fight corruption in public procurement in times of emergency through the analysis of public-procurement data.

1. Introduction

The risks of corruption in times of emergency are common.¹ S. Rose-Ackerman y B. J. Palifka observe how “conflict and its aftermath both created corrupt incentives and gave domestic and international actors excuses to overlook corruption”.² Indeed, emergency situations facilitate the emergence of corruption cases.³ In fact, some forms of corruption are prevalent in these situations.⁴ In this regard, in recent decades, numerous cases of corruption linked to the management of crisis and emergency situations have been identified (for example, in the case of Hurricane Katrina in 2005 or the HIV and Ebola pandemics in West Africa in 2014⁵ or,

more recently, during the COVID-19 crisis.⁶

Public procurement is an area where these risks manifest themselves. While there always are usually integrity risks in public procurement,⁷ they increase in times of emergency,⁸ especially in those public administrations where a high level of corruption already exists.⁹

In these scenarios, public integrity plays a key role in responding firmly to corruption risks.¹⁰ Integrity refers to the complete, consistent and congruent relationship between the values, principles and standards that should guide the actions of public officials and employees and their actual effective

in a crisis situation, 2015.

⁶ M. Mrčela, *Corruption Risks and Useful Legal References in the context of COVID-19*, 2020; OECD, *Public integrity for an effective COVID-19 response and recovery*. Accesible en: <https://www.oecd-ilibrary.org/content/paper/a5c35d8c-en>, 2020; World Bank Group, *Ensuring Integrity in Governments' Response to COVID-19, Governance & Institutions COVID-19 Response Resources*, 28 April 2020.

⁷ L. Baena, *Identificación de los riesgos para la integridad de la contratación. 12 áreas de riesgos de irregularidades, fraude o corrupción que hay que evaluar, Riesgos para la integridad en la contratación pública. Documentos de trabajo*, núm. 3, 2018.

⁸ OECD, *Public integrity for an effective COVID-19 response and recovery*. Available at: <https://www.oecd-ilibrary.org/content/paper/a5c35d8c-en>, 2020; Group of States against Corruption (GRECO), *Corruption Risks and Useful Legal References in the context of COVID-19*, 2020.

⁹ J. A. Gallego, M. Prem and J. F. Vargas, *Corruption in the Times of Pandemia*, 2020.

¹⁰ OECD, *Public integrity for an effective COVID-19 response and recovery*. Accesible en: <https://www.oecd-ilibrary.org/content/paper/a5c35d8c-en>, 2020.

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¹ J. Schultz y T. Søreide, *Corruption in emergency procurement, Disasters*, vol. 32, n. 4, 2008, 516; M. Fazekas, S. Nishchal y T. Søreide, *Public procurement under and after emergencies*, O. Bandiera, E. Bosio y G. Spagnolo (eds.), *Procurement in Focus Rules, Discretion, and Emergencies* London, Centre for Economic Policy Research, 2021.

² S. Rose-Ackerman y B. J. Palifka, *Corruption and Government. Causes, Consequences, and Reform* (2nd ed.), Cambridge, Cambridge University Press, 2016.

³ J. Schultz y T. Søreide, *Corruption in emergency*, 516.

⁴ Independent Commission Against Corruption, *Managing corrupt conduct during the COVID-19 outbreak*, 2020.

⁵ U4. Anticorruption Research Centre, *Ebola and corruption: Overcoming critical governance challenges*

actions due to the absence of conflicts of interest.¹¹

One of the instruments to ensure integrity in public procurement is transparency to increase the possibilities for efficient accountability of contracting authorities.¹²

Transparency becomes significantly relevant in times of emergency to disclose the decisions made by public administrations or the resources being used and how they are being used. It is also essential to explain why certain decisions are made so that they can be subject to public scrutiny. The special circumstances in which public decisions are made in times of emergency give transparency a special value. As highlighted by the President of the Group of States against Corruption of the Council of Europe (GRECO), “The need for regular and reliable information from public institutions is crucial in times of emergency”.¹³

However, in times of emergency, compliance with transparency obligations can also be called into question. Indeed, as observed during emergency situations, traditional transparency mechanisms do not always function correctly.¹⁴

To address the possible inefficacy of transparency mechanisms, especially in times of emergency, it is necessary for public administrations to promote new mechanisms of transparency and new ways to manage them to strengthen public integrity and thus to promote good governance, to prevent conflicts of interest, and to combat corruption.

This article analyses transparency mechanisms to improve integrity in public procurement. It focuses on the conditions necessary for the proper functioning of transparency mechanisms in times of emergency as well as the difficulties of public

administrations in providing the public with all relevant data.

In the following pages, this article is organized into five sections. The first section analyses transparency in public procurement, with a special emphasis on transparency emergency times. The second section presents the conditions that should characterize transparency to achieve its purposes. The third section examines how limits to transparency, particularly the protection of personal data, can impact integrity in public procurement. The last section presents the CO.R.E. Data Principles for Procurement Integrity, a proposal to improve transparency in public procurement in times of emergency. The article finishes with some concluding remarks.

2. Transparency in public procurement in times of emergency

2.1. Transparency in public procurement

Transparency is a principle of open contracting and a principle of public procurement.¹⁵

Open contracting aims at giving account on public contracts to citizens and improving effectiveness, efficiency and, ultimately, public confidence in government institutions. Transparency allows citizens to participate in public-procurement decisions strengthening the dialogue between public administrations and citizens and collaboration in the awarding, execution, monitoring and control of public contract. It also contributes to strengthening public integrity and preventing corruption. As the *Open Contracting Partnership* states “procurement that is not open undermines shared development. (...) Open contracting strengthens accountability and trust among the different stakeholders in the process and ultimately contributes to better contractual fulfilment and improved development results”.¹⁶

Furthermore, transparency is also a principle of public procurement. It seeks to boost equity among bidders, promote concurrence in public tenders, guarantee that contracts are awarded to the best offer, ensure achievement of the expected results and, ultimately, facilitate integrity. As the Court of Justice of the European Union (CJEU)

¹¹ A. Cerrillo i Martínez, *El principio de integridad en la contratación pública. Mecanismos para la prevención de los conflictos de intereses y la lucha contra la corrupción* (2 ed.), Cizur Menor, Aranzadi-Thomson-Reuters, 2018.

