

## **DIGITALISATION OF LOCAL PUBLIC SERVICES FOR THE BUSINESS ENVIRONMENT IN ROMANIA. THE PARTICULAR CASE OF THE PUBLIC PROCUREMENT PROCESS**

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**Abstract:** *The way in which public procurement is carried out affects the whole economy and, indirectly, the quality of people's live, as a result of public services, goods and works acquired. Free competition between tendering economic agents, equity and fairness of procurement tenders must to be guaranteed within the framework of digitalized business-oriented public services. These have to stimulate the development of the business environment by offering contract for supply of public goods, services and works in a framework of transparent, objective and fair competition. Digitalisation of public services offers an advantage in this respect.*

*This present paper proposes an unitary architectural model of the public procurement process within local administrations, one that could serve as a basis for the design of adequate computer software aimed at providing digital formatting to this entire process. The model is unitary within each Romanian local public administration and is also applicable to any of its structures (city councils, regional councils or their subordinated public institutions, other entities financed from public funds) and has been drafted in compliance with the applicable public procurement legislation. Proposing this model is justified not only because it provides a unitary public procurement digitalization process of the contracting authority which, at the moment relies solely on the use of the SICAP national platform, but also because its implementation guarantees the compliance with the principles of free competition between tendering economic agents as well as impartiality and fairness during the tender selection process. Digitalisation provides this advantage to both the public and private sectors, enabling their interaction, an advantage that needs to be properly exploited to generate digitalised services with added value, customized for the business environment, the added value consisting in actually ensuring these principles.*

**Key words:** digitalisation; public services; public procurement; business environment

**JEL Codes:**H41, H72, K12, P43

## **1.Introduction**

The way in which the public procurement process of the local administration (communication infrastructure, roads, hospitals, schools) is carried out affects the entire economy and, indirectly, the quality of people's lives. Digital transformation of public procurement is a long-lasting and complex process that contributes to the quality increase of public services, with a major impact on national economy.

In Romania, the public procurements procedures are carried out through the SICAP electronic platform, the purpose of which is to guarantee the transparency of procedures during the public procurement process. Public authorities employ electronic means to acquire works, goods and services needed to perform their activity.

The Public Procurement Electronic System (SEAP) ([www.e-licitatie.ro](http://www.e-licitatie.ro)) in Romania is managed by the National Agency for Public Procurement (ANAP), with a specific role in promoting and implementing the public procurement policies and tasks of verification control the consistent application of legal and procedural provisions. The Authority for the Digitalization of Romania (ADR), a structure with legal personality under the authority of the Ministry of Research, Innovation and Digitalization, has the task to implement the strategies and the public policies in the areas of digital transformation and information society, to coordinate their application, to guarantee the monitoring and controlling the compliance with national and international regulations in the field of digital transformation and information society.

The digitalisation of public procurement processes aims at integrating them into the national platform of public procurement (SEAP), by reconfiguring and transposing the entire process in the online environment. Thus, starting with the initiation of purchase documents, endorsement, data processing and uploading to e-procurement type digital systems, the interconnection with the national platform of public procurement will facilitate the access of all tendering agents to the procurement files-related information, thus supporting a fair competition among them. The adoption of measures at the level of contracting authorities to move from off-line to on-line will lead to full digitalisation of the public procurement file without the need to use analogue data.

At present, each public institution employs documents whose data structure and content are developed in a particular way, without following a unitary procedure regarding the content of documents, such as: justification notes, purchase requisitions, contracts, specifications, concept notes or other documents that are part

of the procurement file. The digitalization of the entire process of public procurement by implementing software applications with a unitary design, adopted by each public institution, will allow data collection in a more consistent and unified structured way and also specific to the operations included in the public procurement processes, without the need for the users to filter data that is not useful in the analysis and the processing of information, thus providing a clearer image of the underlying data. This data collection method makes it possible to limit the entry of useless information for the recipient and to use digital forms that are compatible with the national platforms, therefore simplifying the entire procurement process.

The present paper proposes a model that drafts the digitizing architecture of the public procurement process, taking into account the legal procedures of public procurement and the internal flow of documents. The development of the model is based on a short analysis of the digitalization status of public administration services and of the actual status of the public procurement digitizing process.

The paper is structured as follows: the second section describes the status of public administration digitalization in Romania as it emerges from the recently published analyses and reports; the third section describes the actual way in which public procurement is performed in Romania, along with all its implications; the fourth section describes the model for the rationale for the public procurement digitalization process; the last section is dedicated to conclusions.

