



The 19th International Scientific Conference
**“DEFENSE RESOURCES MANAGEMENT
IN THE 21st CENTURY”**
Braşov, November 7th-8th 2024



**THE TUNISIAN E-PROCUREMENT SYSTEM:
CHALLENGES AND PROSPECTS**

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Abstract:

As part of rebuilding people’s trust in the government after the 2011 revolution, Tunisia’s public procurement framework underwent reforms that included the introduction of a comprehensive e-procurement platform called TUNEPS (Tunisian e-Procurement system), which replaced the paper based centralized procurement system. Creating a fully functional digital procurement system promoted transparency through public online posting of bids and procurement procedures. TUNEPS has improved access to public procurement by financially vulnerable groups, including small and medium enterprises (SMEs) and women-owned enterprises.

The 2011 Tunisian revolution brought a series of reforms that aimed to rebuild people’s trust in the government, including introducing an e-procurement system for public institution’s construction, restoration, cleaning, catering, and equipment services. With the old centralized paper-based public procurement system, businesses outside of the capital were more prone to exclusion, as they were not adequately informed of bids and would need to travel several times to Tunis (Tunisia’s capital city) to submit their offers for public bids. In addition, there was a greater risk of corruption due to lesser transparency.

The Tunisian e-procurement system is modelled after the Korean e-procurement system KONEPS, and was built in collaboration with the Korean International Cooperation Agency (KOICA). It is operated by the Tunisian Public Procurement Authority (HAICOP). To participate in public e-procurement, buyers and suppliers must first register with TUNEPS and then obtain an electronic certificate that can be used for e-signatures from the National Agency for Electronic Certification (ANCE). The e-signature is essential to sign contracts.

Key words: procurement; system; electronic; reform; business

1. Introduction

Public procurement is an important issue for public policy in all countries. They are the vector through which public investment for development is implemented. They therefore account for a significant proportion of public spending by states.

In this context, Tunisia has embarked on the process of reviewing the mechanisms that govern its public action, including in particular the self-assessment of the national public procurement system. For this reason, an evaluation of the public procurement system was launched in March 2012. This action focused on the following four axes: the legal and regulatory framework, the institutional framework and management capacity, procurement activities and market practices, and the integrity and transparency of the public procurement system.

The study of the legal framework for public procurement in Tunisia on the one hand and its comparison with the Organization for Economic Cooperation and Development (OECD) principles for strengthening integrity in public procurement on the other showed that it suffered from fragmentation, lack of consistency, insufficient transparency and poor organization of control mechanisms. This assessment led to a new legal framework for public procurement to address the shortcomings of the system. Decree No. 2014-1039, the new text regulating public procurement that



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entered into force in June 2014, has indeed provided the expected response in terms of consolidation, simplification of procedures, accountability of contracting authorities, transparency and integrity.

The creation of a platform for the dematerialization of public procurement, the "Tunisian E-Procurement System" (TUNEPS), has indeed launched a major revolution in the field of public markets.

However, despite the steps taken, the public online purchasing system (TUNEPS) today faces some challenges stemming from the internal and especially the external environment. It also seems very important to think about the future of the system and its prospects in order for this project to be successful.

The dematerialization of public procurement in Tunisia through the implementation of the “TUNEPS” platform is a project that combines two national priorities: the development of an electronic administration and ensuring compliance with the principles of public procurement in terms of equality, transparency and integrity of procedures, as well as the fight against corruption. However, this experience is encountering difficulties and showing limitations that still need to be overcome.

In order to develop our main idea, it is first necessary to present the inventory of the electronic public procurement system in Tunisia (TUNEPS). Then, it is appropriate to analyze the challenges and difficulties that this system entails, and finally, we will try to provide an analysis of the perspectives of this system.

2.Establishment of TUNEPS in TUNISIA

The regulation of public procurement has undergone significant changes over the last two centuries and has been the subject of sporadic texts dating back to the decree of July 25, 1888, which regulated the formalities for awarding public contracts.