¹² D. Kaufmann, A. Bellver, *Transparency: Initial Empirics and Policy Applications*. Accesible en: <http://mpr.ub.uni-muenchen.de/8188/>, 2005; M. Bauhr, A. Czibik, J. de Fine Licht y M. Fazekas, *Lights on the shadows of public procurement: Transparency as an antidote to corruption*, *Governance*, vol. 33, 3, 2020.

¹³ M. Mrčela, *Corruption Risks and Useful Legal References*.

¹⁴ J. Miranzo Díaz, *Reflexiones sobre la transparencia y la integridad en contrataciones relacionadas con el Covid-19*, *Observatorio de Contratación Pública*, 2020.

¹⁵ A. Cerrillo i Martínez, *Contratación Abierta*, Barcelona, Generalitat de Catalunya, 2017.

¹⁶ Open Contracting Partnership, *Open contracting. A guide for practitioners by practitioners*, 2016.

highlights in the *Teleaustria* case on 7 December 2000, C-324/98 “That obligation of transparency which is imposed on the contracting authority consists in ensuring, for the benefit of any potential tenderer, a degree of advertising sufficient to enable the services market to be opened up to competition and the impartiality of procurement procedures to be reviewed” (section 62). In addition, in the *Commission/Cas Succhi di Frutta* judgement of 29 April 2004, case C-496/99, the CJEU states that the principle of transparency “implies that all the conditions and detailed rules of the award procedure must be drawn up in a clear, precise and unequivocal manner in the notice or contract documents so that, first, all reasonably informed tenderers exercising ordinary care can understand their exact significance and interpret them in the same way and, secondly, the contracting authority is able to ascertain whether the tenders submitted satisfy the criteria applying to the relevant contract” (section 111). Finally, the CJEU has also recognized that the objective of the principle of transparency “is essentially intended to preclude any risk of favouritism or arbitrariness on the part of the contracting authority” (*Evropaiki Dynamiki* judgement of 12 March 2008, case T-345/03, section 144).

Transparency can be channelled through different mechanisms: the proactive dissemination of public information, the reactive access to public information and the collaborative re-use of public information. Data on public procurement can be disseminated before or after the contract is awarded or after it. As M. Bauhr et al. state, ex ante transparency has a stronger effect on corruption risks than ex post transparency.¹⁷

These mechanisms are provided by the European legislation.

The proactive dissemination of public-procurement information is provided for in general terms in Directive 2014/24/UE when it establishes the obligation to publish notices related to public contracts and the possibility of diffusing this information in the buyer profile (i.e., article 52).

Secondly, Directive 2014/24/UE also establishes that the awarding bodies must provide bidders with access to the information

about the terms and conditions and any complementary documentation after request (article 53.2).

Thirdly, Directive (UE) 2019/1024 stipulates that “public sector bodies and public undertakings shall make their documents available in any pre-existing format or language and, where possible and appropriate, by electronic means, in formats that are open, machine-readable, accessible, findable and reusable, together with their metadata. Both the format and the metadata shall, where possible, comply with formal open regulations” (article 5).

Based on the provisions of the EU rules, the different Member States have regulated these transparency mechanisms (i.e., Spanish Law 9/2017, 8 November, on Public Sector Contracts; Law 19/2013, of 9 December, on transparency, access to information and good governance and Law 37/2007, of 16 November, on the re-use of public sector information).

2.2. Transparency in emergency times

Transparency acquires a special significance in the context of the public administrations’ response to emergency situations, not only to make known the decisions they are making and the resources they are using, but also to communicate why certain decisions are being taken so that they can be subject to public scrutiny. In times of crisis, the special circumstances in which public decisions are taken give transparency a special value. Particularly, because the risk of corruption is higher.

However, in emergency situations transparency in public procurement diminishes considerably during the phases of preparation and awarding of the contract because the filing of a procedure and the publication of a tender notice is not always required.

In fact, Directive 2014/24/UE considers the possibility to use negotiated procedures without prior publication in certain circumstances. Particularly, the contracting authorities can use this procedure for reasons of extreme urgency brought about by unforeseeable events for and not attributable to the contracting authority, that is to say, without previous transparency (article 32). Indeed, “Only in exceptional situations where extreme urgency brought about by events unforeseeable by the contracting authority

¹⁷ M. Bauhr, Á. Czibik, J. de Fine Licht y M. Fazekas, *Lights on the shadows of public procurement: Transparency as an antidote to corruption, Governance*, vol. 33, 3, 2020.

concerned that are not attributable to that contracting authority makes it impossible to conduct a regular procedure even with shortened time limits, contracting authorities should, in so far as strictly necessary, have the possibility to award contracts by negotiated procedure without prior publication. This might be case where natural catastrophes require immediate action” (recital 80).

2.3. Data to improve integrity in public procurement

Data are playing a significant role in strengthening integrity in public procurement.

Publication of information about awarded contracts during times of emergency is not only useful to ensure equality and competition amongst private economic operators. It is also necessary to enhance integrity in public procurement.