## **2. The status of public administration digitalisation**

The European Commission monitors Member States' digital progress through the Digital Economy and Society Index (DESI). According to the last Report published by the European Commission (DESI 2022) regarding the digitalization of the European Union, between 2014 and 2022 an irregular evolution trend of this index has been recorded, despite the fact that a high degree of accelerated digitalization was noted in many economic areas, especially in countries with the lowest ranks in 2022. The top positions in ranking are occupied by the same Member States, such as Finland, Denmark, Sweden and the Netherlands (Figure 1); also, an increase in the digitalisation level has been perceived for all Member States during the past three years.

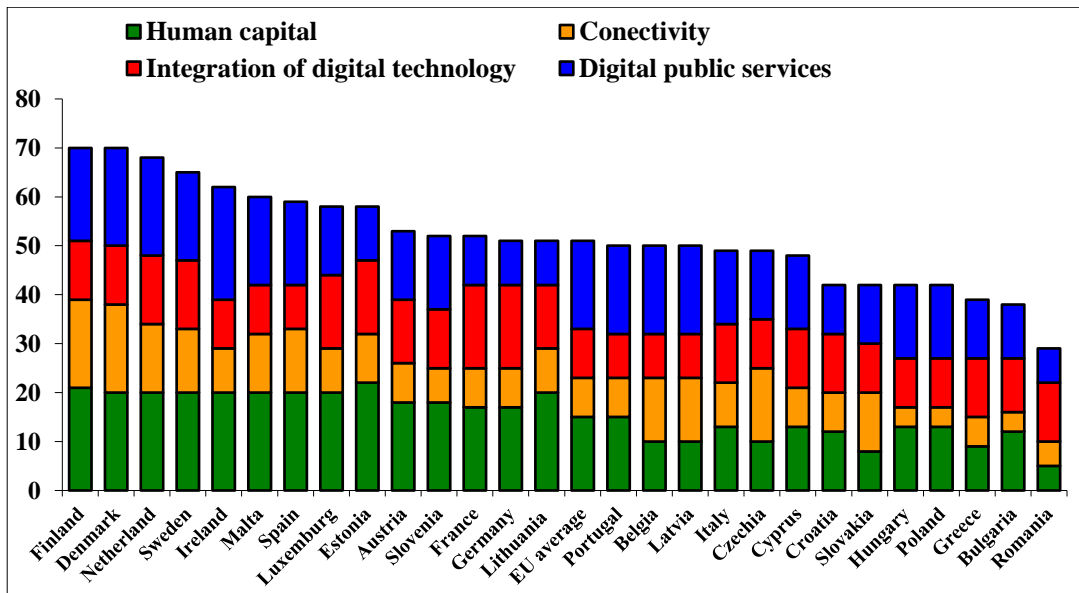


Figure 1: The ranking of European Union countries according to DESI 2022  
Source: European Comission (2023) (<https://digital-strategy.ec.europa.eu/en/policies/desi>)

It is to be noticed that Romania ranks last in the 2022 ranking of Member States, both for the DESI index (Figure 1) and for its components: e.g., the digitalisation degree of public services (Figure 2) or the integration of digital technologies.

