

# **Modeling evaluations and impacts on Public Electronic Procurement**

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## **Extended Abstract**

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The European proposal for the accession to a new process for electronic and dematerialized contract forced a change on working methods and procedures. The legislation promoted by European Union created objectives and proposes goals. Recently in 2014 the European rules have been revised, and each member state are preparing their own new legislation.

In Portugal the electronic Procurement is implemented since 2008, and because there's a lack of studies on these these, this dissertation demonstrated to be a good opportunity to explore not only the potential market of the Electronic Public Procurement (EPP) but also to introduce new perspectives, which so far have not been aproched.

This document aims to contribute to the potencial evaluation different management models for the market of electronic procurement. It aims to assess what changes are expected by stakeholders and what are the most valued features. At the same time tries to reevaluate the impacts felt with the change of a procurement system based on information technology.

The electronic public procurement is fully related with the concept of dematerialization. For Carreira (2013) citing Croom and Brandon-Jones (2005), dematerialization involves the use of information technology (IT) and communication integrated on the internet at all stages of an acquisition: demand, trading, requiring, reception and post analysis-acquisition.

In the view of the European Commission (2006) e-Procurement can help achieve these goals by creating free and fair competition across borders, promoting access to all economic agents and reducing

costs. The e-Procurement looks for the goal of introducing greater accuracy and speed into the field of public procurement having in mind the relevance of administrative contracted activity as well as control public expense. (Soares, 2015).

The first European directives that risked new information technologies were Directives 2004/18 / EC and 2004/17/EC, which bet on each member state choosing to adopt a model.

.According to Rocha, et al, (2008, pg.21), management of electronic platforms could be achieved in three main models:

1. Public Management Model, model where the State has a direct management, and is the State itself the platform owner;

2. Private Mangement Model, model where the platform or platforms are managed by Private promoters;

3. Mixed Mangament Model, model in which the entity responsible for management of the platform is managed by a company where the State participates.

## **2.1 Public Management Model**

According to Caupers (2002), "public administration finds its main goal satisfying the collective needs. (...) whose have varied over time and are different from country to country, depending on the level of economic and social development." (P. 71). Araújo (2007) finds in the government the entity that seeks to optimize the use of resources and the need to establish links between citizens and institutions providing public services.

Overall the public administration aims to "provide a direct and immediate economic benefit to a citizen or a legal person, framed by obligations far away from a pure commercial management, such as the exploring and hiring and tariff obligations." (Caupers, et al., 2001, p. 40). The public management model is a model that look for the interests of a community with bigger objectives than generate revenue, having in mind the economic development and improving the quality of life of a group of individuals.

The table below shows the main advantages and disadvantages of public management model according to the studied literature:

<b>Public Management Model</b>	
<b>Advantages</b>	<b>Disadvantages</b>
Bigger access to the public procurement market	Initial high investment
Reduction of the political tax/gratuity associated to the CPE	Financial Risk Management
Standardization of resources and information	Inertia on the system starting up
Potential elimination of some resistance on the change brought by an intervention of external entities.	Wastage of external intervention as boost for a change in Public Administration
	Wastage of boosting the power of private market

## 2.2 Private Management Model

In private organizations (...) profits come from payments made by customers in exchange for a service or product, the control is normally associated with market rules, through competition with other organizations (...) with a high survival sense because they depend on the competitiveness and efficiency, so they need quick decisions, on a permanent search for rationality, adopting focused business policies to market objectives. ((Bremaeker, 2004), (Pereira L., 2011))

From the point of view of private management, the viability of an organization is determined by a financial analysis showing that the expected revenues will be greater than its investment and operating costs (Filho, 2002, pp. 115-121).

As a quick summary the table below shows the main advantages and disadvantages of private management model:

<b>Private Management Model</b>	
<b>Advantages</b>	<b>Disadvantages</b>
Low initial investment	Cost per transaction or procedure
The state does not assume the financial risk and does not depend on a certain choice of a platform	Risk of failing the goal of expanding access to the market for public procurement, in particular as regards SMEs
Advantages boosted by competition	Political risk on choosing the system manager
Continuous product development	Resistance of the Public administration to the externalization of purchasing procedures
Greater competitiveness and efficiency that is a characteristic of the private sector	In case there is a model with a decentralized management, there's a risk of dispersion information and lack of homogeneity between entities

## 2.3 Mixed Management Model

The model that we called mixed characterizes it self "by a partnership between the state and one - or more - private entities." (Caupers, et al., 2001). Carias (2012) stays that this type of management is based on forms of cooperation between public authorities and private companies, pretending to secure financing, construction, renovation, management or maintenance of an infrastructure or providing a service. Rocha, et al., (2008) stays that with this model the State could get some services provided by private companies. We would be faced with a "functional privatization", where the State delegates the private sector company to carry out some activities under its supervision. The entity that occupy these functions would have to "offer a standard of integrity, technical competence, financial capacity and transparency in the operation. (Rocha, et al., (2008)).