Thanks to the use of data in public procurement, it is possible to identify or foresee irregularities, conflicts of interest and cases of corruption.

To this end, various indicators have been defined.¹⁸ These are known as red flags. Red flags function as alerts for the contracting authorities to take necessary measures to address or prevent conflicts of interests and corruption. However, it is important to be aware that red flags are warning signs but not conclusive evidence of an irregularity or a case of corruption.¹⁹

These indicators are defined and used by the contracting authorities themselves. Additionally, some red flags have been proposed and used by scholars²⁰ and civil society (i.e. Fundación Civio).

In the last decades, some contracting

authorities are automating the process of identifying and applying red flags in public procurement through the use of artificial intelligence in the form of machine learning and natural-language processing.²¹

COVID-19 has revealed the existence of specific irregularity or corruption situations that can only be identified with new alerts (for example, opportunistic companies during the emergency, small companies winning big contracts or companies changing their sector of activity).

The use of red flags demands data that meet various characteristics which are analyzed in the following section.

3. Public procurement data availability, interoperability and reusability

Some elements must concur to allow transparency to be an effective mechanism to guarantee integrity and to prevent irregularities and corruption.

The COVID-19 crisis has shed light on how often public administrations do not disseminate enough information regarding crisis management, resulting in a negative impact on the transparency of public administrations. Specifically, concerning public contracts, the Spanish Independent Office for Regulation and Supervision of Contracting (OiReSCon) has noted that ‘asymmetric publicity’ exists, highlighting a lack of information, dissemination, errors in publication, and inconsistencies in the published data, making it difficult to track. This suggests that ‘some administrations are not adequately fulfilling the publication obligation or are experiencing certain delays’ (Oficina Independiente de Regulación y Supervisión de la Contratación (2020).

¹⁸ F. Decarolis and C. Giorgiantonio, *Corruption red flags in public procurement: new evidence from Italian calls for tenders*, *EPJ Data Science*, vol. 11, 1, 2022.

¹⁹ C. Bratsas, E. Chondrokostas, K. Koupidis, I. Antoniou, *The use of national strategic reference framework data in knowledge graphs and data mining to identify red flags*, *Data*, vol. 6, 1, 2021.

²⁰ M. Fazekas, *Theory-driven approaches to identifying red flags of corruption in public procurement*, Paper at “Hands-on Workshop” on progress and future planning on using data to identify and address corruption in procurement, in <https://www.govtransparency.eu/>, 2015; F. J. López-Iturriaga, I. Pastor Sanz y E. Temiño Santamaría, *Innovative Methods for Predicting Fraud and Corruption*, D. Blanco-Alcántara, F. García-Moreno Rodríguez, Ó. López-de-Foronda Pérez (eds.), *Fraud and Corruption in EU Funding: The Problematic Use of European Funds and Solutions*. Cham, Palgrave Macmillan, 2022.

²¹ L. Siciliani, V. Taccardi, P. Basile, M. Di Ciano, P. Lops, *AI-based decision support system for public procurement*, *Information Systems*, in *Information Systems*, vol. 119, 2023, 1; R. Nai, E. Sulis, R. Meo. (2022). *Public procurement fraud detection and artificial intelligence techniques: a literature review*. Paper at Companion Proceedings of the 23rd International Conference on Knowledge Engineering and Knowledge Management.; R. Nai, R. Meo, G. Morina and P. Pasteris, *Public tenders, complaints, machine learning and recommender systems: a case study in public administration*, *Computer Law & Security Review*, vol. 51, 2023; F. Martínez-Plumed, J. C. Casamayor, C. Ferri, J. A. Gómez and E. Vendrell Vidal, *SALER: A Data Science Solution to Detect and Prevent Corruption in Public Administration*. Comunicación presentada, in EMCD ECML PKDD 2018 Workshops, Cham, Springer, 2019, 113.

In any case, the existence of an emergency situation should not have a negative impact on the contractual data disseminated by public administrations. As warned by Miranzo, minimum transparency standards must always be ensured.²²

Particularly, public-procurement data must be available, interoperable and reusable (AIR Principles).

Availability	Accessibility	Completeness
		Ease of access
	Quality	Understandability
Interoperability		
Reusability		

Table 1: AIR Principles

These principles are generally recognized (i.e. DAIR Principles). According to the World Bank, “information about the volume of spending and the awarding of grants and loans to persons and companies must be shared daily and in an way that is accessible, using multiple means to ensure maximum reach”.²³ In the same line, Transparency International has made a similar statement, considering that “it is important, especially in this extraordinary situation, that public information is available in real time and that is contrasted, hierarchised and evaluated so that citizens and different interest groups can easily and clearly access its content”.²⁴

3.1. Data availability

Availability refers to the data being ready to be used. As Soyly states “transparency and accountability require giving citizens and companies much more data with the possibility of easily connecting relevant data sets (e.g., spending and company data), both within and beyond national borders and languages, allowing extended and deeper analyses”.²⁵ The use of electronic means in

public procurement (e-procurement) has increased significantly the availability of public data on public procurement.²⁶

Availability requires that data have accessibility and quality.

a) Data accessibility

Data accessibility refers to data being complete and relevant, available through an easily locatable and understandable as well as accessible channel.

First, data must refer to all the aspects linked to the life cycle of the contracts, and to all the people taking part in it (complete). Access to data should not be facilitated only when their knowledge can cause harm to certain property or rights explicitly protected by the regulation in force (i.e., personal data, the confidentiality of the information, intellectual property or public security). Directive 2014/24/UE provides for all data that must be disseminated through different notices (Annex V). However, as Fazekas has observed “While TED data are impressive in both size and scope, they typically captures high-value contracts above the mandatory reporting thresholds which means many smaller or poorer regions and localities have little contracting activity to analyse”.²⁷ Furthermore, each State Member can increase the scope of data to be disseminated.