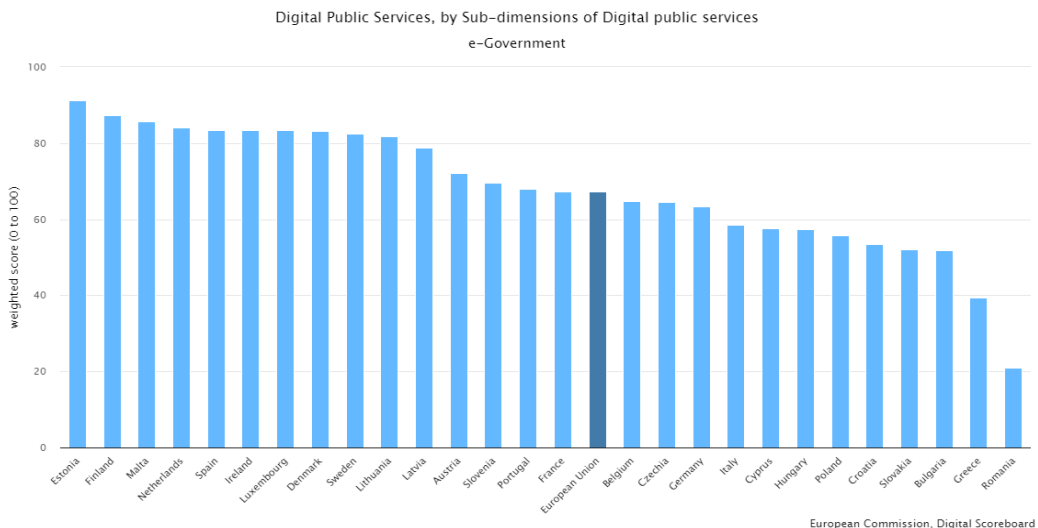


Figure 2: Digital Public Services in the European Union, 2022  
Source: European Comission, 2023 (<https://digital-strategy.ec.europa.eu/ro/policies/desi>)

The availability for citizens of public digital services (44 points in comparison with an EU average of 75), as well as the use of services by companies (42 points in

comparison with an EU average of 82) is reduced in Romania, while only 17% of internet users employ the e-government services (European Commission, 2023 p.17). Several authors have identified also the reduce use of public electronic services by citizens and business (e.g., Tsonev, 2016). In fact, the implementation of the e-government concept is challenged by several difficulties related to data security, data interoperability, errors elimination, front-end and back-end integration of data (Tsonev, 2016, p.55-56).

One may conclude that the digital transformation of the public sector in Romania is still in its early stages (i.e., Anghel and Neagoe, 2015; ADR, 2020)

During 2022, modifications were made to the legislative framework on the tasks and responsibilities of the Authority for the Digitalization of Romania (ADR), aimed at increasing the effectiveness of this institution. The Committee for e-government and bureaucracy reduction within the Authority for the Digitalization of Romania has present in 2023 the data from the second monitoring of digitalization degree of IT systems related to life events included in the e-government Public Policy, a strategic document approved in June 2021 by the Romanian Government. **According to the published report, the digitalisation degree of the Romanian state institutions has increased by 6 percent in comparison with the year 2020.** The institutions that have advanced in the digitalization of public services during the year 2021 are: the National Trade Register Office, the National Employment Agency, the Labour Inspection Office of Romania, the National Library of Romania, the National Agency for Fiscal Administration, the National Agency for Cadastre and Land Registration, the National House of Health Insurance, the Ministry of Internal Affairs ([www.adr.gov](http://www.adr.gov)).

As a Member State, Romania is entitled to benefit from funds granted by the European Union, according to the National Recovery and Resilience Plan for Romania, that include a set of measures aimed at the digitalisation of the public sector. The digital transformation of the public sector will generate an unitary system through which public institutions can interrelate with the business environment and the citizens, a system that will work thanks to the investments in the IT infrastructure, the provision of high-speed Internet, of digital technologies and the development of advanced digital capabilities for the employees of the public sector.

### **3. Digitalisation of the procurement process – a short review of relevant literature**

The adoption of digital technologies in public procurement can be seen as an engine for transforming the internal management of public authorities, within the general

effort meant to transform the relationship between public sector and its clients and also the public administration work (Andersson et al., 2022). As suggested by Bag et al. (2020) the procurement digitalization requires new frameworks to rebuild the internal management processes.

This means the use of digital technologies in the procurement process. Taking the example of business companies where the use of digital technologies can create value (i.e., Richey et al., 2016; Srai and Lorentz, 2019) public institutions must develop their ability to adopt and use digital technologies in procurement in order to be more effective in their relationship with their beneficiaries. The study of Kosmol et al. (2019) provide a conceptualization of digital procurement readiness consisting of technological and organisational ability of companies to develop and implement digital procurement, which is applicable also to the public sector.

Some barriers hindering the digitalisation of public procurement may consists of inappropriate managerial capacity, lack of specific skills, unsuitable hardware and software, bureaucracy and corruption (e.g., Fleming et al. (2022).

Several studies are highlighting the benefits of e-procurement for the corruption prevention and reduction.

In their study including 8,373 companies across 72 countries for 2018-2019, Jimenez et al. (2022) proved that digital procurement (i.e., e-procurement) can prevent and reduce corruption. They found also that the effect of e-procurement is stronger in countries with higher quality of institutions. The study of Jimenez et al. (2022) was developed under the hypothesis stating that” a country level e-procurement system reduce corruption to secure public contracts”. This is beneficial not only for firms participating in the public procurement but also for those maintaining the supply chain in relation with tenderers (i.e., Kim and Wagner, 2021).

