



# Analysis of Factors Affecting Efficiency of UAE E-Government Procurement System

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**Abstract:** E-government services, including the e-government procurement platform, are a top priority for the UAE government (E-GPP). E-GPP implementation has not been studied extensively, so researchers set out to investigate how critical organisational factors affect E-GPP implementation in UAE. For the purpose of prioritising the factors that affect efficiency of Emirati Electronic Government Procurement Platform, this paper conducted an exploratory study (EEGPP). Mean values were calculated from the 206 questionnaires that were filled out. Factors such as E-GP Planning and Policies; Change Management; E-GP Training; and E-GP Service Quality were found to be moderate to high in defining the importance of each category. In addition, innovation and efficiency are reported to be moderate to high measuring factors. Also ranked each factor to prioritise and identify the most important ones. As a guideline, the findings of this study can be used in the development of an E-government procurement strategy that is more effective.

**Keywords:** Mean, UAE, E-government procurement, public procurement, factors of E-GP, Efficiency of E-GP

## 1. Introduction

E-procurement is a procurement system that uses an electronic mode of procurement. By combining an e-procurement system with proper monitoring and evaluation procedures, e-government provides a more comprehensive illustration of market willingness valuation (Adjei-Bamfo, 2019). The UAE is one of the wealthier emerging nations where the benefits of e-GP are undervalued because few public-sector organisations have implemented e-procurement (Al-Moalla, 2010). This research aims to identify the main organisational challenges that could jeopardise the success of an e-GP initiative at the federal and local government levels in the United Arab Emirates (UAE). It is essential for a GP to be able to deal with changes and human resource issues in order to be successful in the e-success GP model.

The Emirati Effective Electronic Government Procurement Platform (EEGPP) system is the first of its kind in the United Arab Emirates. Within the federal state level of the UAE government, it works closely with the Ministries of Finance, Defense, and Trade. This digitised platform system, EEGPP will allow well-established companies, sound factories, and highly capable entities to collaborate with the UAE government to bring the most advanced technological products, devices, and services. The entire transaction domain will be conducted within the multi-sided, highly effective EEGPP.

Because the UAE's EEGPP programme is still in its early stages, significant time, money, and effort may be invested in the project. To ensure that all parties involved realise the full potential and benefits of e-procurement, it is critical to raise practitioner awareness of the benefits of the E-procurement system as well as the factors that affect it. As a result, the focus of this study is to identify and prioritise the factors influencing EEGPP efficacy.

## 2. Literature Review

### 2.1 Components of E-Procurement

According to De Boer et al. (2002), e-procurement consists of the following components:

- When purchasing goods or services, the process of requesting and approving purchase requisitions, placing orders, and receiving the goods or services are all handled by a web-based ERP software system.
- Web-based ERP focuses on products, while E-MRO focuses on non-products.
- Internet technology is used to find new suppliers for a specific category of purchasing needs.
- Sending and receiving information and pricing requests from vendors over the internet is known as e-tendering.
- You can buy products and services from both known and unknown vendors with e-reverse auctioning.
- It is the process of e-informing, in which information about purchases is collected and disseminated to both internal and external parties via the internet,

Office supplies, weaponry, road repairs, and information technology systems are just a few of the items that the US government buys every year for the general public (Balduis 2019; Volcker, 2016). Of the \$2 trillion spent on procurement in the United States, the federal government spends about \$650 billion, with state and local governments (nearly 89,000 organisations) accounting for the remaining \$1.3 trillion in expenditures. Public administration and supply chain management must examine procurement practises due to the size of government procurement spending (Porcher, 2016; Schick, 2011).

People, civil servants, politicians, and businesses all have an interest in procurement spending because it has a direct impact on the end-users of the commodities purchased (e.g., law enforcement officers who wear body armour) and the end-consumers of public goods (e.g., citizens). The procurement budget of the United States government is so large that efficiency and cost-cutting are top priorities. With this effort, a new contract type has been developed in which one state or agency serves as the lead purchasing agency while other states and agencies can participate.

### 2.2 Electronic Platforms for Public Procurement

Advances in information and communication technology (ICT) have long-lasting effects on virtually every aspect of life. Government agencies are trying to keep up with the rapid pace of change by implementing e-government apps. When it comes to the use of the Internet to connect administrative, local government, business, and citizen information systems, e-government is a broad term.