Secondly, data about public contracts must be relevant to guarantee transparency of public procurement and to facilitate the supervision and control of the procurement activity of the public administrations.

Thirdly, data must be available through an easily locatable and accessible channel. Directive 2014/24/UE states the dissemination of notices related to public contracts (generally the preliminary-informative notices, procurement notices, contract-awarding notices, and notices related to modification in the contracts, and notices on the award of social services and other specific services contracts or project tenders). These notices are elaborated by the contracting authorities and are published by the European Union’s Publications Office through the online version of the EU’s Official Journal

²² J. Miranzo Díaz, *Reflexiones sobre la transparencia y la integridad en contrataciones relacionadas con el Covid-19*, Observatorio de Contratación Pública, 2020.

²³ World Bank Group, *Ensuring Integrity in Governments’ Response to COVID-19*, Governance & Institutions COVID-19 Response Resources, 28 April 2020.

²⁴ Transparencia Internacional España, *Transparencia y publicidad activa: COVID-19 y estado de alarma en España. Recomendaciones para la transparencia y prevención de la corrupción en el sector público y privado*, 2020.

²⁵ A. Soyly, Ó. Corcho, B. Elvesæter, C. Badenes-Olmedo, F. Yedro-Martínez, M. Kovacic and C. Taggart, *Data Quality Barriers for Transparency in*

Public Procurement, Information, vol. 13, 2, 2022, 1.

²⁶ M. S. Lyra, B. Damásio, F. L. Pinheiro and F. Bacao, *Fraud, corruption, and collusion in public procurement activities, a systematic literature review on data-driven methods*, *Applied Network Science*, vol. 7, 1, 2022.

²⁷ M. Fazekas, *Assessing the quality of government at the regional level using public procurement data*, 2017.

Supplement, dedicated to European public contracting, Tenders Electronic Daily (TED). Together with this mechanism, Directive 2014/24/UE stipulates that the awarding authorities can publish this information at the national level in a buyer profile (article 52). Procurement information must also be easily locatable on the different channels.

Fourthly, data must be understandable. Understandability requires that the information facilitated must be written at different levels depending on who the recipients of the information are. As M. Bauhr et al. state “In the context of a highly complex field such as public procurement, for outsiders such as journalists or NGOs, the mere publication of relevant information is not enough for holding governments to account as the legal and technical complexity of data presents substantial barriers to data use.”²⁸

Understandability is closely related to accessibility of information in the strict sense. The purpose of accessibility is to guarantee that the information can be received and recognised by anybody irrespective of their personal circumstances. Directive (UE) 2016/2102 of the European Parliament and of the Council, of 26 October 2016, on the accessibility of public-sector organisations’ websites and mobile applications, stipulates that accessibility must be addressed in an integral way in the design, management, maintenance and update of website and mobile device content; that the public authorities must offer a mechanism by which suggestions and complaints can be filed; they must inform of any possible non-compliance with the requirements of accessibility, and that the public administrations must disseminate a detailed, exhaustive and clearly accessible statement on complying with the provisions of their current website and mobile application regulation.

To strengthen integrity in public procurement in times of emergency, it is necessary to ensure the availability of diverse data.

On one hand, it is essential to disseminate data about public contracts. Nowadays, the dissemination of these data is widely ensured both by European regulations and by the regulations of the Member States. However,

certain data are not yet commonly used (for example, a unique-contract identifiers).

On the other hand, it is necessary to disseminate data about individuals participating in public tenders. In this regard, data that current regulations provide for dissemination of very little information about individuals participating in the tendering process and probably insufficient to verify the existence of a conflict of interest or a case of corruption. Conversely, the Directive 2014/24/UE does not guarantee sufficient transparency of data regarding individuals participating in tendering processes. For instance, data about the staff serving the contracting bodies or working for bidding companies or contractors. In this case, it is the legislation of each Member State that can facilitate access to these data.

Indeed, there are different sources of data related to the personal *entourage* of a particular public servant, bidder or contractor can be useful in the prevention of and fight against corruption. These sources of data are governed by specific rules that state the rules affecting transparency.

This is the case of the Civil Registry, that records facts and acts referring to identity, civil status and other personal circumstances that can reveal kinships are recorded. Another source of useful information is the Land Registry that records or notes acts or contracts related to ownership and other beneficial rights over real estate are recorded or noted, knowledge of which may, for example, allow the identification of cases of unjust enrichment due to corrupt actions. Last, a third source of useful information for the fight against corruption is the Commercial Registry that records different acts related to businesspersons are recorded (i.e., name, business name, domicile, administrators, mergers, company dissolutions and liquidations, and annual accounts).

The regulations governing these registries and, in particular, the regime of transparency and dissemination of the recorded data significantly limit the availability of these data and their reuse for guaranteeing integrity in public procurement.

b) Data quality

Data about public contract procurement must be easily usable so that users and recipients can meet the objectives foreseen and sought with their consultation. As M. Bauhr et al. (2020) state “Improving

²⁸ M. Bauhr, Á. Czibik, J. de Fine Licht and M. Fazekas, *Lights on the shadows of public procurement: Transparency as an antidote to corruption, Governance*, vol. 33, 3, 2020.

publication quality, especially the quality of the calls for tenders, can deliver tangible improvements in competition, reduced corruption risks, and savings to public budgets.”

Contrarily, “Without high-quality data providing the right information on the right things at the right time; designing, monitoring and evaluating effective policies becomes almost impossible”.²⁹ The absence of quality in the data can impede their analysis or make the results of such analysis not reliable.³⁰ These problems can be magnified when we refer to large volumes of data, or big data.³¹

Quality data are complete, precise, consistent, accessible and current.³²

Firstly, completeness of data means that it has adequate width, depth and scope required for their purpose.

