Transparency level of the electronic procurement system in Malaysia

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Abstract

Purpose – This paper aims to examine the level of transparency of the electronic procurement (e-procurement) system in Malaysia.

Design/methodology/approach – Using the content analysis method, 23 transparency disclosure items from the Website Attribute Evaluation System (WAES) checklist were used to evaluate the transparency level of the e-procurement system. The data gathered from the WAES were analysed using frequency and percentage based on the various categories of transparency.

Findings – The study reveals that the e-procurement system disclosed 17 out of the 23 WAES transparency disclosure items, which represents a transparency disclosure level of 73.91%. Of the five categories of disclosure, i.e. ownership, contact information, organizational information, citizen consequences and freshness, the detailed results show that the items are fully disclosed for only two categories, and for three categories, i.e. ownership, contact information and organizational information, the items are not fully disclosed.

Research limitations/implications – The findings of the present research offer a positive indication that the government is moving in the right direction, particularly in efforts to reduce the corruption level in procurement activities and to improve the accountability level of the government.

Originality/value – The present study is among the few studies that attempts to address a fundamental issue of transparency in the public procurement system that has an important relationship with the occurrence of corruption in procurement activities.

Keywords Public procurement, Content analysis, Corruption, Transparency, E-procurement, Website attribute evaluation system

Paper type Research paper

1. Introduction

Public procurement is the acquisition of supplies, services and works by the government (Hasan, 2016). It is an essential element for the development of a nation as it is the main source for providing the basic necessities to the citizens in a country (Krause and Tutunji, 2014). An efficient, effective and transparent public procurement system is crucial to better serve the society (Choi, 2010). According to the World Bank (2012), good public procurement is a tool for a country's economic growth and effective public investment. The World Bank (2017) has emphasized the need for good public procurement by outlining seven procurement principles, i.e. value for money, economy, integrity, fit for purpose, efficiency, transparency and fairness.

In line with the World Bank's public procurement principles, Malaysia has established five public procurement principles, i.e. public accountability, transparency, value for money, open and fair competition and fair dealing (Ministry of Finance Malaysia, 2010; Abul Hassan *et al.*, 2021). Despite the emphasis on good practices of public procurement, there have been continuous issues and problems related to lack of transparency of public procurement as reported in the Auditor General's Report by National Audit Department (2014, 2015). More importantly, the Chairman of Transparency International Malaysia, Datuk Seri Akhbar Satar, claimed that the decline in the Corruption Perceptions Index (CPI) score for Malaysia from 50% in 2015 to 47% in 2017, was due to the lack of transparency in its public procurement system that allowed corruption to widely occur at the various stages of the procurement activities (Bernama, 2017).

In Malaysia, the Multimedia Super Corridor (MSC) was established in 1996 under the Seventh Malaysia Plan as a project to enhance the information communication and technology (ICT) industry (Ordóñez de Pablos, 2012). Various flagship initiatives have been established in line with the agenda. The introduction of electronic government was one of the flagship initiatives under the MSC project. Transforming manual public procurement into electronic procurement (e-procurement) was one of the pilot projects under the flagship initiatives (Vicziany and Puteh, 2004). The e-procurement system used in Malaysia is known as ePerolehan. The adoption of the e-procurement system is believed to lead to greater transparency in managing public money to fulfil public needs through better allocation of resources. The government believes that transforming the manual procurement process into the e-procurement system will enhance transparency, which is consistent with one of the crucial procurement principles. According to former Prime Minister of Malaysia, YAB Dato' Sri Mohd Najib Abdul Razak (2010), e-procurement is a mechanism that enhances transparency and is a medium to provide information related to public procurement to the public.

A number of countries including Brazil (Ribeiro *et al.*, 2011), Nepal (Parajuli, 2007) and Poland (Owsinski *et al.*, 2004) have assessed the level of transparency of e-procurement in their respective countries using the Website Attribute Evaluation System (WAES) (Ribeiro *et al.*, 2011). Generally, the results show low level of transparency of the e-procurement system in those countries (Ribeiro *et al.*, 2011). In the context Malaysia, since the introduction of e-procurement in 1996, no study is available on the transparency level of the e-procurement system, except for the website assessment on disclosure level by the Multimedia Development Corporation (MDEC). However, that study is limited in scope to only several aspects of information disclosure.