Public-sector service improvement and the transformation of government entities into fully integrated service providers are the primary objectives of this initiative. E-government applications are divided into several categories based on the actors involved: government-to-citizen (G2C), government-to-business (G2B), and government-to-government (G2G) interactions. The public sector benefits from e-government G2B apps because they make online purchases more convenient (Tonkin, 2003)

E-procurement for all government purchases over a certain threshold was implemented in France in 2001. E-procurement, on the other hand, has a critical role to play in shaping European public procurement market directives because it facilitates the streamlining and streamlining government processes while also increasing procedural transparency. Reduced delays and costs, improved communication with bidding candidates, more optimised competition (easier and broader access to bidding enterprises results in lower prices), rationalised procedures, reduced error risk are just some of the benefits of e-procurement for the buyer (the general public). The main advantages for sellers (companies) are improved information access, easier connection with the public, lower offer costs and payment delays, and improved security and confidentiality.

When it comes to theory and practise, e-procurement marketplaces in both the public and private sectors are very similar. You can not replace a personal or organisational relationship built over time with a digital link. It is not uncommon for users to have a mistrust of electronic systems that is greater than their mistrust of manual ones. Public sector organisations in France must also accept electronic bids in all public procurement operations.

### 2.3 Digital Procurement by Supply Chain Practice

There are two ways to think about digital procurement readiness: as a two-way street, and as the Supply Chain Practice View (SCPV), a theoretical lens that can help guide future research in this field. Suppliers on both sides of the supply chain need to be digitally ready to implement digital procurement practises. Managing supply chain partners is critical to the success of a digital procurement strategy, as demonstrated by this research. Digital procurement practises include the use of cutting-edge "digital technologies" in the procurement process (Srai & Lorentz, 2019).

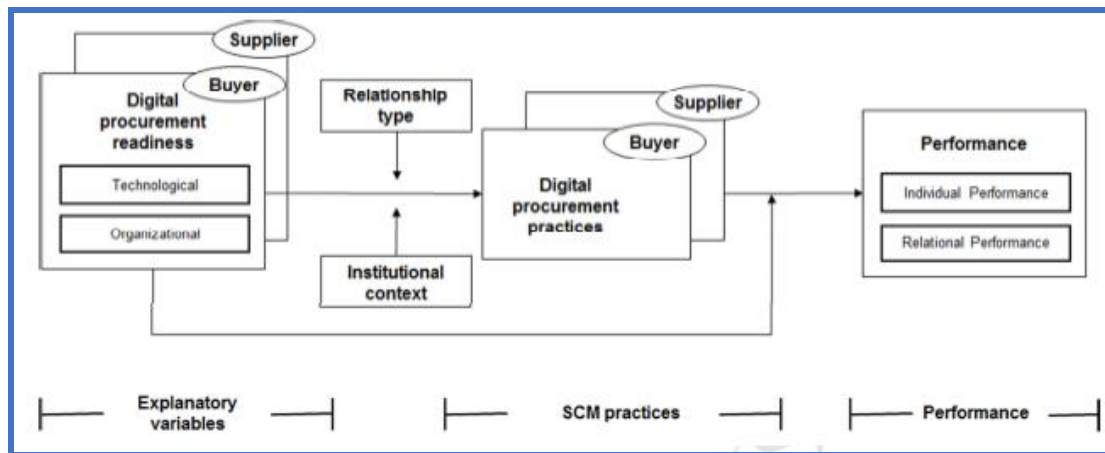
Cloud computing, IoT, and additive manufacturing are just a few examples of cutting-edge digital technologies that could have a significant impact on how purchasing organisations work with their global supply networks in the future (Batan et al., 2017; Pellengahr et al., 2016). Innovative companies like Google, Apple, and Microsoft are reaping the benefits of digital technology by streamlining their procurement processes and cutting costs.

There is still a long way to go for the vast majority of businesses on their journey to digitalization, despite some early successes. Most participating businesses in a pilot study on digital procurement in Europe had not yet implemented advanced digital technologies, according to the findings (Pellengahr et al., 2016). In order for these companies to successfully implement digital procurement methods, they must first understand the organisational requirements. The current literature on purchasing and supply management offers only a limited amount of assistance in making such a change.

Big data and cloud computing (as well as other digital technologies like automated procurement to payment, real-time expenditure tracking, and virtual supplier rooms) have been major areas of interest, with a particular emphasis on how they can be used to create value (Richey et al., 2016; Srai & Lorentz, 2019). Technology and applications dominate the literature, but there is little information on how to implement the technology in an effective way. At this point, why are not most businesses using digital procurement procedures? Using new digital procurement technologies is difficult for many companies for a variety of reasons that we do not fully understand.