Secondly, precision means that the data are correct, reliable and certified.

Thirdly, consistency means that the data are presented in the same formats and are compatible with previous data.

Fourthly, accessibility means that data are available, or are easily and quickly recoverable.

Finally, current refers to data that must be updated at the time of them being facilitated, and their dissemination is maintained during the period that the information remains of interest and of use. Data must be published regularly and be kept updated, periodically withdrawing any obsolete data.

However, public-contract data are not always of quality. Fazekas has observed errors in data published in the TED particularly affecting selected countries and procuring bodies.³³ Focusing on State Members, according to A. Clare, D. Sangokoya, S. Verhulst y A. Young, “approximately 10 percent of published contracts in Slovakia have at least one piece of key information missing”, while “another study found that a

quarter of contracts had a “subject” missing, 12 percent were missing price-related information, and in 4 percent of contracts the name of the counterparty was redacted”.³⁴

That is the reason why the challenge to be addressed to advance in the use of contractual data is to guarantee their quality.³⁵ In light of all of the above, public administrations must have the mechanisms needed to guarantee quality and to prevent the information disseminated on contracts from being incomplete or erroneous.³⁶

3.2. Data interoperability

Interoperability is the capacity of information systems to share data and exchange information. Interoperability allows the applications used by the public administrations or by citizens to exchange information and mutually use interchanged information. As indicated in the European Interoperability Framework, interoperability “allows administrative bodies to electronically exchange among themselves and with citizens and companies, information with meaning and in a form that is understandable for all parties” (European Parliament Communication to the Council, the Economic and Social European Committee and the Regions Committee COM (2017) 134 final).

To be interoperable, data must comply with some regulations, criteria and recommendations that allow information to be interchanged and to mutually use the interchanged information.

The lack of interoperability in public contracting data negatively affects their analysis. Unfortunately, as A. Soyly et al. point out, “increasingly more open data are being published in the public sector; however, these are created and maintained in siloes and are not straightforward to re-use or maintain due to lack of quality, insufficient metadata, missing links to related domains, as well as the technical heterogeneity.”³⁷

²⁹ United Nations, *A world that counts. Mobilizing the data revolution for sustainable development*, 2014.

³⁰ A. Soyly, Ó. Corcho, B. Elvesæter, C. Badenes-Olmedo, F. Yedro-Martínez, M. Kovacic and C. Taggart, *Data Quality Barriers for Transparency in Public Procurement, Information*, vol. 13, 2, 2022.

³¹ S. Juddoo, C. George, P. Duquenoy y D. Windridge, *Data Governance in the Health Industry: Investigating Data Quality Dimensions within a Big Data Context, Applied System Innovation*, vol. 1, 4, 2018.

³² C. Cichy and S. Rass, *An overview of data quality frameworks, IEEE Access*, vol. 7, 2019.

³³ M. Fazekas, *Assessing the quality of government at the regional level using public procurement data*, 2017.

³⁴ A. Clare, D. Sangokoya, S. Verhulst and A. Young, *Open contracting and procurement in Slovakia*, 2016.

³⁵ Z. Kutlina-Dimitrova, *Government procurement: data, trends and protectionist tendencies, Chief Economist Note*, 3, 2018.

³⁶ M. Mendes and M. Fazekas, *DIGIWHIST Recommendations for the Implementation of Open Public Procurement Data An Implementer's Guide*, 2018, 1.

³⁷ A. Soyly, Ó. Corcho, B. Elvesæter, C. Badenes-Olmedo, T. Blount, F. Yedro Martínez and C. Taggart, *TheyBuyForYou platform and knowledge graph:*

If, in the strict sense, interoperability is related to technology, in the wider sense, other factors, such as social, political and organisation factors, must also necessarily be considered.³⁸ In effect, interoperability has a polymeric nature.³⁹ Beyond technology, interoperability has different dimensions whose concurrence is necessary to achieve the finalities of digital administration. In this direction, interoperability is manifested in different planes: the technical dimension, the semantic dimension and the organisational dimension, to which the European Framework adds the legal dimension.

The European Interoperability Framework is currently the document that outlines the agreed European directives that must concur to guarantee European public service provision in an interoperable way. The European Interoperability Framework will be developed with the approval of the Proposal for a Regulation of the European Parliament and of the Council laying down measures for a high level of public-sector interoperability across the Union (Interoperable Europe Act) [COM(2022) 720 final] published in November 2022.

Although, interoperability of open data is an important element to be able to take the greatest benefit from their re-use, different authors observe the lack of interoperability of public-sector contracting information. M. Mendes y M. Fazekas state that “quite problematically, several countries as well as the EU-wide TED portal use a large number of different templates — more than 15 or even 20 — which adds an unnecessary layer of complexity to understanding and reusing the data”.⁴⁰ Furthermore, A. Soyly et al. also point out that among the problems related to public-contracting data that must be resolved are “Data heterogeneity including structured data

(e.g., statistics and financial records), as well as unstructured data (e.g., text and social media content) sources in various languages with their own vocabulary and formats, such as PDFs, APIs, CSVs, and databases”.⁴¹

Different initiatives have been promoted to resolve this issue and promote interoperability in public procurement (i.e. open procurement data standard OpenPEPPOL,⁴² and CEN BII, TED eSenders⁴³).

3.3. Data reusability

Reusability means that information is disseminated in technical formats and under legal conditions that facilitate its re-use.

