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ON GOVERNMENT
PROCUREMENT

MATURITY MODEL FOR ELECTRONIC GOVERNMENT PROCUREMENT

(E-GP MATURITY MODEL) 2021



OAS | Technical Secretariat
INGP



IDB
Inter-American
Development Bank



The e-GP Maturity Model has been developed within the framework of the Inter-American Network of Government Procurement (INGP) with the institutional and financial support of the Organization of American States (OAS), as Technical Secretariat of the INGP, the Inter-American Development Bank (IDB) and the Korean Public Capacity Building Fund for economic development (KPC) of the Republic of Korea.

The e-GP Maturity Model and this document will be made publicly available in April 2022, as a reference for the level of maturity of the electronic government procurement platforms (e-GP) of the INGP member countries, considering known good practice indicators; and as a tool to guide the promotion of the continuous enhancement of e-GP systems.

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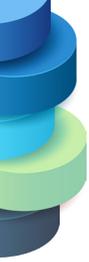
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Maturity Model for

Electronic Government Procurement Systems (e-GP-MM) 2021

I. Presentation

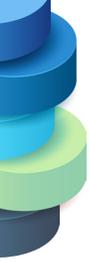
Between 2020 and 2021, the Fiscal Management Division of the Inter-American Development Bank (IDB) and the Organization of American States (OAS) as Technical Secretariat of the Inter-American Network of Government Procurement (RICG), with the support of the Korea Public Capacity Building Fund for economic development (KPC) (managed by the IDB), implemented an instrument to measure the degree of maturity of electronic government procurement platforms (e-GP) in a total of 22 countries (19 countries of the Latin American and Caribbean region - members of the INGP, two observer countries and one country at the international forefront in electronic procurement issues¹).

The purpose of this work was not only to glimpse the state of e-GP platforms in the region and to close a gap in knowledge in this area, but also to ensure that the results obtained with this instrument had the potential to become a guiding tool for public procurement government authorities, and entities interested in creating improvement plans, or in drawing roadmaps to promote the enhancement of their electronic e-GP platforms more effectively.

This document briefly describes the design of the e-GP-MM model and presents the main results achieved in the first round of this instrument on the e-GP systems of Latin America and the Caribbean by 2021 which will serve as a baseline for new analyses in future rounds.

We hope that the results obtained with this instrument will be useful for researchers and policymakers in government procurement within the region and throughout the world, and for those experts and individuals interested in discovering the good practices that enhance e-GP systems.

1. The Government of Korea is taking part in this Maturity Model for e-GP as a reference point for good practices in electronic government procurement with its KONEPS platform, which has won international acclaim.



II. Justification and background

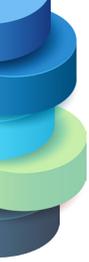
A government procurement system is one of the public management systems that attracts a more intensive use of technology due, among other reasons, to the importance and volume of government purchases, the type and number of participants involved in procurement processes, the efficiency with which the processes need to be run and the transparency required to share the information with the public, the bodies responsible for the function and other interested parties in the system.

In recent years, electronic platforms for government procurement (“e-Government Procurement” or “e-GP”) have evolved from being simply information systems for institutions to publish the data and documents of their purchasing processes, into transactional systems that enable all the stages of the public procurement to be processed online. These systems help governments to achieve their goals and obtain greater value for public money in when procuring goods, services, and public works.

The evaluation of an e-GP platform is not a simple task. An information system of this kind is the main mechanism of interaction between the whole range of actors involved in the government procurement system, and for this reason, it includes a wide variety of functionalities so that users can make of the technology at all stages of the procurement process. In addition to their functionalities, which are the face visible to the user, these platforms require a series of internal components necessary to provide a minimum of stability and security to the system; further, they must be able to exchange data with other government information systems, and with users and the public in general in an open and trustworthy manner.

For this reason, the diagnosis of e-GP platforms should not be limited to a review of their functional characteristics, as traditionally have been examined: the approach to the analysis should rather be from a multidimensional perspective that involves other technical aspects such as usability, security, interoperability, and the way in which the platform organizes the data and produces the government procurement information. The institutional capacity of the bodies responsible for these systems should also be examined in terms of IT governance and processes to maintain the platforms and manage technology projects and services.

The first maturity model to evaluate the capabilities of an e-GP platform was proposed in the procurement network in 2008. It focused on the evaluation of only the technological functionalities and the institutional and legal arrangements of the e-GP portals. Information was collected in these two domains of analysis in seven key areas and 25 critical variables with which quantitative indicators on the capabilities of a portal were constructed to comparable between countries. Although this model was used to make preliminary measurements in several Latin American countries, it remained in a pilot phase within the INGP.



More than a decade later, at the end of 2020, the OAS/INGP and IDB took up this issue again due to its strategic importance for the region in the context of the urgent need to make public spending more efficient; a situation which was exacerbated as a result of the sharp contraction of fiscal budgets during the COVID-19 pandemic. In this scenario, international cooperation led by the OAS/INGP and IDB, hand in hand with experts in the field, embarked on preparing a maturity model for e-GP platforms in the Latin America/Caribbean region.

This project required the design of an evaluation instrument and the creation of a maturity model² with which the state of the e-GP platforms was evaluated in terms of their technological capabilities. The evaluation was made taking into consideration good practices known in e-GP in multiple dimensions of analysis and not only in compliance with indicators in the functional dimension of those platforms, as the more restricted previous evaluation models had done.

The maturity model that we present in this tool for the e-GP platforms is useful not only to obtain an overview of the state, coverage, functionalities, and type of technological tools currently available in the region for public procurement: it should also be able to act as a critical and strategic tool of support for public procurement agencies seeking to assess their technology platforms, identify their strengths and opportunities for improvement; and, simultaneously to provide guidance to drive the development of an effective strategy in the future process of digital transformation of the government procurement systems in their countries.