Finally, Decree No. 2014-1039 of 13 March 2014 has changed and revolutionized the legal framework for the regulation of public procurement in Tunisia, in particular through Articles 77, 78, 79, 80, 81, 82 and 148 of the aforementioned decree, which contain specific provisions for online public procurement. These articles establish the public online purchasing system TUNEPS (Tunisian e-procurement system). Transactions carried out through this system thus have probative value and ensure the recording of all transactions carried out by registered users. The system also guarantees the confidentiality and security of transactions on a computer network that is accessible without discrimination. It is also subject to the legal and regulatory provisions governing the security of electronic transactions. The system enables the electronic signature of documents, which authenticates the holder in accordance with the provisions of current legislation on electronic signatures, and in accordance with the decree of July 31, 2018, TUNEPS will be mandatory for the award of public contracts for all contracting authorities from September 2019.

Objectives:

The "Tunisian e-Procurement System" (TUNEPS) is a Tunisian-South Korean cooperation project that was officially inaugurated in January 2013. A system which guarantees the confidentiality and security of transactions in a transparently accessible network makes it possible to control the possibility of choosing the direct market by the public organization.



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This initiative, which is part of the development of working methods and the modernization of the administration, aims to guarantee and strengthen transparency in the field of public procurement and to combat corruption in this sector.

And in general, it can be said that TUNEPS pursues the following objectives:

- Strengthening respect for the principles of public procurement,
- Shortening the deadlines for purchasing and public procurement,
- Improving the efficiency of public procurement,
- Transparency,
- Economic efficiency of public spending,
- Increasing opportunities for SMEs,
- Strengthening competition,

This system will indeed make it possible to accelerate the pace of preparation of administrative and financial market acts and to implement public projects within the planned deadlines, as well as to improve the efficiency of public markets and strengthen competitiveness. It is also about establishing the principle of equal opportunities for suppliers, shortening the time for concluding public contracts and also reducing project costs.

The operating principle of the online public procurement system is based on specific components and predefined procedures which make it possible to manage and conclude contracts under the best possible conditions.

Features of the TUNEPS system

Dematerialization is merely a tool for the exchange and processing of documents by electronic means. It therefore does not entail any change to public procurement procedures, which remain the same if they are carried out on paper. The steps of a dematerialized procedure are the same as for a paper-based procedure.

In fact, there are 4 subsystems within TUNEPS:

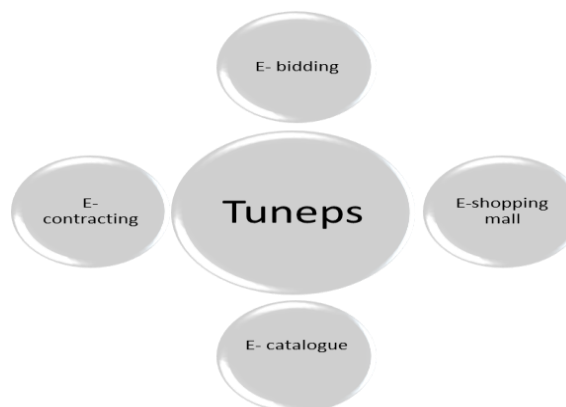


Fig.1 TUNEPS subsystem

E-bidding

The electronic procurement of public contracts (e-bidding) consists in the use of electronic means of communication and the processing of transactions carried out by the administration with the private sector in order to manage the various tendering procedures

This component makes it possible to automatically manage



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- ➤ Publication of tender notices,
- ➤ Submission and receipt of tenders online,
- ➤ Opening of online tenders,
- ➤ evaluating and publishing the results of online tenders.

E-contracting

This is the component relating to the conclusion of online contracts for public contracts. The latter has probative value, it enables:

- ➤ drafting, notifying and signing contracts
- ➤ Drafting and signing addenda
- ➤ Inserting, sending and receiving service orders
- ➤ Evaluation and statistical monitoring

E-catalog

This is an electronic catalog that manages products classified according to the United Nations Standard Products and Service Code (UNSPSC), an international standard classification. It provides information for other systems for electronic tendering, electronic contracts and electronic purchasing centers. It therefore enables:

- Product registration
- Technical characteristics
- Insertion of the product nomenclature.