The need to guarantee public-procurement data re-use has been widely recognized. For example, the European Commission recalls the need to “to make available better and more accessible data on matters of procurement, because this opens up a whole range of opportunities to improve evaluation of the performance of policies related to procurement, and to optimise interaction between the public-procurement systems to shape future strategic decisions”.⁴⁴

According to Directive (UE) 2019/1024, re-use consists in the use by natural or legal persons of documents that intervene in the power of public-sector bodies and public companies, with commercial or non-commercial aims that are different from the initial proposal assigned to these documents in the public-service mission or in the provision of general-interest services for which they were produced (article 2).

Re-use of public information allows citizens to be involved in the analysis and monitoring of public activity, thereby increasing citizens’ trust in procuring bodies. Public contracting information can be re-used to detect irregularities, conflicts of interest or cases of corruption.⁴⁵

Expanding horizons in public procurement with open linked data, Semantic Web, vol. 13, 2021.

³⁸ P. Gottschalk and H. Solli-Sæther, *E-Government Interoperability and Information Resource Integration: Frameworks for Aligned Development: Frameworks for Aligned Development*, Hershey-New York, IGI Global, 2009.

³⁹ A. Cerrillo i Martínez, *Cooperación entre Administraciones públicas para el impulso de la Administración electrónica*, E. Gamero Casado, J. Valero Torrijos (eds.), *La Ley de Administración electrónica. Comentario sistemático a la Ley 11/2007, de 22 de junio, de acceso electrónico de los ciudadanos a los Servicios Públicos*, 3a ed., Cizur Menor, Thomson-Aranzadi, 2010.

⁴⁰ M. Mendes, M. Fazekas, *DIGIWHIST*, 11.

⁴¹ A. Soyly, Ó. Corcho, B. Elvesæter, C. Badenes-Olmedo, F. Yedro-Martínez, M. Kovacic, C. Taggart, *Data Quality Barriers for Transparency in Public Procurement, Information*, vol. 13, 2, 2022.

⁴² Available at: <https://peppol.eu/aboutopenpeppol>

⁴³ Available at: <https://simap.ted.europa.eu/web/simap/sending-electronic-notices>.

⁴⁴ *EC, Communication from the commission to the european parliament, the council, the european economic and social committee and the committee of the regions*, 2017, 11.

⁴⁵ TACOD, *Revolution delayed. The impact of open data on the fight against corruption*. Available at: www.transparency.it/wp-content/uploads/2015/09/2015-TACOD-REPORT.pdf, 2015; G20 y OECD,

To be reusable, procurement data must be disseminated in open formats.

Data openness seeks to guarantee that the public administrations facilitate data to citizens and companies that can be easily used without technical or legal obstacles, without glitches that can hinder or make their re-use difficult, to create new innovative information or services for private or commercial ends, but also for general-interest purposes.

Through data openness public administrations can place huge volumes of data related to public procurement which can be used to monitor and control public procurement. Indeed, data openness has stood out as an anti-corruption strategy with a significant impact on public integrity (Haute Autorité pour la transparence de la vie publique (2016). In effect, G20 Principles on open data against corruption recognize open data can contribute to preventing, detecting, investigating and reducing corruption.

According to recital 16 of Directive (UE) 2019/1024, open data are “the data in an open format that anybody can freely use, re-use and share for any purpose”. For this, the data must be facilitated using open formats; in other words, “a file format that is platform-independent and made available to the public without any restriction that impedes the re-use of documents” (article 2). To facilitate their re-use, the data must be disseminated using machine-readable formats, or in other words in a “a file format structured so that software applications can easily identify, recognize and extract specific data, including individual statements of fact, and their internal structure” (article 2). Furthermore, to facilitate access to data that someone wants to re-use, Directive (UE) 2019/1024 stipulates that public-sector bodies “shall make dynamic data available for re-use immediately after collection, via suitable APIs and, where relevant, as a bulk download” (article 5). To facilitate the re-use of data, Directive (UE) 2019/1024 also stipulates that the Member States create practical devices that facilitate searching the available documents (lists of documents with metadata, portals connected to decentralised lists, etc.). Likewise, where possible this will facilitate the linguistic search of documents in different languages (article 9.1).

M. Mendes y M. Fazekas observe that the

Compendium of good practices on the use of open data for Anti-corruption: Towards data-driven public sector integrity and civic auditing, 2017.

current situation in Europe with respect to the reusability of information is problematic.⁴⁶ In particular, these authors observe that in only three countries and in the TED are the data on contracts fully machine readable. However, even in these cases downloading them is complex and costly. In 26 more countries the data is only partially machine-readable because although the data can generally be downloaded, this is not consistently the case and is not always structured. In 11 countries, the data are not even partially machine readable.

Som institutions like the *Sunlight Foundation* or the Open Contracting Partnership have defined guidelines and standards to open data in public procurement. Guidelines to Open Data in Contracting, produced by the *Sunlight Foundation*, state the principles that must characterise the dissemination of data related to public procurement.⁴⁷ The Open procurement data standard defined by the Open Contracting Partnership is a non-proprietary structured standard referring to the entire procurement cycle, which allows its users to publish shareable, reusable and machine-readable data and to design applications for analysing and sharing data.⁴⁸

Finally, it is of interest to bring up the Communication from the Commission on Public Procurement: A data space to improve public spending, boost data-driven policy-making and improve access to tenders for SMEs. In this document, the Commission states that “To unlock the full potential of public procurement, access to data and the ability to analyse them are essential.” In the EU strategy for data [COM(2020) 66 final], the Commission has created the Public Procurement Data Space. According to the Communication “This data space will revolutionise the access to and use of public procurement data: (...). It will considerably improve data quality, availability and completeness”. It will also make it much easier for public buyers to fight corruption. In effect, “Combined with AI and machine-learning techniques, the wealth of data available within the PPDS will help public buyers to detect potential collusion like bid-rigging as well as corruption more easily.