The study developed in 2022 by the Policy Department for Economic, Scientific and Quality Life Policies ((from General Directorate for Internal Policies of the European Commission) provides a comprehensive and extended analysis of digitalisation of the EU public sector, in light of the Digital Single Market Strategy for Europe. There are highlighted the possibilities to develop an EU GovTech Platform, with the aim of underpinning the modernisation of public sector through innovation of public procurement. It is suggested that the public sector in the EU has” the potential to shape new markets” and for the next years it is expected an increase of importance of public procurement. The document develops the concept of procurement of innovation as well innovative procurement. Procurement of innovation refers to buy innovative goods ad services, even though the constraining principle of” more value for the same” money applies. Procurement of innovation integrates is necessary due to several changes: changing demands (from business); changing supply (new

products); changing relationship (between contracting part and suppliers); changing the public service ecosystem (including various stakeholders: agencies, economic actors). Innovation of procurement is needed in order to ensure a real and genuine competition among potential suppliers, meaning the way in which public procurement operates (i.e., a more flexible system, systemic partnerships, long-term contracts, client-specific standardisation, a balance of cooperation and competition). As suggested by Guida et al. (2023), the main benefits for public contracting authorities as a result of using digitalised procurement would be: easy fraud detection; optimal specification definition; reduced time to review and approve contracts; higher control of the procurement process; higher accuracy of the planning the procurement process; real time communication and support to suppliers. Current analyses and reports on the digital transformation of the public sector in Romania do not focus on the digitalization of the public procurement process, specifically on the internal process and activity flow within the public contracting authorities, carried out before the registration into the SICAP platform. Thus, based on the review of relevant literature, the present paper analyzes the "state of play" and proposes an architectural model of public procurement digitalization.

#### **4. Digitalisation of public procuremet in local adminsitration-State of Play**

We analyse the factual situation of the digitalisation of public procurement processes seen from the perspective of their "strengths", "weaknesses", and "opportunities" to build on strenghts and mitigate the weaknesses, and also their "consequences" on the economy.

##### ***Strengths***

The internal process of initiating and preparing the procurement, performed by the contracting authorities, according to the law of public procurement, is complemeted by the evaluation and award of public contracts, processes facilitated by the use of the SICAP national platform (Collaborative Information System for Public Procurement) operated by the Authority for the Digitalization of Romania (ADR). At the moment, Romania has a national legal and institutional framework allowing the digitalisation of the public procurement processes performed by the contracting authorities. The national framework includes a set of updated laws in the area of public procurement, including the ones regarding to the online environment (electronic contracts, signatures, transactions). The institutional framework includes the Authority for the Digitalization of Romania (ADR), the National Office for

Centralized Procurement (ONAC) and the National Agency for Public Procurement (ANAP).

The key methods to ensure procurement digitalisation are: the national SICAP platform (Collaborative Information System for Public Procurement), operated by ADR, which provides a centralized public procurement information system enabling interconnection between the contracting authority and the tenderers throughout the public procurement process, including the acceptance of the electronic procurement file by the contracting authorities, the management of public procurement contracts and, additionally, the Centralized Public Procurement Electronic Platform (PEAPC) of the National Office for Centralized Procurement (ONAC), by means of which the integration of all stages of centralized procurement is pursued, starting with the planning and the supervision stages of contracts/frame contracts implementation.

Another strength is provided by the existence of the national e-government strategic and public policies framework, with reference to the digitalization of public procurement, deriving from the Digital Single Market Strategy for Europe (2015). This strategy refers to the transition of fully electronic public procurement processes in all Member States and the use of public contracts registers.

### ***Weaknesses and barriers hindering the digitalization of public procurement***

The public procurement process is partly digitalized. The procurement procedures are accomplished both on-line and off-line, the tenders are accompanied by other paper-based documents, filled out and signed by hand. Even though the use of electronic forms related to the procurement file is foreseen in the draft of the National Public Procurement Strategy (SNAP) 2023 – 2027, they only refer to the data entry stage in the SICAP electronic platform, thus digitalizing only the forms related to the publication of notices (the DUAE form, is an affidavit made by the economic agent and the procedure data sheet). The procurement initiation and preparation documents have a content that is structured in a specific way according to each separate institution, namely an inconsistent system for the elaboration of procurement documents (fact that may lead to a selection of tenderers with limited capacities to assume contractual liabilities or to perform quality services/public works). At the same time, a lack of a coherent national framework for the use of data collection and processing software is being experienced, as such software applications have a different design for each separate institution. Another issue that has been identified is the lack of correlation between the information included in the Annual plan of investments and the information contained by the Annual procurement plan; consequently, standardized forms may easily exclude such flaws. The main barriers identified to the digitalisation of public procurement are:



(1) the lack of operational procedures regarding the transition from the analogic to the digital system; (2) the specific inertia of the bureaucratic processes involving the exclusive use of paper-based documents; (3) the lack of a unified IT architecture and the fragmentation of computer applications and of IT systems by areas of activity (finance - accounting, budget, public procurement), without the possibility to integrate and to process data in a consistent, unified manner, in real time, with effects on the traceability of information from the various areas of the institution; (4) the lack of clear legal provisions concerning data interoperability and the standardization of the e-procurement processes; (5) the lack of a standard format of documents elaborated during the public procurement initiation and preparation stage (justification notes, purchase requisition, terms of reference, technical specifications) as well as during the assessment stage (assessment report, data sheet; (6) the lack of standardise contract forms in the procurement of public goods and services which ca reduce preparation, negotiation and management time length; (7) digital performance and professionalism gaps between the public and the private sectors, namely, a limited level of professionalism of procurement responsible staff, resulting in a high number having of rejected awarding documents and of appeals.

### ***Benefits***

Delaying the digitalisation of the public procurement process can deprive the economy of the following potential benefits: (1) ensuring the compliance with the principles of non-discrimination, equal treatment, mutual recognition, transparency, proportionality, and accountability in the process of awarding public contracts and unfair competition between economic agents; (2) eliminating opportunities to include qualification criteria that restrain the free expression of competition between tenderers; (3) transparency, efficiency, simplicity and the control to an exclusively on-line award of public contracts, eliminating unfairness in the award and preventing corruption, thus contributing to increasing the confidence of the business environment in the public procurement procedures.

The digital transformation of the procurement process will lead to:

(1) reducing the workload at operational level (no more need to filter unclear information as precise data will be introduced) and an efficiency increase of staff performance (focusing on relevant tasks); (2) eliminating, at the the tender evaluation stage, of the companies with no effective execution, performance or delivery capacity; (3) a national unitary framework for the IT infrastrucre, software applications and digital tools will ensure a higher degree of interoperability between the databases of various public institutions and compliance with a quality standard of public services they provide; (4) streamlining of public procurement procedures

(economic operators will not be forced to mobilise financial, material and human resources at high costs, until the tender assessment process is completed) and rapid and transparent resolution of disputes, appeals or litigations arising in connection to the public procurement procedures.

### ***Opportunities***

In order to reduce the weaknesses and to remove the barriers to the digitalisation of public procurement process, Romania can exploit the opportunities provided by the European Recovery and Resilience Mechanism. Thus, Romania's National Recovery and Resilience Plan includes the reform of the public procurement system, through the digitalisation (public procurement included) and the interconnection of the electronic procurement system with other IT systems and databases (of the National Trade Registry Office, the National Tax Administration Agency, the National Agency for Public Procurement, the National Council for Settlement of Disputes, the Ministry of Internal Affairs, the Ministry of Justice). It also provides funding for investment in the implementation of digital technologies, including the ones in public procurement, digital public services, digital skills, interoperability of public services, investments in human capital.

## **5. Proposing a model underpinning the digitalisation of the public procurement process**

Based on the conclusions arising from the analysis of the actual way in which public procurement is performed by the structures of the local public administration in Romania, we propose the following design for the public procurement process.

This design takes into account the internal management processes derived from the legal procurement procedures.

The documents to be digitalized and the departments issuing these documents are being displayed (Figure 3).

The model is based on the introduction of standard forms in digital format both for the documents to be issued by the contracting authority at all stages of the public procurement process: the initiation and preparation phase of the procurement, and also during the evaluation process of tenders and the award of contracts and, further on, in the monitoring stage of contract execution.

The use of digital forms has the following advantages: (1) creation of an unitary, predefined structure of information, with sections dedicated to each specific aspect of public procurement, ensuring data interoperability; (2) elimination of the

possibility of data omission by the operator or erroneous entries, due to links with other forms/specifications, through the obligation of form validation; (3) ensuring security of data in during the processing stage, endorsement or storage; (4) efficient use of resources by designing optimized information and activity flows ("shortest path" type); (5) reduction of errors and processing times (by automating similar and repetitive tasks); (6) increasing work productivity and resilience in the public sector. One of the major consequences of the digitalisation of procurement forms is that it will ensure a unitary (at a national level) decision-making framework for the award of public procurement contracts, in which competition between performers is free, and also free and fair access to public funding resources is ensured.