E-shopping-mall

It is an online market that allows public buyers to place all over-the-counter orders for the purchase of products and services on the basis of unit price commitments already concluded with suppliers. It enables:

- ❖ **For public buyers:**
 - Search for goods and prices
 - Orders and order tracking
- ❖ **For suppliers:**
 - Price quotations
 - Receipt and execution of orders.

3. The challenges of the TUNEPS

The establishment of the TUNEPS system aims to modernize the administration to meet international standards in public procurement. The TUNEPS platform, as it is designed, makes it possible to achieve this goal. However, despite the efforts made, it has some limitations. Some limitations are related to the system itself, others to its external environment.

Challenges arising from the internal environment

Problem of data exchange

The speed at which documents are sent or downloaded does not exceed 20 megabytes (which is the lowest speed that can be used at national level). This significantly affects the speed and quality of transactions carried out via the system, especially as the session available to each user is limited to 4 hours. As a result, both contracting authorities and economic operators registered on the platform have difficulties downloading tender documents. Indeed, a session to open a call for tenders



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can last two or three days, while a similar session in the context of substantive procedures lasts on average no more than half a day.

To overcome these problems, the Public Online Business Unit has taken exceptional measures. The Unit has prepared a standard file in Excel format that can be used by users. This file is secure (it cannot be modified by the recipient). It is available from today on the TUNEPS platform website, can be downloaded by suppliers and filled in offline by those wishing to take part in the tender, and will then be downloaded once the financial offers have been drawn up. Once sent, it is encrypted and can no longer be modified.

A system for the dematerialization of but with documents that can be sent offline

The implementation of the TUNEPS system aims to ensure the complete dematerialization of public procurement, i.e. to make all purchasing documents and procedures immaterially public. However, as the system has not integrated banking networks, bank guarantees of all kinds are now submitted offline. Indeed, the bank guarantees must be submitted in sealed envelopes before the deadline for the submission of tenders. The TUNEPS system systematically generates the opening report and the public buyer is now obliged to produce another opening report for provisional bonds.

On the other hand, large documents cannot be sent quickly due to the limited capacity of the system. Therefore, bidders must send these documents in sealed envelopes as a supplement to the bids submitted online. These documents must be the subject of a separate opening report.

In short, the TUNEPS platform today is not able to process all the documents required for bid submission, as multiple documents cannot be sent online.

Question related to product classification

Since 2014, the date of the launch of TUNEPS, only 301 products have been registered by suppliers in the e-catalogue of this system.

The reason for this is the complexity of this step, which is based on a coding system called UNSPSC (United Nations Standard Product and Services Code). This is an eight-digit coding system developed for the classification of products and services in e-commerce systems. The classification makes it possible to create a nomenclature of more than twenty thousand categories with a four-level hierarchical structure: “segment”, “family”, “class” and “product”.

In addition to these limitations stemming from the platform itself, there are other challenges stemming from the external environment that affect the proper functioning of the system.

Challenges originating from the external environment

The history of the establishment of the TUNEPS system in Tunisia has been accompanied by a commitment from all stakeholders to ensure the success of the project. However, it should be noted that neither the banks nor the public structures linked to the control process or the payment process are actually working on the platform.

Problem of Availability

TUNEPS is a platform that can only be operated via the Internet and the services require a connection to the global network. For this reason, the quality of operation and the speed of data depend heavily on the coverage provided by the Internet network at a national level. This stability is significantly impaired in regions that are less covered by internet networks. Due to the lack of an efficient network, it is also severely affected during peak hours, everywhere in Tunisia. Thus,



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opening tenders or publishing certain information related to a tender becomes a tedious task for users, especially in the interior regions or during rush hours.