2. The instrument eGP-MM corresponds to the tool that was designed to collect the indicators of good practices in eGP known up-to-date. In contrast, the Maturity Model corresponds to the mathematical and statistical model that was applied using the data collected with the eGP-MM instrument.

III. Methodology

The construction of the maturity model had two phases: 1) field operation phase and 2) model construction phase. The first phase was developed in three stages: i) instrument design, ii) implementation and data collection, and iii) interview and validation. Subsequently, the model construction phase was developed in two stages: i) information standardization and database generation, and ii) maturity model design and formulation.

The e-GP-MM 2021 instrument was designed based on a survey consisting of: i) an information section (INF) with general questions about the platform and information on the coverage and operation of the platform; and ii) a section composed of five dimensions of the model: technological (TEC), functional (FUN), integration and interoperability (INT), data (DAT), government and IT management (GOB). 23 countries³ in Latin America and the Caribbean replied to the survey; two of them⁴ responded that they currently do not have a public access platform; and the results of the Government of Korea's reply that was used as a reference of good practices, to measure the levels of compliance and maturity of e-GP platforms.

In the second stage (information and collection of information) at the end of 2020, the instrument was sent by email to the procurement agencies of the countries through the OAS/RICG for coordination. This exercise made it possible to collect the primary information for the tool with a response rate of 94.1% at the country level. Feedback was received from some countries on the instrument, and this made it possible to introduce some final adjustments to the survey and reach the final version of the e-GP-MM 2021 instrument.

In the third stage (interviews and validation), interviews were held with the technical teams of the agencies and governing authorities to validate the information collected. The results obtained were sent to each of the countries in early 2021, requesting their final comments.

Once the information validated with the e-GP-MM 2021 instrument was received, the maturity model was built up in two stages: in the first stage, the information was standardized to make it comparable between countries, since some of them currently have more than one e-GP platform in operation. Later, in this same stage, a database was constructed to consolidate the information on the indicators of good practices for all the countries. In the second stage, various statistical and mathematical methods were applied to produce the final formulation of the maturity model.



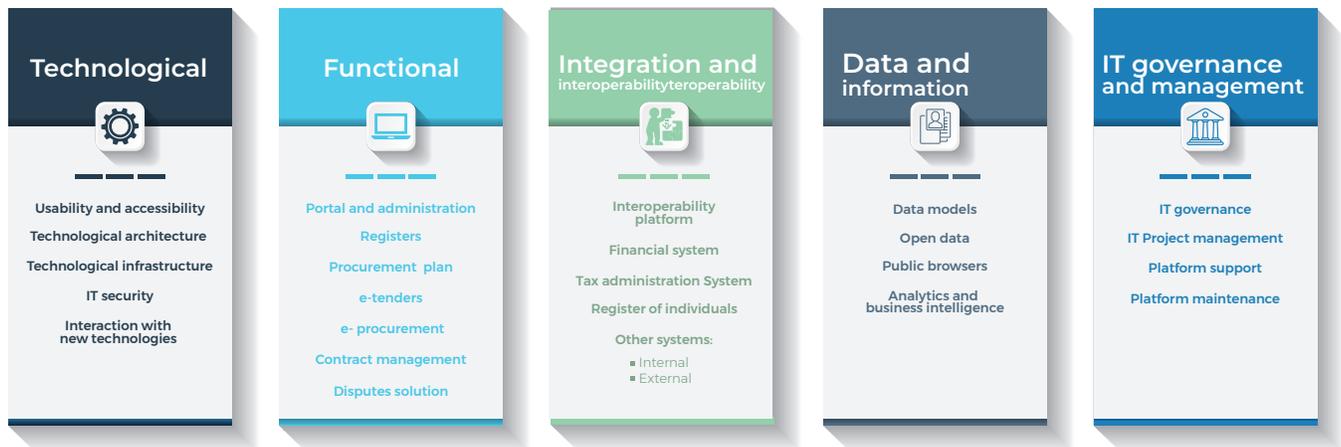
3. Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Haiti, Honduras, Guatemala, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad y Tobago, Uruguay; and Observer countries Anguilla, Cayman Islands and Montserrat.

4. Belize and Anguilla.

3.1. Structure of the e-GP-MM 2021 instrument

The e-GP-MM 2021 instrument is made up of 185 indicators of good practices that are grouped into 25 areas of interest and five dimensions of analysis, producing a high level of detail about the current status of a platform and the material needed to identify opportunities for improvement, the technological solution that supports the public procurement system by evaluating its level of maturity:

Graph No. 1

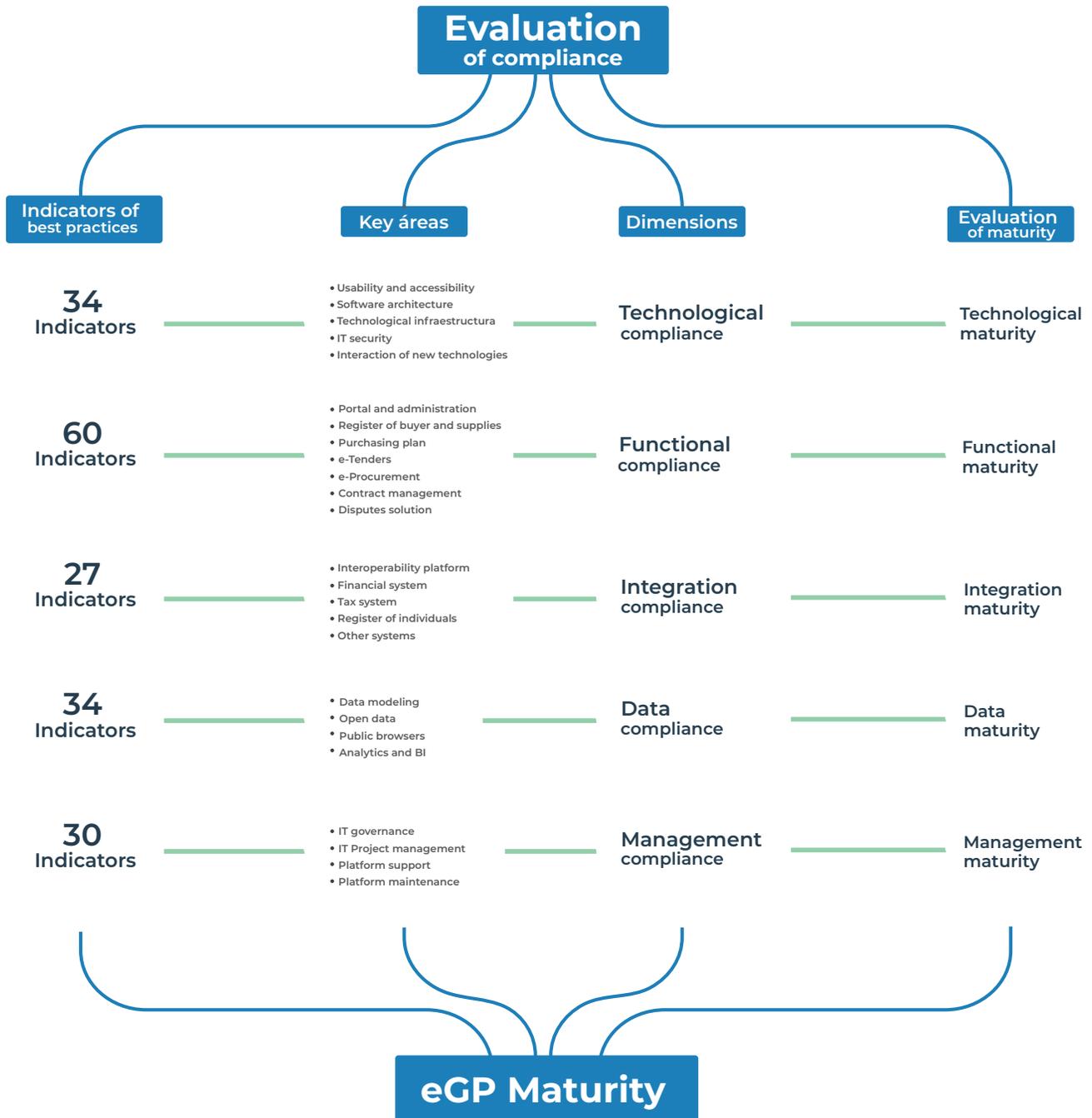


- 1. Technological dimension:** The current state of the technological solution supported by the e-GP platform is evaluated, such as, for example, the technological architecture and infrastructure.
- 2. Functionalities:** This dimension reflects the extent to which the e-GP platform meets the functional requirements for the management of the procurement or contracting process: for example, registration of suppliers, management of contracts, and the disputes resolution.
- 3. Integration and interoperability:** This dimension evaluates the degree of integration of the e-GP platform with other public management information systems such as financial or tax administration systems.
- 4. Data and information:** The results of this dimension reflect the capacity of the e-GP platform to manage procurement data and offer timely and quality information to all actors in the public system, such as for example, the use of open data.
- 5. Governance and IT management:** This dimension considers the institutional capacities of the procurement agency or body responsible for the management and administration of the e-GP platform.

The original set of indicators had independent evaluations made by external experts, which enabled the indicators to be filtered according to the degree of objectivity and clarity of the text, in order to minimize the risk of subjectivity in the responses obtained with the instrument.

Two types of evaluation of the e-GP platforms can be affected simultaneously for each of these five dimensions, as indicated in Diagram No. 1. One is an assessment of compliance with the indicators of good practices; and the other, is an assessment of platform maturity. The scheme with which the e-GP-MM 2021 maturity model was built is shown below.

Diagrama No. 1



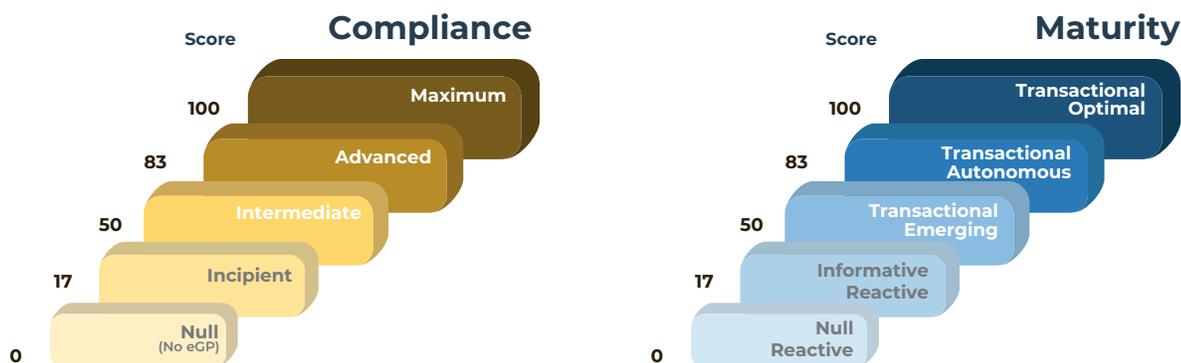
3.2. Maturity Model Scales.

The e-GP-MM 2021 instrument is designed to provide the information with which the empirical scales of compliance and maturity that we currently observe in the region will be built.

The results of the e-GP-MM 2021 instrument are summarized in two indices for each of the countries: i) an index of compliance with good practice indicators; and ii) an e-GP maturity index.

The scores of each index are presented in the range of 0 to 100 and are grouped into five levels. Graph No. 2 shows the five theoretical levels of compliance and maturity proposed with this tool.