The development of the standard template forms is based on an analysis of the specific legal requirements of each award procedure (flow of operations, processes, document endorsement circuit, operational procedures, standard data, specific data). A distinction is made between public forms (to be integrated into other software, platforms) and internal forms (to be used only within the framework of the contracting authority).

For the elaboration of the flow of processes proposed to be digitalised, the procedural steps to be followed, according to the methodological rules of public procurement, are detailed.

Thus, at the stage of initiating a public procurement, the technical department fills out the digital form of the Justification Note (statement of reasons). Following digital approval, the information in this document is compared to the data provided in the Annual Investment Plan, the Contracting Strategy and the Income and Expenditure Budget, within the Finance Department. The Procurement Department also performs the match with the Procurement Plan. Based on the Justification Note, the Technical Department carries out a market research, requesting tenders from potential suppliers. The request is sent online on a digital form, as are the offers received. Following the analysis of all received tenders, the digital Purchase requisition document is elaborated, along with the Estimated Offer.

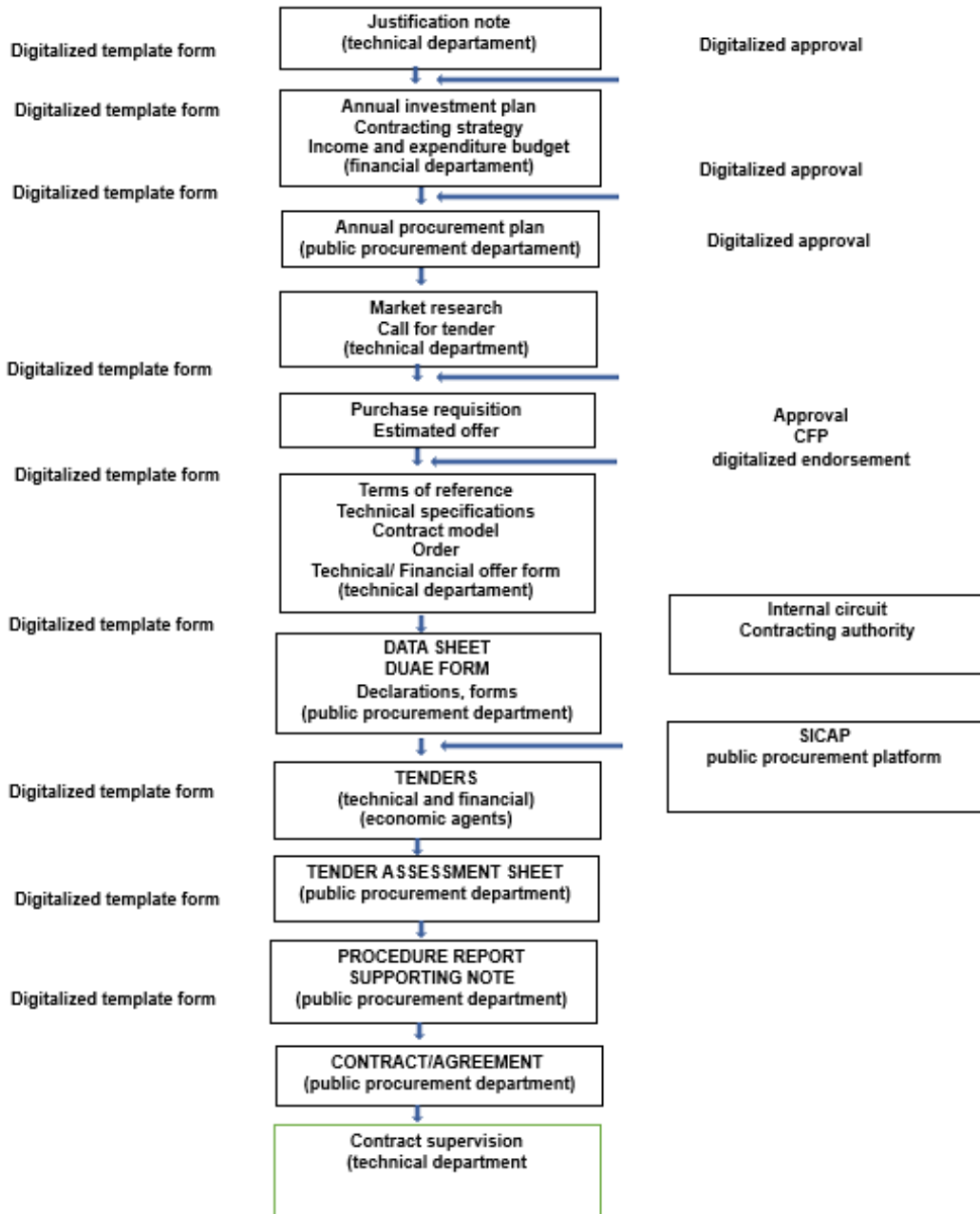


Figure 3 Analytical Model for public procurement digitalization  
Source: authors's own representation

These documents require approval and endorsement by the digital CFP. As a result, the Technical Department completes the Terms of Reference and Technical Specifications. The Contract Template is standardized and so are the Technical Offer and Financial Offer forms. These are uploaded to the SICAP platform. The system will generate the Data Sheet document, which is a report of the procurement data and the DUAE (Single European Procurement Document) form. The SICAP platform

will provide the documents uploaded by the tenderers within the set deadline. The system is designed in such a way that it will analyze the content of the different sections of the Tender and will automatically generate the Tender Evaluation Sheet, the document on which the contract awarding decision is based and which is recorded by the system.

As a result, the system will automatically generate the Procedure Report and its Informative Note. On the basis of these documents, the public contract with the selected operator is generated. Once it has been electronically signed by both parties, it will be registered by the system and its execution will be monitored (additional documents, minutes of receptions, payments).

## **6. Conclusions**

The model described above can be used at the level of city and regional councils and other public institutions or entities funded from public sources, as it complies with the legal procedures for public procurement, in order to underpin the development of software and platforms needed to digitilise this process.