The use of the system varies between simple consultation by the public and actual use by contracting authorities or economic operators for the management of tenders at different stages. Today, thousands of users are registered on the platform and hundreds of thousands of visits are recorded on the website every day. The platform is currently under a lot of pressure due to the large number of users and visits. This slows down the response time and affects the profitability of the system.

Problems related to economic operators

Although participation in the public online order has been mandatory for all economic operators since 2018, it is noticeable that the number of economic operators registered in the system is developing slowly, contrary to all expectations. In fact, several economic operators are not yet registered on the platform. This is due to the reluctance of economic operators, particularly in the regions.

This reluctance has led to low participation in public procurement in these regions, which has a direct impact on the efficiency of public procurement.

Most of the economic operators registered in the system are usually large companies that can provide the human and material resources required to participate in public tenders. A considerable number of micro, small and medium-sized enterprises are outside the system. Craftsmen and food producers are a typical example of these companies.

Problems related to public buyers

External problems with the system are not limited to economic operators. In fact, public buyers are also affected by these errors. Several public buyers are not yet registered in the system, either because the infrastructure in their own country is inadequate or because they do not receive electronic certificates from the National Agency for Electronic Certification, which is very popular for requests.

The lack of training and supervision of public officials is also a major obstacle to the smooth functioning of the system. Despite the efforts of the Public Online Procurement Department to provide as much training as possible, several public servants involved in the public procurement process have not had the opportunity to participate in the training required to use the platform.

Like any new experience and after a certain period of operation of this system, the TUNEPS platform has reached its limits in terms of the objectives sought by the executive. In this context, corrective measures must be taken to revitalise this system

4. Prospects for the TUNEPS

Despite the difficulties and challenges already mentioned and for a better recovery for this system that has been designed. It seems very useful to carry out a profound reflection on the future prospects of this project, whether at the national level or within the Ministry of National Defense.

Certainly, the adoption of an electronic public procurement system is a revolution in the field of public management; it allows the digitalization of procedures, the strengthening of governance, and the economy of expenses.

The benefits of this system have crossed the borders of the country, and it is recognized today by international organizations as a very important tool for public procurement governance because it



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ensures transparency, contributes to reducing corruption, and allows Tunisia to move from physical space to intangible space.

However, given the challenges and limitations already mentioned in this system, it is necessary to implement an action plan to remedy these imperfections.

Thus, the integration of the e-payment component, the facilitation of registration and the integration of control bodies, the development of the environment e-catalogue, the establishment of a cloud, and the improvement of capacity are the future steps to be taken to guarantee the desired performance for this system.

A purchasing system must have a fundamental component for online payment. It is far from a luxury; it is necessary to guarantee the success of public purchases. An order-managed online must certainly be paid; otherwise, the system remains incomplete or unable to complete the public purchasing process.

Through this element, the platform can complete the public purchasing process (planning, competitive bidding, opening offers, approval of the competent procurement committee, and award of the order, execution, payment, and final settlement).

This project is currently the subject of a critical debate between various stakeholders, such as the online public purchasing unit, the national agency of certification electronics, and well obviously the central Bank of Tunisia, and other different banks. The E-PAYMENT project aims to make it possible to pay online bills. A major project is open today among various stakeholders to facilitate the settlement of the accounts of economic operators holding public order.

Electronic payment will certainly simplify public order procedures not only for public buyers but also for economic operators, because it allows payment deadlines to be shortened. This positively influences the quality of services and effectiveness of public purchases.

Having an electronic payment system is the first step in the digital path. A certificate is the equivalent of an identifier, digital identity, and electronic signature. Each economic operator must have a certificate. This allows one to place oneself on the system. Without a certificate, we would have been outside the system.

Since the launch of the operating phase of the system, everyone has complained about the cumbersome procedures for obtaining this electronic certificate. The formalities are new for most beneficiary residents in Tunisia, almost incapacitating for non-residents. Let us assume that a foreign company wants to obtain an electronic certificate. In addition to the payment of 81 dinars, the procedures require the travel of the first manager of the company to the headquarters of the national electronic certification agency. This approach seems incompatible with the spirit of the dematerialization of procedures. Therefore, we must consider this approach. Certificates must be granted online. A password and login are solutions that can solve this problem.