Graph No.2

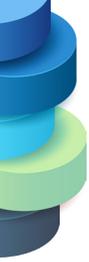


i) Compliance rate:

The compliance scale indicates the extent to which the indicators of known good practices in e-GP are met; the lowest level of compliance (equivalent to the absence of a platform) is 0, and the highest level of compliance (in which 185 indicators of good practices are fully met to satisfaction) is 100. Between these two ends of the scale, there is incipient, intermediate, or advanced compliance with indicators of good practices in e-GP.

Compliance levels:

- Level 1.** None = Score 0.
- Level 2.** Incipient = Score 0.1-33
- Level 3.** Intermediate = Score 33.1-66
- Level 4.** Advanced = Score 66.1-99.9
- Level 5.** Maximum = Score 100



ii) Maturity Index:

The maturity scale indicates the capacity of the platform to optimally support e-procurement. The scale shows us some countries whose platform responds reactively to the needs of public procurement processes (or indeed, that have no capacity to respond through an electronic portal because they do not even have a procurement portal), and whose ranking would be the lowest level with a score of 0 (nil reagent); at the other end of the scale are the platforms capable of supporting all electronic public procurement optimally and in real-time, since there is a fully transactional platform integrated with other public sector information systems, with a score of 100.

This state of the platforms represents the optimum considering the good electronic contracting practices known to date. In between these two ends of the maturity scale, are the states in which the platforms show only a capacity to react to external demand and their transition towards more advanced states of transactionality and integration.

The term reactive in the maturity scale refers to an initial stage within the maturity scale of an organization in which activities are managed at the will of its members and do not occur as a coordinated response by the entire organization. In electronic government procurement platforms, a reactive stage indicates that the platform reacts to external (user) and internal (institutional) demands, mainly by providing information services where documents, forms and unstructured data are downloaded. These services do not impact the electronic procurement experience since the portal is not enabled to provide a single-window transactional experience for procurement. It does not include real-time monitoring of suppliers and contracting entities throughout the contracting cycle, including the registration of suppliers, electronic invitations and offers, awards and disputes resolutions, the online signature of contracts, and the execution of related payments through electronic invoices.

Maturity levels:

Level 1. Reactive-null = Score 0.

Level 2. Reactive-informative = Score 0.1-33

Level 3. Transactional-emerging = Score 33.1-66

Level 4. Transactional-autonomous = Score 66.1-99.9

Level 5. Transactional-optimal = Score 100

Difference between Compliance and Maturity⁵:

At the ends of the scale (0 and 100) there should be no differences between the two measurements, given that, on the one hand, in a scenario in which compliance with good practice indicators is zero, it is to be expected that the level of maturity will also be zero, because the platform behaves only reactively to external (user) and internal (inter-institutional) demands, and these are generally managed through an email or perhaps a mailbox, not even enabled to respond to these demands. At the other end of the scale, a score of 100 is earned when the optimal level of transactionality is reached, and this is only possible if all the indicators of known good practices in e-GP are fully met. In contrast, between 0 and 100 there may be differences between the two measurements since during the learning process it is common to find that countries focus on activities that are not very strategic and have low added value to promote and foster a real experience of electronic purchasing. This occurs in part as a response to a self-learning process where disorientation often predominates. A compliance score higher than a maturity score indicates exactly this situation.



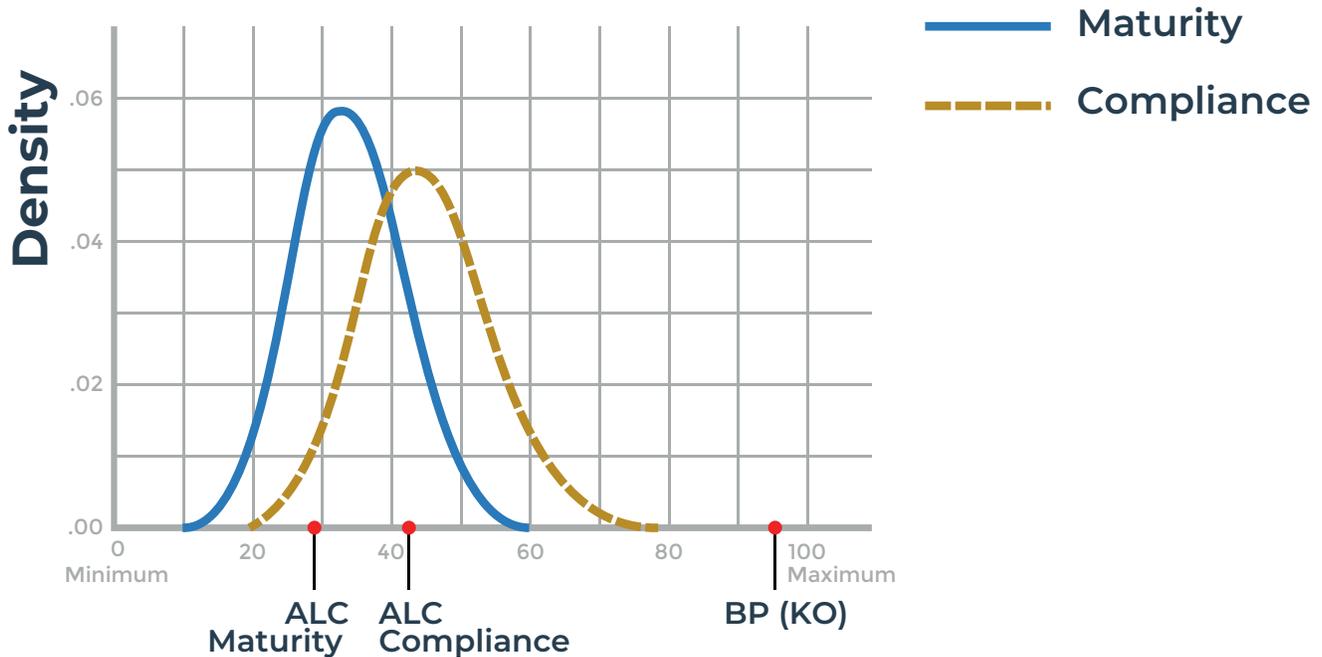
5. Theoretical concepts taken from Calderón *et al* (2022)