## 2.4 Electronic Public Procurement in Portugal

In 2008, the EU Directives 2004/17/EC and 2004/18/EC have been transposed into the national legal framework, creating the Public Contracts Code (PCC) (Vieira, 2012). This diploma is a remarkable effort of coding and consolidating legislation and modernizing our dogmatic Administrative Law (Moreira, 2008).

According to INCI - IMPIC, (2014) the mandatory e-procurement forced to "reform the rules (...) in order to make it simpler and more efficient for contracting authorities and economic operators and (...) to ensure the best quality / price of the buying public."

In 2014 were published new European Directives for electronic procurement, those were inspired partly in the Public Procurement Code, making, among other things, mandatory e-procurement across Europe and thus following "the Portuguese pioneer" (Fernando Silva, Chairman of the Board Director of the National Institute of Construction and Real Estate (INCI - IMPIC) (Diário Económico, 2014)

According to the Diário Económico, (2014), the new directives pretend to make training procedures more transparent and opened to the general European economic operators, and they may offer their services and products throughout the European Union.

## 2.5 Contracting Entities

According to Carreira (2013), potentially contracting authorities are the ones that, with government approval, and with the help of public resources, carry out requests that satisfy people's needs, called Public Administration.

## 2.6 Providing Entities

Providing entities are any entity wishing to respond to a request by a contracting entity (Carreira, 2013).

A provider entity is considered "any natural or legal person or public entity or group of such persons

or organizations that provide products." (Oportunidades de Negócio na União Europeia, 2015)

The methodology for the research proposal was the construction of a model through the development of a survey as data collection instrument. There were built two surveys, one for contracting entities and a second to the providing entities

The surveys are mainly intended to address issues of research proposals, checking which were the impacts with the EPP and check which management model of the most popular e-procurement, estimating the degree of satisfaction with the current model force and testing the receptivity related to a potential change of the legislative framework

### **3.1 Sample characterization**

For the sample were created two databases with 200 contracting entities and 200 providing entities were created. The return rate of questionnaires was not high, were obtained 44 valid responses (about 22% of the total sent surveys) for the supply entities for the contracting authorities were obtained 45 valid responses (22.5% of all respondents).

### **3.2 Data Analysis and Results discussion**

This study proposed to evaluate the impacts associated with EPP and verify if different entities had similar analysis to the process of electronic procurement.

Looking globally it can be said that the most significant factors for the assessment of EPP are identical to the providing entities and contracting authorities, both organizations value the usability of the platforms, the gains of the electronic procurement and the changes associated with electronic platforms. In the case of supplier entities are also highlighted components associated with the confidentiality of electronic platforms.

The factor that causes more disagreement among the respondents is the usability of the platform, the two entities highlight as components of this factor consistency between electronic platforms, and the easy way of using them, access to technical support and integration of functions between electronic platforms. However, the evaluation of their performance is divergent. Supplying entities evaluate negatively all components and contracting entities stand it out in a positive way. This aspect is relevant because shows a behavioral change of supply entities. For the first time providing entities demonstrate their discontentment with the current operating system platforms, the lack of standardization of EPP process between the different platforms is the aspect that most raises displeasure.

The confidentiality of the hiring process is quantified as a positive impact of the EPP to the supplier entities. For the contracting authorities this factor is not presented as relevant, not highlighting the security of electronic procurement processes does not represent a devaluation of this issue, but it is a consequence of the evolution of the electronic procurement process. This demonstrates an effective adaptation to the complex system implemented security.

The second impact identified by contracting entities and suppliers is associated with capital gains of

electronic procurement. The opinion of respondents are unanimous on considering that there were improvements brought by the computerization of public procurement. Those gains identified on this study differ from the initially felt at the beginning of the EPP process: now users value factors that enable higher profitability processes.

The changes associated with EPP are distinguished as positive impacts associated with the computerization of the process. For suppliers entities, contrary to other studies previously reported, the cost reduction is no longer associated with a positive change, now that is seen as a factor with no impact. This aspect shows an important change in the position of economic operators so far related to EPP reduction of the amounts associated with public procurement. With our current system the tax expenses for access to different platforms have been increasing, leading users to believe that there is no monetary advantage in the computerization process. Contracting authorities maintain the position presented previously in other studies.

There are some impacts that are no longer highlighted by the EPP players: all the difficulties associated with the adaptation of human resources to change the work process for hiring is now undervalued, there is a complete adaptation to the computerized process that was imposed. This aspect also reveals that the resistance to change and lack of training of the staff is no longer a major factor.