Due to the importance of transparency of the e-procurement system towards minimizing corruption activities related to public procurement and the lack of studies in the context of a developing country, like Malaysia, using the accountability framework as the theoretical foundation, the current study evaluates the level of transparency of the e-procurement system in Malaysia using WAES, the instrument that has been used by other countries to assess the level of transparency of their e-procurement system. The assessment of transparency of the e-procurement system focuses on the government's responsibility to inform all the stakeholders about the utilization of public funds, which is consistent with the accountability concept, particularly public accountability that is used in the present study. The current study differs from the previous study by MDEC in terms of the greater aspect of information disclosure that is covered. Moreover, the present study offers more recent evidence on the level of transparency of the public procurement system.

The remainder of the paper is structured as follows. Section 2 provides a description of the development of e-procurement in Malaysia and reviews relevant literature on public

procurement. Section 3 describes the research methodology, followed by the findings and discussions of the study in Sections 4 and 5. Section 6 offers the implications, limitations of the study and suggestions for future research.

2. Development of electronic procurement in Malaysia

The reforming and modernizing of public procurement are crucial, as it can be a catalyst for improving a country's business, investment and social environment. A procurement system that features transparency, accountability and stakeholder participation, can be an effective tool towards ensuring good governance of public procurement (World Bank, 2012). Due to the global information technology (IT) revolution, almost all nations have adopted e-procurement in the public sector, including Malaysia. The introduction of e-procurement is one of the projects under the electronic government flagship initiative of the MSC plan that was established in 1996 by Tun Dr Mahathir Mohamad, during his tenure as the fourth Malaysian Prime Minister (Vicziany and Puteh, 2004).

The electronic government system was launched to improve convenience, accessibility and the quality of interactions between the citizens and industry (Ordóñez de Pablos, 2012). The main reason for transforming to the electronic mode is to improve the interaction between the government, government suppliers and citizens (Ordóñez de Pablos, 2012). It is believed that the implementation of ICT will enhance the quality of services as well as ensure that information is more accessible and convenient for users (Ordóñez de Pablos, 2012). Seven pilot projects were introduced under the electronic government flagship applications, i.e. e-procurement, electronic services, electronic labour exchange, e-Syariah, generic office environment, human resource management information system and project monitoring system (Ordóñez de Pablos, 2012).

E-procurement was introduced in September 1999 as a medium to facilitate the procurement process and to ensure more transparent, fair and accountable government procurement system services (Ministry of Finance Malaysia, 2017). Under e-procurement, users can access the e-procurement website and gather the intended information using internet services (Ministry of Finance Malaysia, 2017). There are many advantages to adopting e-procurement, as globalization has widened the use of technology in almost all transactions, which enhances the efficiency and effectiveness of dealing with the government's purchasing activities. In addition, it is expected that greater transparency will result from trading through the e-procurement system compared to the previous traditional way (Shu Hui *et al.*, 2011).

Public procurement has been reported as being among the government activities that is prone to corruption, and hence, adopting IT for disclosing information to the public is regarded as a tool for curbing fraud related to public procurement (Abas Azmi and Abdul Rahman, 2015). Transparency International (2006) has discovered that on average, damages due to corruption in procurement activities, range from 10 to 25%, with some as high as 40 to 50% of the procurement value. Abas Azmi and Abdul Rahman (2015) claimed that e-procurement could ensure accountability, transparency and achieve value for money in public organizations, and hence, public procurement fraud could be reduced by adopting the e-procurement system. The Ministry of Finance (MoF) Malaysia (2017) agreed that e-procurement creates a more transparent, fair and accountable government procurement system, which is aligned with the developments in IT as well as rapid growth of the knowledge-based economy.

According to the Organisation for Economic Co-operation and Development (OECD) (OECD, 2015), digital technology in public organizations enables more openness, innovation, participation and trustworthiness on the part of the government in ensuring the availability

of information to the public. Jones (2013) stated that Malaysia progressively ensures the transparency of public procurement as it is the key criterion towards enhancing the quality of the e-procurement system and to enhance the public's confidence in government organizations. This is supported by the former Prime Minister of Malaysia, YAB Dato' Sri Mohd Najib Abdul Razak (2010), that the procurement portal is a medium for enhancing transparency and facilitating procurement activities in the country. Based on the above discussion, the development of e-procurement can improve various aspects of the procurement activities, specifically in terms of transparency.