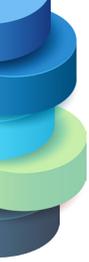
IV. Regional overview

The results of the maturity model that we present here show the efforts made by countries in recent years to develop their e-government procurement platforms. We note that the Latin American and Caribbean (LAC) region is moving towards a state where electronic contracting finds full support in their purpose-designed portals; however, we emphasize that development has been slow, uneven, and is at a stage where transactionality is still emerging. Although compliance with some indicators of good practices in e-GP is high, everything seems to indicate that efforts have not been focused on activities and actions that accelerate the maturity of the platforms in terms of their transactionality, integration and interoperability. The potential benefits that electronic public procurement brings have therefore not yet been fully exploited in the region.

Indeed, while the LAC region shows an average level of compliance with the indicators of good e-GP practices, this behavior has not been enough for most of the platforms to be able to provide transactional services that support the whole procurement cycle or the management of contracts through the use of an electronic system (Graph No.3). This combination of a higher level of compliance and a lower level of maturity indicates that most of the e-GP platforms in the region are focused on attending to information-providing services that do not impact as much as the experience of having the entire transactional contracting cycle.

Graph No.. 3





In effect, the e-GP-MM 2021 instrument made it possible to recognize that the e-GP systems in the region do not seem to be integrated with other electronic public procurement systems and are not interoperable, which blocks the possibility of managing the process of public procurement within a single platform, since they work as isolated portals, along with other government systems.

This situation can be seen by the maturity score reached by this dimension (integration and interoperability), which is only 18.1 out of 100 (Graph No. 4). The other dimensions analyzed also confirm that the technical and technological components of the e-GP systems in the region tend to react to external and internal demands essentially through the provision of information services that provide little impact on the streamlining procurement operations all the way from planning to final assessment.

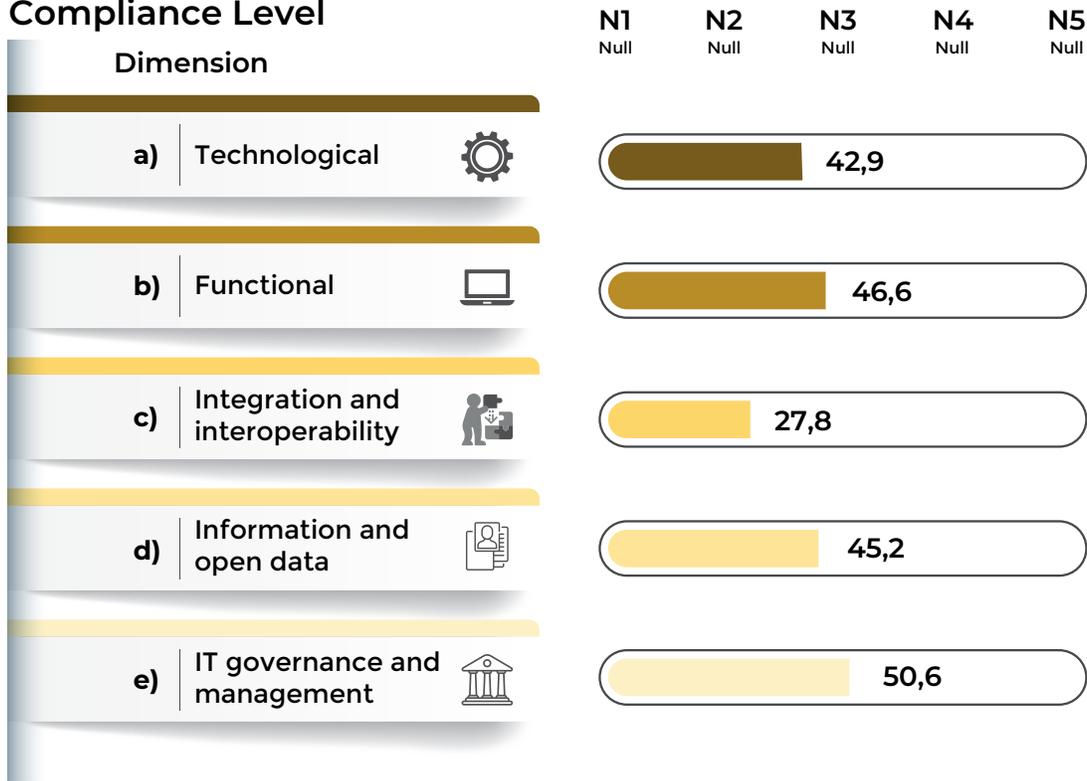
The results at the level of areas of interest are also revealing. On the one hand, the greatest strengths of the e-GP platforms in the region are concentrated in compliance with good practice indicators for the administration of the procurement portal and the registration of buyers and suppliers; with certain advantages also in the governance, support, and maintenance of the platform. But these activities alone are not enough to promote maturity and guarantee the technical and technological capabilities required by e-Government Procurement.

On the other hand, within the functional dimension, the average maturity score is relatively high in the areas of interest of portal and administration (48), supplier registration (40.4), procurement plan (33.4), electronic bidding (31.6) and dispute resolution (31.9). Other areas of interest such as electronic purchases (24) and contract management (21.8) obtained a lower average score and represent an opportunity to expand the functional coverage of the platforms, provided that the possibility exists and the local regulations in each country permit.