The E-catalogue subsystem constitutes an advertising environment designed to understand all the products available for sale. Economic operators can, thanks to this subsystem, register their products by visualizing the technical characteristics of each product. For his part, the public buyer can thus know, with a simple click, not only the varieties of products available on the market but also get an idea of technological developments in different sectors. The idea is great, but such an approach can only have its fruits and advantages if all products available on the market are registered. However, we notice today, after 6 years of its launch, that the platform includes very few products, six years after its launch. The E-catalogue does not attract sufficient attention from economic operators. Only 301 products are registered on the platform. A limited number of participants is required to achieve the desired objective. This can be explained by the difficulty of classifying products that must respect a coding system known as United Nations Standard Product and Services Code (UNSPSC). Although it is recognized internationally as a reference for



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classifying supplies, very little is known about it in Tunisia. This makes product registration difficult, and the implementation of this subsystem is more difficult.

To overcome these difficulties, the online public purchasing unit launched a series of training actions for various economic operators concerned with familiarizing them with this system coding. However, despite this effort, the problem persists because a public body is needed that must take care of the classification of products. Who will do it? The Ministry of Industry and the National Institute of Standardization and Industrial Property (INIOSIP)? This decision has not yet been made.

Thus, the classification of products according to the universal coding system constitutes a challenge to be met in developing an E-catalogue. A project that requires bringing together the efforts of all the structures concerned, including public administration, economic operators, and professional organizations such as UTICA.

The coding system must be simplified for economic operators to register products. This objective can be achieved through a series of trainings and online technical assistance available to beneficiaries.

Managing public purchasing procedures, whether in a physical or intangible environment, means, in the simplest conception, the application of a series of procedures; it is an ongoing process. Finally, the output was a set of documents. Carrying out this process is, above all, the management of documents and exploitation of the results. This involves applying rules governing the same operations each time, and retracing the same mechanisms. Traceability is fundamental for control, monitoring, and evaluation.

Keeping this volume of documents, which continues to increase over time, certainly requires reserving storage space to save different documents for each purchase. Otherwise, the history is lost.

Designers of the TUNEPS platform have provided a central server for storing documents. Each document issued or received through the platform is automatically saved so that these documents can be consulted at any time later. However, this server is capable of storing an unlimited number of documents. The answer from specialists is negative. Each storage space has a specific capacity. However, overtaking was not possible.

That's the problem. Medium storage has limited capacity, which, once reached, may no longer save documents. For this reason, the implementation of a cloud becomes a technical necessity to guarantee not only the backup of documents but also, above all, enable traceability within the system.

Is the TUNEPS platform capable of carrying out public purchasing procedures with a throughput of 20 Megabytes? Is it capable of managing the transactions of thousands of public structures and economic operators that are currently registered on the platform with a duration of operation that does not exceed four hours at each time for each user? Would it be able to assimilate the number of registrants that will continue to increase with the birth of a new society?

These questions find answers in the strategic vision of the high authority of public procurement (HAICOP), which felt the importance of improving the capacity of the platform. Adequate response time, data speed, and continuity of system availability are the objectives set by the online public purchasing unit to improve the quality of data exchange on the platform. The work is daily for the managers of this unit to minimize the time for opening assignments, opening offers, and downloading documents. Moreover, the authors recognized this defect. However, they explain this weakness by exogenous factors due to low Internet speed nationally.

The solution consists of improving this throughput, which will certainly allow a radical change in the quality of transmission and use of data on the platform.

Prospects at the level of the Ministry of National Defense



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The Ministry of National Defense has not been isolated from its environment. It is aware that in a digitalized world, resistance is useless. For this reason, and despite the specificities of its purchases and its structure and the particularity of its activity, it did not make an exception compared to public online purchasing. Indeed, the military institution, concerned with improving the efficiency of its purchases, finds itself, like most other public structures, at the heart of the digital transformation launched in Tunisia for several years as part of the project "Digital Tunisia 2020."