According to Kosmol et al. (2019), why do some organisations use digital procurement while others do not? One of the key explanatory factors for the adoption of digital procurement procedures in our empirical context was identified in our empirical studies as "digital readiness," which included elements such as top management backing and IT infrastructure that were neither uncommon nor unique. Digital readiness is not always the only factor that drives people to use digital procurement methods, according to the viewpoint of neo-configurational theory (Kosmol et al., 2019; Misangyi et al., 2017).

There are both structural states (like being digital-ready) and events, like when an EDI project fails, that can affect adoption, as shown in the Figure 1.



**Figure 1 - Supply chain practice view on digital procurement**  
(Kosmol et al., 2019)

### 3. Research Methodology

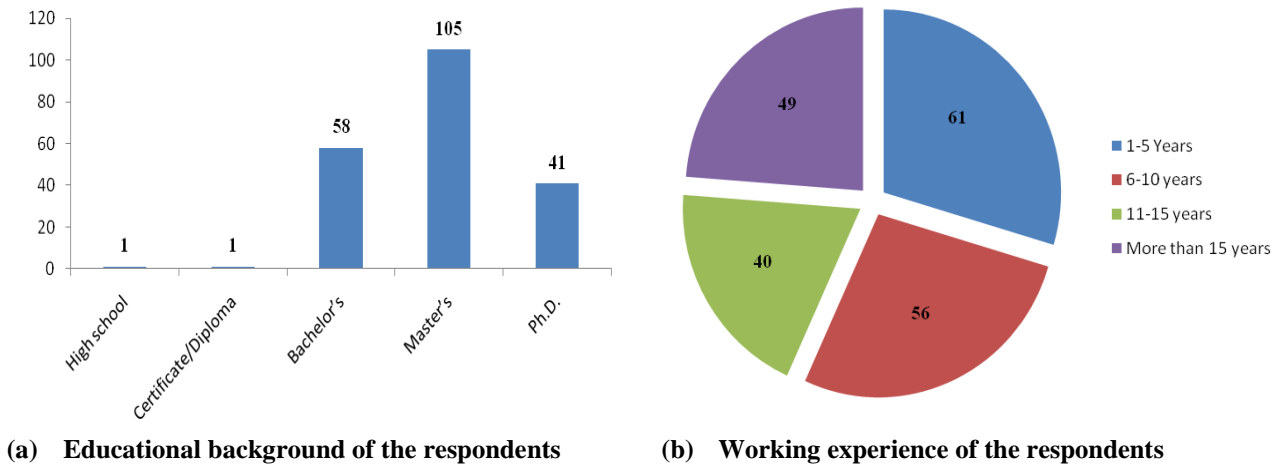
The data for this study was gathered using a quantitative research method. The quantitative mode aids research in obtaining facts, particularly when numerical data is required (Saunders et al., 2009). A quantitative method provides statistical proof of the relationship between two variables (Newman et al., 1998). The quantitative approach is a positivist paradigm that assists practitioners in collecting data to explicitly deduce the study's objectives (Almansoori et al. (2021). The quantitative research design is based on quantitative measurement and the investigation of variable-cause relationships (Choy, 2014). According to Almazrouei et al. (2021), a questionnaire survey was used to record the responses of the participants because questionnaires are a simple but effective testing method that is cost-effective and minimises data distortions caused by interviewer bias. A questionnaire is an extremely effective tool for gathering the necessary information (Almansoori et al. 2021b). The data collection participants' responses were recorded using a 5-point-Likert scale, as Johns (2010) asserted that when the response scale is less than 5 points, the response becomes significantly erroneous because it only measures the direction rather than the magnitude. The scales used in the study were "strongly disagree," "disagree," "neutral," "agree," and "strongly agree" with numbers ranging from 1 to 5. The collected data was statistically analysed using the Statistical Package for Social Sciences (SPSS).

### 4. Results and Discussion

#### 4.1 Demographics of Respondents

The respondent demographic information is a description of the characteristics of the research sample. It confirms the respondents' technical background in the field of study (Ahmed et al. 2021). The total number of valid responses is

206, which is enough for SEM data analysis. Figure 2 shows the participant background information for the current study, which includes age, years of experience, and level of education.



**Fig. 2 - Demographics of the respondents**

Figure 2 shows that the majority of respondents have obtained a master's degree, with a significant number of respondents (58 and 41, respectively) having completed a bachelor's and a PhD degree. One respondent has a high school diploma, and one has a high school diploma and a diploma. Around half of the respondents have worked for more than ten years, while the other half have worked for less than ten years. The data from these respondents was statistically analysed to figure out which factors were most important to the efficiency of the E-GP system.