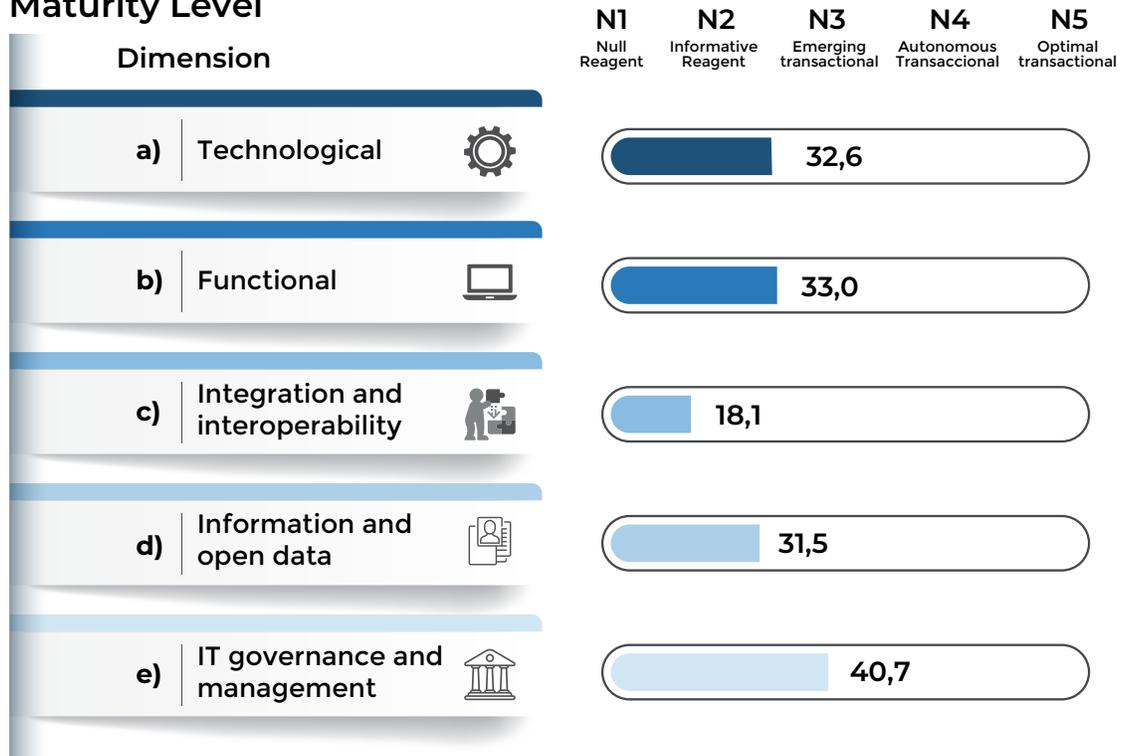
In the dimension of data and information there are very marked leaders such as Chile, Paraguay, and the Dominican Republic. The average maturity scores in the areas of data models (39) and public search engines (35.9) are relatively high, due to the use of data standards, good practices in database administration and because almost all countries offer advanced search tools for contracting processes. In open data Chile (89.2), Colombia (51.7) and Paraguay (74.8) are the countries with the highest relative level of maturity, largely due to the adoption of the OCDS standard for the opening up of public procurement data. Progress in the use and exploitation of information with analytical and business intelligence tools is very poor in the region, with some exceptions such as Chile (56.4) and Panama (55.3).

In the IT governance and management dimension, the maturity score is also relatively high in the region. With the exception of Haiti (12.5), Montserrat (15.5) and Uruguay (19.5), all countries have been concerned to define a structure of governance and establish procedures for decision-making related to the e-GP platform. Almost all countries except Argentina (18.9), Haiti (7.4), Panama (12.6), Montserrat (14.2) and Uruguay (13.3) have a structure, procedures, and policies to manage IT projects. The evaluation of the areas of platform support (41.9) and platform maintenance (42.1) was relatively good.