3. Literature review

Prior studies have investigated e-procurement in terms of its implementation (MacManus, 2002; Stephenson and Chia, 2006; Kaliannan and Awang, 2008; Mansor, 2008; Kaliannan et al., 2009; Aman and Kasimin, 2011; Magayane et al., 2016; Noori et al., 2017); and content analysis of the e-procurement system (Owsinski et al., 2004; Parajuli, 2007; Ribeiro et al., 2011). Several studies have also focused on environmental and sustainable public procurement (New et al., 2002; Prier et al., 2016; Igarashi et al., 2017; Terman and Smith, 2018). In addition, literature reviews are available on the public procurement process (Rönnbäck, 2012; Mardale, 2016; Srivastava and Agrahari, 2017); and performance and corruption in public procurement (Arlbjørn and Freytag, 2012; Kleemann et al., 2012; Ordóñez de Pablos, 2012; Kassim and Hussin, 2013; Akoth, 2014; Al-Soud et al., 2014; Nurmandi and Kim, 2015; Bröchner et al., 2016; Chomchaiya and Esichaikul, 2016; Kramer, 2016; Nawi et al., 2017). As the present study focuses on the transparency of public procurement using WAES, the subsequent review is specifically on the aspect of transparency in public procurement.

Public accountability refers to the obligation of public officials to report the usage of public resources and public organizations must be accountable if they fail to meet targeted performance (Welch and Wong, 2001; Armstrong, 2005). Transparency is a pre-condition of public accountability (Armstrong, 2005; Ball, 2009; Parliament of Malaysia, 2013). Transparency determines the public accountability of the government in ensuring the availability of information to the citizens and improved decision-making concerning the services received by the citizens. Governance improves when citizens have information, which acts as a tool in restoring public trust. Disclosure or the availability of information symbolizes trust, modernity and global citizenship, which are crucial for the competitiveness of a nation (Welch and Wong, 2001). All regulations, conditions, procedures and processes must be disclosed to ensure transparency (Ministry of Finance Malaysia, 2010). Armstrong (2005) stated that transparency necessitates unrestricted and timely access to reliable information by the public.

Several studies have been undertaken on transparency in public procurement (Panda et al., 2010; Siahaan and Trimurni, 2014). According to the World Trade Organization, transparency involves three main requirements: to make information on relevant laws, regulations and other policies publicly available; to notify interested parties of relevant laws and regulations and changes to them; and to ensure that the laws and regulations are administered in a uniform, impartial and reasonable manner (Bellver and Kaufmann, 2005). The information needs to be relevant and available to the public besides being in accordance with all the laws and regulations to ensure transparency (Bauhr and Grimes, 2012).

There are also prior studies that evaluated the transparency of the e-procurement system using WAES. In 1998, the global average score of the transparency component was 7.4 out of 21 (Demchak et al., 2000). In a similar study using WAES, Ribeiro et al. (2011) examined the e-procurement website system of the Brazilian government and found a low level of

transparency disclosure. Parajuli (2007) also conducted a content analysis using WAES on the e-procurement system of Nepal. Consistently, the study reported a lack of transparency of the e-procurement system and suggested that improvements are required to ensure good governance of public procurement in Nepal.

In Malaysia, an evaluation of all government agencies' portals and websites in terms of interactivity and information updates was carried out in 2010 by the MDEC. The assessment, known as Malaysia Government Portals and Websites Assessment (MGPWA), comprised five pillars – Citizen Interaction, Citizen Insight Generation, Citizen Services, Citizen Support and Content Management. The e-procurement portal scored 71 out of 100 points and was ranked in 21st position in 2010 (MDEC, 2010). However, in 2017, the MGPWA was demolished and replaced by a new evaluation by MDEC known as the Malaysia User Satisfaction Evaluation (MUSE). Unlike MGPWA, the main objective of MUSE is to assess the satisfaction level of users in using online services provided by the government. As the two assessment measures by MDEC were limited to the aspects of interactivity, information updates and user satisfaction of the websites and portals, the present study offers up-to-date empirical evidence on the level of transparency of the Malaysian e-procurement system using the WAES instrument that appears to be more comprehensive in its evaluation.