#### 4.2 Ranking the Critical Factors of EEGPP

The purpose of this paper is to rank the factors influencing the efficiency of the Emirati Electronic Government Procurement Platform (EEGPP). According to the Ahsen et al. (2021), critical factors are those that require professional consideration. Critical actors play an important role in the success of a project. As suggested by Alameri et al. (2021), these factors were ranked by the average value they had in this study.

$$M = \frac{\sum(X)}{N}$$

where M denotes the mean, X denotes individual data points, and N denotes the sample size (number of data points). The significance of the factors was based on the guidelines in table 1 and the mean interval values for each factor that were found.

**Table 1 - Response evaluation criteria**

Score	Descriptors	Meaning	Mean Interval
1	Strongly disagree	Very low	1.00-1.80
2	Disagree	Low	1.81-2.60
3	Neutral	Moderate	2.61-3.40
4	Agree	High	3.41-4.20
5	Strongly agree	Very high	4.21-5.00

The mean values and the ranking of the critical factors of E-GP implementation are presented in table 2.

**Table 2 - Mean values of independent variables**

No.	Items' Description	Mean	Std. Deviation	Rank
<b>E-Government Procurement Planning</b>				
1	We make a clear assessment of the existing procurement environment.	3.010	0.791	4
2	We define the direction, scope, and focus during the planning.	3.346	0.808	2
3	We determine the phases required for the plans of creating the e-government procurement.	2.878	0.774	5
4	Our e-government procurement plan is linked to other e-Government and e-Commerce plans.	3.015	0.783	3
5	Our e-government procurement plan is developed collaboratively with the involvement and support of major stakeholders in government procurement.	3.585	0.688	1
<b>E-Government Procurement Policies</b>				
6	Our e-government procurement policy provides instruction to all levels of authority and across all departments.	2.805	0.815	8
7	Our e-government procurement policy gives readers a statement of commitment to e-procurement.	3.2	0.897	5
8	Our e-government procurement policy illustrates the aim of modernizing the procurement functions and investing in e-procurement.	3.337	0.992	3
9	Our e-government procurement policy clearly reflects the aspirations for the e-procurement system clearly.	3.029	0.942	6
10	Our e-government procurement policy shows the communication mechanism in respect of the vision of e-procurement.	3.293	0.984	4
11	Our e-government procurement policy gives the details of e-procurement strategy implementation.	3.58	1.012	1
12	Our e-government procurement policy clarifies the expected outcomes of the e-GP.	3.541	0.955	2
13	Our e-government procurement policy explains the requirements to achieve the objectives behind the e-GP.	2.834	0.797	7
<b>E-Government Procurement Change Management</b>				
14	We carefully designed a change management process for the implementation of e-government procurement.	3.307	0.837	1
15	We are aware of managing the psychological obstacles of implementing e-government procurement.	2.902	0.9	7
16	We paid attention to managing the expected cultural issues that might arise when implementing e-government procurement.	3.137	0.759	5
17	We made plans to manage the technological obstacles that can arise with the implementation of e-government procurement.	3.278	0.864	2
18	We take into consideration change management training for the employees when implementing e-government procurement.	2.932	0.835	6
19	We plan to manage any arising implementation risk of e-government procurement.	3.171	0.812	4
20	Our change management plan included managing people's expectations and concerns.	3.249	0.868	3
<b>E-Government Procurement HRM Training</b>				
21	We make training courses for employees in the use of e-government procurement.	3.332	0.876	2
22	We prepare our staff to use e-government procurement.	3.512	0.853	1
23	We are careful in the selection of the training and education programs to enhance the implementation of e-government procurement.	3.034	0.823	5
24	We enhance the skills of our staff for the effective implementation of e-government procurement.	3.249	0.815	3
25	Our organization makes sure that our staff are educated and trained in e-government procurement.	3.102	0.742	4
26	Our staff can get the required training to enhance their capabilities in e-government procurement.	3.01	0.765	6
<b>E-Government Procurement Service Quality</b>				
27	We focused on improving transparency in e-government procurement.	3.244	0.732	6
28	We aimed to enhance openness in e-government procurement.	3.434	0.693	2