Compliance Level



Maturity Level



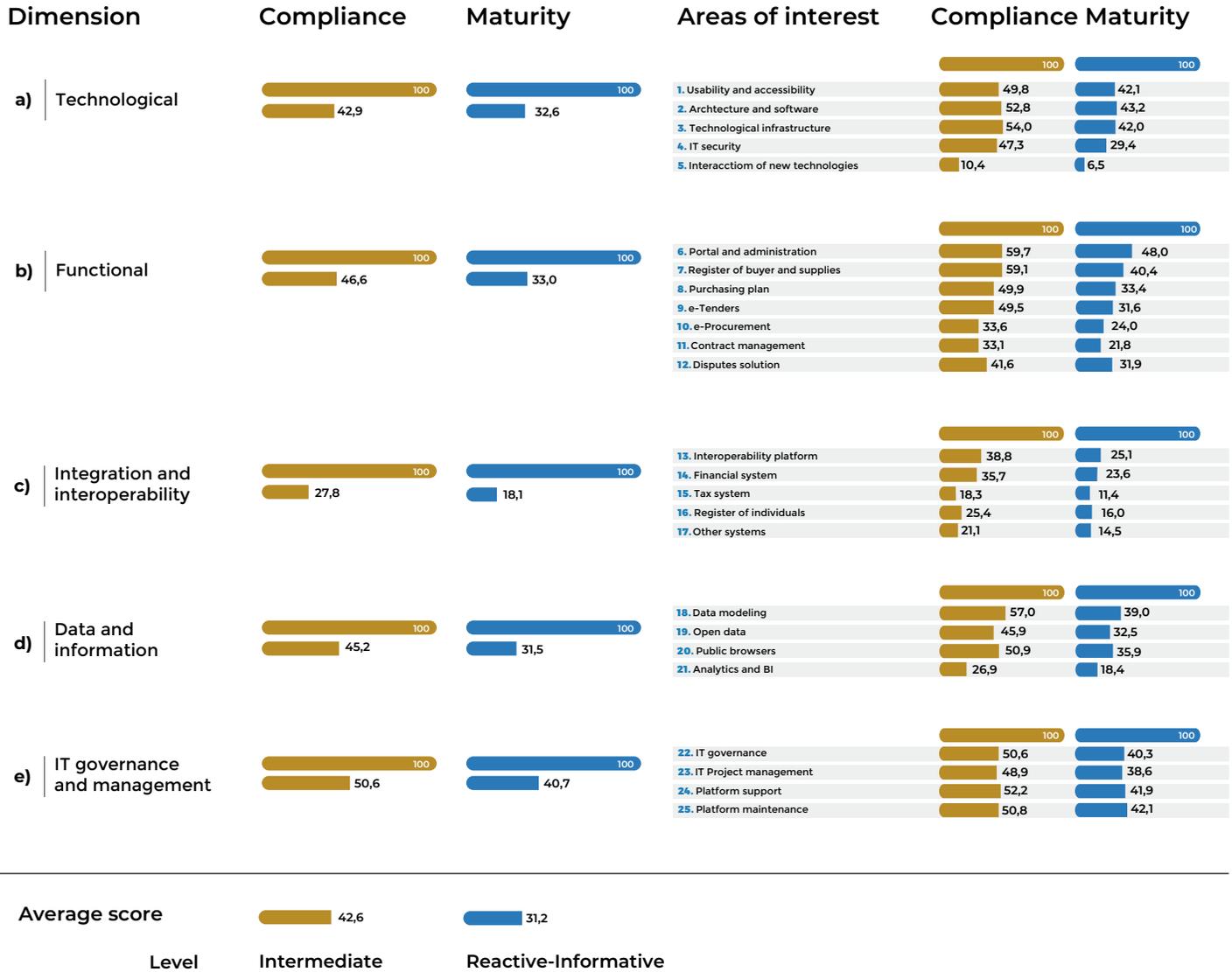


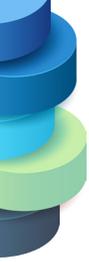
The least developed areas in the systems are related to the technological and integration dimension, showing profound deficiencies with respect to the minimum needed to provide reliable support to a transactional portal. For example, most of the platforms are not connected to the financial and tax sector, which makes it impossible to track the supplier and make payments online through electronic invoicing. It may be noted that the leaders in this dimension are Chile, Colombia, and the Dominican Republic, who have advanced in seeking their integration (albeit partial) with other public administration systems. Interaction with new technologies (blockchain, big data, artificial intelligence, machine learning, etc.) is also generally very low (average:6.5); this situation is not restricted to public procurement systems, however, since in general the adoption of new technologies in all information systems is much slower than expected. There is still a great opportunity to incorporate disruptive technologies beyond pilot schemes or exercises in basic use due to the great potential they have to improve security, information management, and, in general, the provision of services.

It is important to clarify that the results do not indicate that one platform is better than another since there are a wide variety of technological solutions available to respond to the specific context of each country. In this sense, the score simply reflects the level of maturity of each platform considering the indicators of good practices known in e-GP and defined in each dimension. For example, the Contrat. ar platform allows the registration of contracts for public works, concessions, public services, and licenses, so some of the functionalities, integrations or data designed for the procurement of goods and services do not apply to it. For this reason, the scores must be analyzed in the context of the assessment before having a final conclusion. It is therefore of key importance to review the information table in the viewer of this tool in order to make an appreciation of the e-GP system evaluated with the e-GP-MM 2021 instrument in each country.



Results of the Maturity Model for Latin America and the Caribbean





In general terms, it is possible to group the results of the countries according to their level of maturity into three groups of e-GP platforms:

- i)** Transactional-emerging (recognizing a high heterogeneity between them, since there are countries that have just entered this group and other countries that have already finished and are moving towards a higher level);
- ii)** Reactive-informative with incipient signs of transactionality;
- iii)** Simple reactive-informative.

In the first group of the scale of maturity of the e-GP platforms of LAC are the platforms of Chile, Dominican Republic, Colombia, Paraguay; but there are also others that are just entering this group, such as Guatemala and Costa Rica; all with more or less defined signals in the transactional profile of the platform, and that of Chile, which would soon be moving towards an autonomous level of transactionality. Platforms in this group should focus on activities that enhance the contract management and dispute resolution experience within the portal itself. Another important aspect that could substantially improve the maturity of the platforms in this group relates to integration with the financial and tax systems of their countries, since this dimension is still very incipient (or in some cases almost non-existent) stage. The integration of e-GP platforms with other e-government systems could significantly accelerate the maturity of these platforms and enhance the registration of suppliers and buyers, which is already at an advanced level in some countries.

In the second group of the maturity scale, are Argentina (contrat.Ar), Bolivia, Brazil, Ecuador, Cayman Islands and Uruguay. These platforms, although they are still in an initial stage of maturity, because they react mainly to external and internal demands through the provision of information in simple schemes such as downloading documents and forms and unstructured data, some have a few signs of transactionality already visible; although still with a lack of real electronic procurement strategy. There is consequently a lower level of maturity in the technological and integration dimension, although with relatively high levels in the governance of the portal and intermediate in the functional dimension. More progress is therefore needed in technological infrastructure and in the capacity and form in which the platforms generate, publish and strategically use procurement information.