The use of a unitary digitalisation model of the public procurement process will benefit all parties involved: contracting authorities and tenderers/contractors.

Thus, for the business environment, the benefits are: (1) ensuring free and equal access to the award procedure, through identical rules, criteria and requirements for all economic operators; (2) avoiding the inclusion in the documentation of elements that restrict competition; (3) avoiding the inclusion in the documentation of elements likely to indicate a particular origin, source, production, specific procedure that could favour or eliminate certain economic operators; (4) inclusion of the possibility of equivalence of different standards, approval, technical regulations; (5) increased confidence given to authorities by tenderers due to reduced response times, standardisation and accuracy of information, (6) predictability and control during the monitoring and execution stage of contracts.

The benefits of the contracting authorities are: (1) reduction of the risk of omission of essential information and material errors, that may lead to the cancellation of procedures; (2) ensuring transparency of data on procurement, evaluation and award of contracts; (3) reduction of operational costs; (4) reduction of disputes, litigations and appeals related to the award of public contracts; (5) on-line communication between purchasers and contractors (reduced reaction times, predictability and control during the execution of contracts); (6) reduction of procurement document processing times (simultaneous running of procurement procedures); (7) increase of

the capacity to operate and information analysis during the public procurement /sectoral procurement procedure; (8) elimination of discrepancies at the level of digital technology efficiency employed by the various local government structures. One may notice that the benefits are more on the side of the administration than on the side of the business environment. However, the situation should be perceived from the perspective of the efficiency and the effectiveness of the digitalised public procurement process, which have a long-term impact on the business environment, particularly in terms of ensuring a transparent, objective and fair competitive environment for all participants in the process. Moreover, the confidence of the business environment in the institutions of the state is also promoted. This refers to the vision in which that state institutions and the business environment are honest partners, engaged in a joint effort to make the economy truly dynamic, where all public goods, services and works- subjects of public procurement, lead to tangible positive effects on the living standards and life quality of the population.