29	We concentrated on increasing the service speed in e-government procurement.	3.293	0.741	5
30	We paid attention to reducing the costs in e-government procurement.	3.556	0.868	1
31	We give adequate information for the services in the e-government procurement.	3.351	0.708	4
32	We improved the evaluation and selection results in the e-government procurement.	3.376	0.719	3

Table 2 shows that the mean values of E-GP Planning ranged between 2.878 and 3.585, E-GP Policies ranged between 2.834 and 3.514, E-GP Change Management ranged between 2.902 and 3.307, E-GP Training ranged between 3.010 and 3.512, and E-GP Service Quality ranged between 3.244 and 3.556. As a result, all of the mean values for the five critical E-GP factors ranged from moderate to high, indicating that participants believe these factors are important for better E-GP implementation. It is also worth noting that "Our e-government procurement plan is developed collaboratively with the involvement and support of major stakeholders in government procurement" is listed as one of the most important factors and ranks first in the category of e-government procurement planning. Similarly, in the category of "e-government procurement policies," the factor "Our e-government procurement policy provides details on e-procurement strategy implementation" is the highest ranked. In the category of e-government procurement change management, respondents ranked the factor "We carefully designed a change management process for the implementation of e-government procurement" first. Respondents ranked first in the categories of E-Government Procurement HRM Training and E-Government Procurement Service Quality, with the factors "We prepare our staff to use e-government procurement" and "We paid attention to reducing costs in e-government procurement. The role of innovation in increasing the use of E-services is critical. Table 3 shows the results of an analysis of the factors related to e-government procurement innovation.

**Table 3 - Mean values of innovation**

No.	Items' Description	Mean	Std. Deviation	Rank
1	We focus on innovative solutions to address unmet needs and social challenges related to e-government procurement.	3.405	0.801	3
2	We focus on innovation to influence the users by using new technological aspects in our e-government procurement.	3.532	0.743	1
3	We aim to provide services in innovative ways through e-government procurement.	3.429	0.746	2
4	We pay attention to innovative solutions to the barriers that might arise from the use of e-government procurement.	3.288	0.719	4
5	We improve our e-government procurement according to the social, market, and technological changes.	3.244	0.732	5

Table 3 shows that the mean values of this factor's items range between 3.244 and 3.532, indicating that the mean values of these factors range from moderate to high. As a result, the participants understand the significance of innovation in the implementation of E-GP. Respondents ranked "We focus on innovation to influence users by using new technological aspects in our e-government procurement" as the most important variable factor. It is critical for the success of e-government services that the developed system is efficient. As a result, the EEGPP's efficiency parameters were also evaluated. Table 4 displays the results of the efficiency parameters.

**Table 4 - Mean values of efficiency**

No.	Items' Description	Mean	Std. Deviation	Rank
1	The use of the Emirati Electronic Government Procurement Platform (EEGPP) has improved the quality of our services.	2.995	0.853	6
2	The Emirati Electronic Government Procurement Platform (EEGPP) has made our services to citizens faster.	3.512	0.812	1
3	The Emirati Electronic Government Procurement Platform (EEGPP) helped us to easily process information.	3.278	0.836	3
4	The Emirati Electronic Government Procurement Platform (EEGPP) has made collaboration with other ministries more effective.	3.376	0.921	2
5	The Emirati Electronic Government Procurement Platform (EEGPP) has made information and document management more effective.	3.166	0.804	4
6	The Emirati Electronic Government Procurement Platform (EEGPP) has made all the services and transactions more trustworthy.	3.029	0.739	5

The mean values of the variables "Efficiency of Emirati Electronic Government Procurement Platform (EEGPP)" in Table 4 range between 2.995 and 3.512. All of these values range from moderate to high importance, indicating that the participants recognise the significance of improving the efficiency of E-GP, which is the Emirati Electronic Government Procurement Platform (EEGPP) in this study. Among the variables, "the Emirati Electronic Government Procurement Platform (EEGPP) has made our services to citizens faster" is ranked first.

## 5. Conclusion

This paper conducted an exploratory study for prioritizing the factors which affect the efficiency of Emirati Electronic Government Procurement Platform (EEGPP). Data collected through 206 questionnaire forms was analyzed statistically with mean value calculation. It was found that all the factor under all the categories of the factors i.e. E-GP Planning, E-GP Policies, E-GP Change Management, E-GP Training, E-GP Service Quality are moderate to high in defining the importance. Beside this, Innovation and efficiency measuring factors are also reported moderate to high. The study also determined rank of the each factors to prioritize and determine the critical factors. The findings of this study can be used as guideline for developing a proper strategy to enhance the implementation of the E-government procurement system.

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