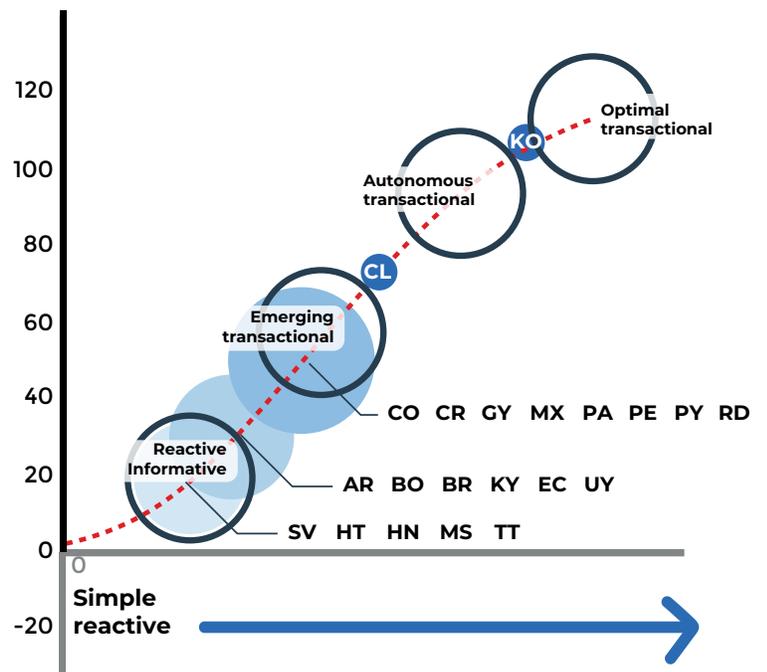
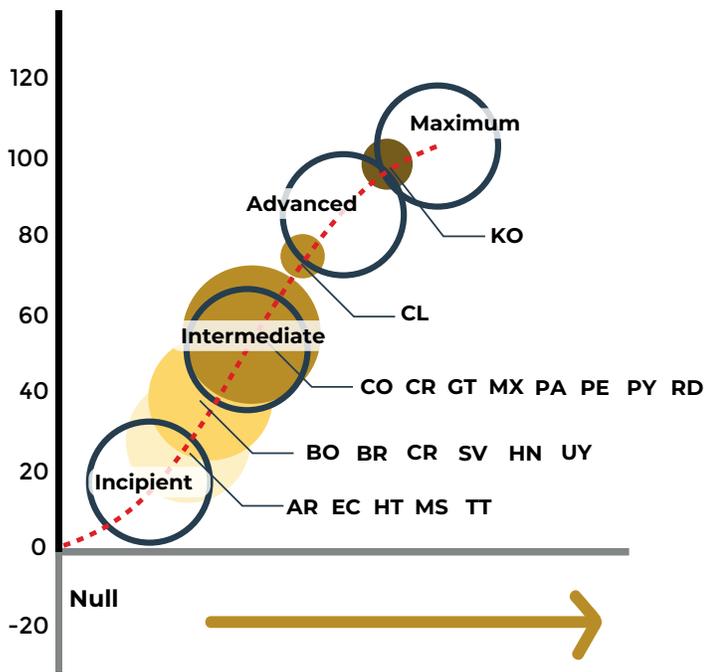
The dimension of data and generation of information in these platforms requires actions to improve the computer security of the platforms before incorporating new computer technologies. The process towards transactionality on these platforms could be accelerated through the incorporation of online tools for searches and quotations for products and services to be found in available electronic catalogues, and to check the available inventory of each supplier in those catalogues.

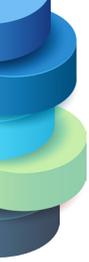
Finally, in the third group of the maturity scale are the platforms of Trinidad and Tobago, Haiti, and Montserrat. These three countries currently display portals focused on providing a limited information service. The functionality of these platforms for electronic procurement is practically non-existent; levels of compliance with indicators of good practices in e-GP are low. These platforms have a great opportunity in this maturity model to establish an effective roadmap that will enable them to increase the maturity of their platforms quickly, concentrating on activities that promote e-procurement in the near future.

As and when a e-GP platform reaches a level of maturity in a particular dimension and area of interest, an improvement plan can be established for the next level of maturity for that area; or the plan can be extended to incorporate new areas of interest. Most improvement plans should aim to reach at least the “emerging transactional” level, which requires greater compliance on certain indicators of good practice, within certain areas of interest.

Regional panorama of compliance with good practices in e-GP and platform maturity

Graph No.6





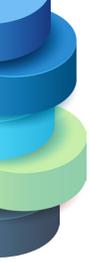
The results of the e-GP-MM 2021 instrument that we present in this report reveal different levels of maturity in the electronic government procurement platforms procurement in LAC; which can respond to their national and local contexts, in addition to the technical and institutional capacities present in the contracting systems. In fact, it is very important to note that a platform with an advanced maturity level is not necessarily better than one at a medium or basic maturity level. This classification and the individual scores of each platform give an idea of progress against the goals established in the maturity model, without the need to resort to any ranking or ordering of the e-GP platforms⁶.

On the other hand, this instrument has the potential to become a benchmark for countries to make essential measurements of their progress since it provides a complete diagnosis of the e-GP platform and at the same time facilitates the design of roadmaps with the potential to promote the strategic development of these systems through the improvement of their e-GP platforms. The model works as a guide that indicates where to pay attention and review; but it is nonetheless recommended to conduct further specific studies of each platform in order to be able to make specific recommendations aligned with the socioeconomic contexts of each country and its government structure, as well as the realities of each government procurement agency or contracting authority.

We must also highlight the need for countries to continue their efforts to measure and continuously monitor their own progress. That is the only way that they will be able to identify gaps and opportunities to enhance their e-GP platforms and, hence, guarantee that public procurement processes are managed in accordance with the principles of transparency, efficiency, economy, and equity, aimed at improving the quality and management of public expenditure.

Lastly, although the model takes into account the current state of technological advances and the good practices of modern government procurement platforms, we recommend that the process of the e-GP-MM instrument should be the object of continuous reviews and updates so that new technological advances and good practices of e-GP within this tool can be incorporated into it, and as a result, an accurate projection can be made of the frontier level of maturity in e-GP, aligned with the needs of procurement agencies and the challenges faced by the government procurement system.

6. Inventory of e-platforms analyzed and data sheets by country: <http://ricg.org/en/regional-e-gp-inventory/>



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