⁴⁶ M. Mendes M. Fazekas, *DIGIWHIST*, 12.

⁴⁷ Available at: <https://sunlightfoundation.com/procurement/opendataguidelines>.

⁴⁸ Available at: <http://standard.open-contracting.org>.

These emerging techniques can identify behaviour and spending patterns indicative of wrongdoing and flag them for further investigation”.

In general terms, re-use will not be subject to conditions. However, any condition set by public administrations must be objective, proportionate, non-discriminatory, justified on grounds of a public-interest objective, and shall not unnecessarily restrict possibilities for re-use, and shall not be used to restrict competition (article 8). Public administrations can subject re-use to obtaining a license. In this line, Directive (UE) 2019/1024 stipulates that the Member States use standard licenses that are available in digital format and can be processed electronically (article 8). Directive (UE) 2019/1024 establishes the principles that must govern the procedure to authorise re-use. Among other aspects, it stipulates that where possible electronic means will be used to submit applications and for delivering the documents in a reasonable time, and in any event within 20 working days of receipt (article 4.2). It also establishes that where re-use is denied, in addition to communicating to the applicant the reasons for this denial, they will also be informed about the possibility of filing an appeal to an impartial review body with the appropriate expertise (article 4.4). In principle, the re-use of documents should bear no cost. However, Directive (UE) 2019/1024 provides for public administrations’ possibility to recover the marginal costs incurred for the reproduction, provision and dissemination of documents as well as for anonymisation of personal data and measures taken to protect commercially confidential information (article 6).

4. The limits of public-procurement data availability: data protection and privacy

Part of the data about public contracts whose dissemination and reuse can be useful for monitoring, supervising, and controlling contractual activity may be subject to some limits. Setting aside limits related to security or defence, personal-data protection and privacy are the primary existing limits.

On this issue, public administrations need to consider whether the information should be made transparent. Directive 2014/24/UE states that: “Contracting authorities shall grant access to those contracts; however, access to specific documents or items of information may be denied to the extent and on the

conditions provided for in the applicable Union or national rules on access to documents and data protection.” (Article 83.5). It will be important to analyse how personal-data protection can become a limit to data availability and therefore a barrier to automated data analysis for the prevention and fight against corruption in emergency situations.

Indeed, we have to take into account that personal data are data that refer to an identified or identifiable natural person (art. 4.1 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, hereafter GDPR). Given this precept, an initial issue to note is that information regarding legal persons is expressly excluded from the scope of application of this regulation (art. 1.1 GDPR).

Personal data first need to be anonymised or the data controller must comply with data protection regulations.

According to the GDPR, personal data shall be processed lawfully, fairly and in a transparent manner in relation to the data subject (article 5.1.a). The GDPR also states that personal data may be collected for specific, explicit and legitimate purposes, and shall not be subsequently processed in a manner incompatible with these purposes. It also states that the personal data shall be adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed (article 5.1.c) and that personal data shall be accurate and, if necessary, updated (article 5.1.d). The GDPR stipulates that personal data shall be kept in a form that permits identification of the data subjects for no longer than is necessary for the purposes for which the personal data are processed (article 5.1.e). Finally, it also states that the personal data shall be processed in a manner that ensures appropriate security of them (article 5.1.f). The controller will be responsible for, and be able to demonstrate compliance with, these principles (article 5.2).

In the context of the EU, processing personal data requires a legal basis. That means that information regarding natural persons cannot be used indiscriminately.

First of all, data can be used with the data subject’s consent (article 6.1.a). This consent

must be a “freely given, specific, informed and unambiguous indication of the data subject’s wishes by which he or she, by a statement or by a clear affirmative action, signifies agreement to the processing of personal data relating to him or her” (article 4.11). According to the Article 29 Working Party “consent can only be valid if the data subject is able to exercise a real choice, and there is no risk of deception, intimidation, coercion or significant negative consequences (e.g. substantial extra costs) if he/she does not consent. Consent will not be free in cases where there is any element of compulsion, pressure or inability to exercise free will” (Article 29 Working Party (2017). Along these lines, recital 43 of the GDPR states that consent “should not provide a valid legal ground for the processing of personal data in a specific case where there is a clear imbalance between the data subject and the controller, in particular where the controller is a public authority and it is therefore unlikely that consent was freely given in all the circumstances of that specific situation”.

That is the reason why public administrations will have to consider other legal basis when using personal data to detect conflicts of interests and cases of corruption. The GDPR refers to the case in which processing “is necessary for the performance of a contract to which the data subject is party or in order to take steps at the request of the data subject prior to entering into a contract” (art. 6.1.b). It also considers processing required to *comply with a legal obligation* applicable to the data controller as a legal basis (art. 6.1.b). The GDPR also states that processing necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the DC is a legal basis (art. 6.1.e). Finally, the GDPR establishes that “The processing of personal data strictly necessary for the purposes of preventing fraud also constitutes a legitimate interest of the data controller concerned [...]” (recital 47).

Some public administrations sometimes use data from other public administrations to prevent or detect cases of corruption in public contracts in times of emergency. Data held by one public administration may be of use in analyses performed by other public administrations to detect conflicts of interest or cases of corruption. With regard to the legal bases legitimising data exchange between

public administrations, those most clearly applicable are that the processing is required to comply with a legal obligation applicable to the data controller; the processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the data controller; or the processing is necessary for the purposes of the legitimate interests pursued by the data controller.