## References

1. Andersson, C.; Hallin, A.; Ivory, C. (2022) "Unpacking the digitalisation of public services: configuring work during automation in local government", *Government Information Quarterly* 39, 101662.
2. Anghel, M.; Neagoe, A. (2015) "The level of digitalisation of e-government in Romania (Nivelul de digitalizare al guvernării electronice din România)", *Romanian Review of Computer Science and Automation (Revista Română de Informatică și Automatică)* Vol. 25, No.4, pp.19-26.
3. Authority for Digitalisation of Romania (ADR). (2020) *Setting the framework for the development of the e-government tools (Stabilirea cadrului de dezvoltare a instrumentelor de e-guvernare)* (proiect POCA).  
([www.adr.gov.ro/stabilirea-cadrului-de-dezvoltare-a-instrumentelor-de-e-guvernare-egov-2/](http://www.adr.gov.ro/stabilirea-cadrului-de-dezvoltare-a-instrumentelor-de-e-guvernare-egov-2/))
4. Bag, S., Wood, L.C., Mangla, S.K., Luthra, S. (2020) "Procurement 4.0 and its implications on business process performance in a circular economy", *Resources Conservation and Recycling* 152, 104502.
5. European Commission (2015) *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A Digital Single Market Strategy for Europe*, SWD, COM 2015, 192 final, Brussels, 6.5.2015
6. European Commission (2023). *Digital Economy and Society Index (DESI) 2022*  
(<https://digital-strategy.ec.europa.eu/en/policies/desi>)

7. Fleming, P., Zyglidopoulos, S., Boura, M., & Lioukas, S. (2022) "How corruption is tolerated in the Greek public sector: Toward a second-order theory of normalization", *Business & Society*, 61(1), 191–224.
8. Guida, M.; Caniato, F.; Moretto, A.; Ronchi, S. (2023) "The role of artificial intelligence in the procurement process: State of the art and research agenda", *Journal of Purchasing and Supply Management* (In Press)
9. Hoekstra, M.; Chideok, C.; Bodea, G.; Cave, J.; Kokkeler, B.; Oomens, I.; Van Den Berg, A.; Van Venstra, A.F.; Alleweldt, F. (2022) *The Digital Single Market and the digitalisation of the public sector. GovTech and other innovation in public procurement*, Policy Department for Economic, Scientific and Quality Life Policies, General Directorate for Internal Policies of the European Commission (<http://www.europarl.europa.eu/supporting-analyses>)
10. Jimenez, A.; Hanoteau, J.; Barkemeyer, R. (2022) "E-procurement and firm corruption to secure public contracts: The moderating role of governance institutions and supranational support", *Journal of Business Research* 149, pp. 640-690
11. Kim, S., & Wagner, S. M. (2021) "Examining the stock price effect of corruption risk in the supply chain" *Decision Sciences*, 52(4), pp.833–865.
12. Kosmol, T.; Reinmann, F.; Kaufmann, L. (2019) "You'll never walk alone: Why we need a supply chain practice view on digital procurement", *Journal of Purchasing and Supply Management*, 25, 100553
13. Richey, R.G., Morgan, T.R., Lindsey-Hall, K., Adams, F.G. (2016) "A global exploration of big data in the supply chain", *International Journal of Physical Distribution & Logistic Management* 46 (8), 710–739.
14. Srari, J.S., Lorentz, H. (2019) "Developing design principles for the digitalisation of purchasing and supply management", *Journal of Purchasing and Supply Management*, 25 (1), 78–98.
15. Tsonev, I. (ed). (2016) *Redesigning public services for the 21 century. Comparative analysis of e-reforms in Estonia, Bulgaria and Romania. (Reproiectarea serviciilor publice pentru secolul 21. Analiza comparată a reformelor electronice din Estonia, Bulgaria și România)*. The European Liberal Forum, "Friedrich Nauman" Foundation for Liberty (Forumul European Liberal, Fundația "Friedrich Naumann" pentru Libertate)

## Legislation

1. Law no.98/2016 on public procurement
2. Law no.99/2016 on sectoral procurement
3. Government Decision no.394/2016 for approval of Methodological rules for application of the provisions on the award of the sectoral contract/framework agreement of Law no.99/2016 on sectoral procurement
4. Government Decision no.395 for approval of Methodological rules for application of the provisions on the award of public contract/framework agreement of Law no.98/2016 on public procurement

Government Decision 89/2020 on the organisation and functioning of the Authority for Digitalisation of Romania

**Websites**

<https://www.adr.gov.ro/atributii/>

<https://www.adr.gov.ro/gradul-de-digitalizare-a-statului-roman-a-atins-27-in-2021-in-crestere-cu-6-fata-de-anul-anterior/>

<https://anap.gov.ro>

<https://www.adr.gov.ro>

[www.e-licitatie.ro](http://www.e-licitatie.ro)

<https://www.consiliulconcurentei.ro>

<https://sgg.gov.ro>