Most of the structures under the Ministry are registered and make purchases online. However, it should be noted that despite the efforts made to integrate all the military structures concerned, several organizations are now outside the system. Their faults or the faults of an online public purchasing unit it does not matter who is responsible for this delay. The fact is there. In fact, some departments have not yet received electronic certificates. They manage their calls for tenders, exceptionally using certificates from other organizations. The case of the Directorate of Heritage, Media, and Culture (DHMC), which uses the electronic certificate of the General Directorate of Clothing and Subsistence (GDCS), remains the most striking example of this delay.

Like all public administrations, the Ministry of National Defense adopts an online public procurement system for the objectives already mentioned in the first part, but there are still bodies and organizations that have not yet been registered.

From this observation, it is imperative that efforts be made to remedy these inadequacies; the delay cannot be tolerated, especially with the commitment of the military to the digital path. Indeed, several other projects have been launched, namely ELLISSA and GED, and a national system for monitoring public projects INJEZ has been established. It is in this spirit that various military organizations must integrate as quickly as possible into this wave of digitalization. Sufficient funding and staff training are factors in this transformation.

5. Conclusions

The digitalization of public purchasing presents itself as one of the pillars of economic development. Therefore, Tunisia launched an online public procurement project (TUNEPS). Concerns regarding transparency, governance, and the optimization of procedures were factors that gave rise to this system. It is obvious that the project has enabled the transformation of public purchasing to digital purchasing. Public administration and economic operators find themselves today faced with a digital reality that has allowed the simplification of procedures and saving time, which has positively influenced the climate of business.

However, despite these efforts, this system has several failures. Two types of problems were identified. On the one hand, these are problems that emanate from the platform itself, namely, the availability problems, the problems of exchange of the flows, and the inability of the system to immaterialize all the procedures. On the other hand, the challenges are imposed by the external environment, namely connection problems, problems arising from public buyers and economic operators, and problems related to control bodies.

Despite these failures that do not significantly affect the operation of the platform, a range of solutions can be adopted to compensate for the inadequacies of the system. The establishment of an online payment system, facilitation of registration, simplification of the management of the E-catalogue environment, and implementation in place of a sufficient cloud to save the history of all operations will be the emergency measures to be undertaken to guarantee better performance of this system. Additionally, regular training sessions and technical support for users could enhance their ability to navigate and utilize the platform effectively, further mitigating some of the external challenges.



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Is there still a need to review how access rights are managed to involve control authorities for better governance of public procurement? Absolutely, revisiting the access rights framework to ensure that control authorities are adequately involved could enhance oversight and governance, ensuring that procurement activities are conducted with the highest standards of integrity and accountability. Implementing advanced encryption methods and robust audit trails can also ensure data integrity and security, thus gaining the trust of all stakeholders involved.

Certainly, the Ministry of National Defense does not miss the digital waves. It is at the heart of digital transformation through a firm commitment to optimize these purchases. However, would this transformation be capable of assimilating all types of purchases by military institutions, which requires respect for the secret nature of these purchases? Given the sensitive nature of military procurement, special considerations must be made. The system would need to incorporate stringent security measures, such as advanced encryption, secure authentication protocols, and isolated data environments to handle classified information safely.

Moreover, the integration of secure block chain technology could provide an immutable record of transactions, further enhancing security and transparency. Collaborations with cybersecurity experts and continuous monitoring for potential vulnerabilities will be essential to protect against threats. By addressing these unique requirements, the digital transformation of military procurement can be achieved without compromising the confidentiality and security of sensitive operations.

In conclusion, while TUNEPS marks a significant advancement in the digitalization of public procurement in Tunisia, continuous improvements and tailored solutions are necessary to fully realize its potential and extend its benefits across all sectors, including the highly sensitive area of military procurement.

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