Having to choose three of the main advantages and disadvantages of electronic procurement suppliers and contracting entity's have the same opinion. However, through the comparative analysis was possible to cross some data, and identify individual behaviors. Economic operators identify different main advantages that depend on number of employees. In the case of contracting authorities behaviors are more harmonious efficiencies in the procurement process are a factor that is transversal to all size entities, as well as the advantages associated with the dematerialisation of processes that have allowed increased productivity.

Analyzing the disadvantages on using electronic platforms, it is clear that the lack of consistency on the content between PE is identified by donor entities regardless of their size.

When estimated the disadvantage associated with EPP taking into account the size of the contracting authority checks that the information is more dispersed, but the authorities tend to identify the costs associated with digital certificates and time stamps as a disadvantage of hiring system.

On the third group of the questionnaire was intended to analyze the knowledge of stakeholders about the three management models that are associated with e-Procurement.

The first impression to take is associated with the degree of satisfaction with the current model applied in Portugal, on the beginning it is not expressly identified this model as the private model by considering the answers could be biased. Both supplier's entities and contracting positively evaluate the model.

The questioned entities do not consider that the model adopted in Portugal legally burdensome. When you want to know if the implemented model affects the security of the hiring process the answer is again negative, ie respondents once again evaluate the model as quite sure what confirms the elevations taken from Group II. Security issues are overcome, and there is belief in the implemented

system.

The two main benefits identified for private management model are associated with the benefits of not involve the state in the process of start-up investment not be public. Supplying entities associate the potential competition that is provided by the private model. For the characterization of the disadvantages of private management model, suppliers and contracting entities choose to costs associated with procedures and the lack of homogeneity between electronic platforms. These two aspects are highlighted as difficulties experienced with the use of model and as drawbacks associated therewith. Contracting entities show the regulation of the sector, a factor that is contradictory to the assessments made earlier, and that shows that there is some prejudice towards developed by private developers markets. Supplying entities highlight the spread of information, this aspect can be directly related to the high number of electronic platforms in force in Portugal.

In the assessment of public management model the benefits valued by contractors and suppliers entities are the same. This model is recognized for standardizing processes, the potential reduction of costs associated with the procedures, and it is expected that the model focuses on a single platform. The actors do not associate the public model to a complex model with a large number of platforms. Respondents expect the public model to represent a uniform system, methodical and more accessible to all stakeholders, ie with lower costs. It is believed that the state social obligations benefit users of electronic platforms.

When it is asked to choose about which entities must fall the responsibility of the EPP there is some inconsistency in the responses. Although the players are satisfied with the private system implemented, do not recognize private entities as responsible for the EPP. The choices focus mainly in the state or in a solution of shared responsibilities between the state and private.

Subsequently the question is posed differently suggesting to different scenarios that correspond to different management models. Respondents say they agree with a management system with shared responsibilities. But when asked directly about the benefits associated with the mixed model of management of electronic procurement the answers are dispersed, 50% of providers entities and 30% of the contracting authorities reveal no opinion. These inconsistent answers reveal a lack of information regarding this management model.

Finally, intended to know if there was receptivity to a remodeling of the legislative framework for Public Procurement in our country. Respondents show themselves receptive to a legislative review, the supplier entities showed a higher degree of receptivity when compared with the contracting authorities.

To assess the changes of the impacts associated with EPP and compare analysis between the different stakeholders it was found that there are behavioral changes.

For the first time the cost reduction is not associated with an asset of the EPP. Also the usability of electronic platforms is evaluated negatively, there's a lack of homogeneity between platforms and the excessive number of electronic platforms are described as factors that stop the process. Contracting authorities may not reveal major changes in behavior compared to results in previous studies.

E-procurement demonstrated that both supply and contracting entities are positively satisfied with the system, but do not recognize that the EPP may be made private institutions.

The study in this aspect has shown some inconsistencies, revealing that there are preconceived ideas that dominate the perceptions regarding the operation of public and private markets. The public model is always associated to a robust and bureaucratic "machine", with social responsibility, which allows the reduction of costs and standardization of processes. On the other hand private model is associated with a more dynamic and productive market, and so therefore more focused on earnings management.

The implemented system has brought many advantages to e-procurement: the criticisms made to the current model implemented should be evaluated as system weaknesses that must be addressed, not as incompatibilities teased profound changes in its mode of operation.

This study was innovative in the comparative analysis in different survey groups allowed particularize evaluations and scrutinize more thoroughly the assessments of respondents.

#### **4.1 Future Developments**

Based on the work developed, there are suggested some parameters for the development of future studies:

- Continue to study the evaluation of models of public, private and joint management, through another model that would allow a clearer assessment of the knowledge that the entities have;
- Continue the study the system developments and try to find new gaps and improvements;
- Redesigning a new analysis one year after the implementation of new EU directives launched in 2014 and analyze if there are or not changes on impacts associated with EPP;



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