In addition, some data on public procurement are published in the Official Journal of the EU. When this information contains personal data, it has to follow the GDPR principles.⁴⁹

Other useful data can be held in registries like the Civil Registry, the Land Registry or the Commercial Registry. Generally, regulation of these registries only recognizes the right to access the information to the interested people. Sometime, access is also recognized to public officials (i.e. Spain). But when other individuals request information, regulation states different limitations (i.e., the identity of the applicant is verified, there is a legitimate interest, there is an authorisation from the owner of the data, etc.).

Finally, some data useful for fighting against corruption in public procurement can be on the Internet (i.e., newspapers archives or social networks). In this case, it could be considered that public administrations have a legitimate interest that could authorize the processing. Nevertheless, it will be better to pass a regulation with the force of law to authorize such processing by public administrations. However, in the case of data provided by the data subject in a social network, public administrations will have to take into account the type of user of social network and also the purpose of the social network.

Finally, concerning personal data re-use, the problem is that indiscriminate processing of all the content of the registries, from the Internet or from a social network is probably not possible. In effect, it might not be acceptable carrying out general and automated mining of information published on public registries, the Internet and social media to analyze possible conflicts of interest or cases of corruption.

⁴⁹ See the Legal notice of the Tenders Electronic Daily (TED) published by the Official Journal of the EU. Available at: <https://ted.europa.eu/TED/misc/legalNotice.do#3.protectionPersonalDataTed>.

5. The CO.R.E. Data Principles for Procurement Integrity

Throughout these pages, we have observed how both the current legislation and the action of public administrations fail to ensure the availability of enough quality data, in open, reusable, and interoperable formats, that contribute to ensuring integrity in public procurement.

Therefore, the considerations made in the previous pages have been settled on a proposal of data principles for procurement integrity that is intended to inspire regulatory reforms and the practices of public administrations.

The CO.R.E. Data Principles for Procurement Integrity under Emergency Times have the aim to be a guidance to contracting authorities, policy makers, civic entities and academics to collaboratively review their data policies improving public integrity under emergency times and reacting better as well as efficiently to crisis.⁵⁰

These principles stem from the conclusions stated along this paper.

First, emergency times weaken public integrity facilitating the disclosure of corruption.

Secondly, transparency is a powerful tool to improve public integrity and to fight corruption.

Thirdly, transparency is not only a principle for public procurement, but also for open contracting.

Fourthly, transparency works proactively, reactively and collaboratively.

Fifthly, transparency requires data availability, interoperability and reusability.

Sixthly, available, interoperable and reusable data on public procurement are insufficiently guaranteed in the European Union.

Seventhly, improving integrity in public procurement means the dissemination of data related to parties competing in public tenders.

Eighthly, public procurement automatic data processing and analysis

Finally, the procurement information should not be facilitated when its knowledge can cause harm to certain public or private interest or violate rights explicitly protected by the regulation in force.

According to the previous conclusions, the CO.R.E. Data Principles for Procurement Integrity under emergency times are the following:

1. Principle of availability. Data on public procurement must be complete, easily accessed, understandable, of quality and open.
2. Principle of accessibility. Data on emergency public procurement must be organized and disseminated on open data portals according to international standards, include search bars facilitating the identification of data about a certain person, company or contract and be suitably organized and under management systems to facilitate their localization.
3. Principle of quality. Quality data must be correct, reliable and certified.
4. Principle of continuous updates. Procurement data must be updated continuously, at least once a month.
5. Principle of unique identification. Contracts and contractors must be identified with a unique identifier to facilitate traceability of the information.
6. Principle of interoperability. Contracting authorities must share and integrate data about contracts in emergency times according to a common European public-contracting data standard.
7. Principle of openness. Procurement data must be easily used without technical impediments or legal obstacles according to a European public contracting data standard and a standard licence for the reuse of data on public contracts to prevent corruption in times of emergency.
8. Principle of integrity. Procurement data must be analysed by specific indicators to improve public integrity.
9. Principle of data personalisation. Data about contracting authorities, public officials (i.e., elected members registers, public officials' declarations of interests and public officials' previous activities in the private sector) must be accessible in open, machine-readable and interoperable formats.
10. Principle of personal data fair use. Regulations should be adopted explicitly stating that the processing of the personal data concerning the personnel of the contracting authorities, bidders and contractors for the prevention and fight against corruption constitute a specification

⁵⁰ Available at: https://www.core-anticorruption.eu/wp-content/uploads/2023/07/2.4_DataForPublicProcurementIntegrityPrinciples.pdf.

of the legal basis legitimizing the data processing with the purpose of satisfying legitimate interests pursued by the person responsible for the processing.

11. Principle of artificial intelligence trustworthy use. The automation of data procurement analysis through artificial intelligence must be trustworthy, that is to say, it should comply with the law, fulfil ethical principles and be robust.
12. Principle of participation. Contracting authorities must promote citizens' participation in the reuse of data to prevent corruption in times of emergency.

6. Concluding remarks

The digitization of public procurement is enabling contracting authorities to have access to an increasing volume of data. The availability of high-quality, open-format data on public procurement facilitates transparency and, consequently, integrity in public procurement.

In times of emergency, integrity can be called into question. Therefore, it is particularly relevant for contracting authorities to ensure the availability of high-quality data in open formats. These data can be analyzed by the contracting authorities themselves or by public bodies responsible for monitoring activities and ensuring public integrity.

Furthermore, these data can also be examined by civil society to oversee public procurement and potentially identify irregularities and cases of corruption.

The progressive digital transformation of public administrations, particularly the use of artificial intelligence, presents a new opportunity to strengthen public integrity through the dissemination and analysis of procurement data.

The creation of a European space for public procurement data and the future approval of the Artificial Intelligence Act will surely contribute to improve integrity in public procurement in times of emergency.