4. Research methodology

A content analysis of the e-procurement website was carried out to assess the level of transparency of the e-procurement system. Prior studies have adopted content analysis on official documents (Weber, 2018; Nistor et al., 2019; Boujelben and Kobbi-Fakhfakh, 2020; Boujelben and Boujelben, 2020; Tadros et al., 2020); interviews (Evans et al., 2021); as well as websites (Abdi et al., 2018; Al-Sartawi and Reyad, 2019; Abdi and Omri, 2020). According to Krippendorff (2004), content analysis is a scientific technique that should result in replicability from the contexts used by the researcher. Two procedures were involved in the content analysis for this research. The first procedure was the identification of the contents to be evaluated, also known as the development of the content analysis index or checklist. The second procedure was scoring.

The checklist items for the content analysis of this study were adopted from the transparency index of WAES. The WAES index was adopted because it is an established index which has been used by researchers in other countries, including Brazil, Poland and Nepal (Demchak et al., 2000; Parajuli, 2007; Ribeiro et al., 2011). Using the same index across countries may allow comparison of results between countries in the future. The WAES was founded by the Cyberspace Policy Research Group (CyPRG) in 1996 and it covers two components, i.e. transparency and interactivity (Demchak et al., 2000). Transparency evaluates the information availability provided by the respective agency; while interactivity focuses on the convenience of accessing that information (Demchak et al., 2000). However, this study focuses only on the transparency component of WAES.

In ensuring the applicability of the WAES items in the context of the Malaysian e-procurement system, as well as in ensuring the reliability and credibility of the WAES items as disclosure items to measure transparency, the researcher held face-to-face meetings with the Senior IT Officer of the Government Procurement Division, MoF, to discuss the WAES index items before and after the scoring was carried out. The officer assured that the WAES items are suitable to be used to measure the transparency of the Malaysian e-procurement system. In addition, the officer was also in agreement with the results of the scoring.

There are 23 items in the transparency checklist that cover five categories of transparency. The first sub-component is ownership, which evaluates how involved the

agency is with the site (Demchak *et al.*, 2000). The site ownership evaluates the involvement of the organization in ensuring the importance of the website. Three criteria are used to measure site ownership: "agency involvement with the site", "provides different webmaster from main government page" and "provides obvious tailoring indicating agency itself has ownership of site content".

The second sub-component concerns contact information that assesses the website visitor's ability to contact the individuals in the organization (Demchak *et al.*, 2000). Contact information measures the reachability of an individual in the organization. Six criteria are evaluated: "provides central agency regular mailing addresses", "provides telephone numbers or any other mailing data of the office", "provides e-mail address to webmaster", "provides e-mail address to someone inside agency in addition to webmaster", "provides some kind of addresses for employees within agency beyond top level" and "provides addresses for sub-elements within agency".

The third sub-component is organizational to assess the level of information provided about an organization's operations and its connection to the related organization (Demchak *et al.*, 2000). The organizational information evaluates the availability of information about the organizational structure and its operations. There are nine criteria under organizational information: "provides details on senior officials' experiences", "provides vision or mission statement", "provides various activities of agency", "provides other issue-related government addresses", "provides issues related to other non-governmental information source", "provides organizational structure in graphic form", "provides reports, research, laws, and regulations in easily readable format on screen", "provides archives" and "downloadable publications are available".

The fourth sub-component of transparency is citizen consequences, which evaluates the requirement of a citizen to comply with the regulations or laws, to take advantage of programs, or to use the government services (Demchak *et al.*, 2000). Citizen consequences is measured according to the responses the visitors can have when visiting the website. Four criteria focusing on citizen consequences are "provides text of regulation/laws/agency research or in-depth explanations of requirements imposed on citizen resulting from agency activities", "provides instruction on how to complete these actions", "provides form in graphics for screen capture or copy" and "provides appeal process for decisions or address of an ombudsman (complaint investigation)".

The final sub-component is freshness, which assesses how up-to-date an agency's information is by evaluating the frequency with which the key pages of the site are changed (Demchak *et al.*, 2000). Freshness concerns the frequency of updates made with regards to the information on the website. The only criterion for the freshness category is "latest published last updateddate (YYYY-MM-DD) on the main page, or if none, a key subordinate page".

In undertaking the second procedure (i.e. scoring), the present study used a simple binary evaluation, i.e. the feature is either Present or Absent on the e-procurement website. A score of "1" was given if the feature is present and "0" if the feature is absent. The scoring was carried out in September 2018. A second round of scoring was carried out after about two weeks of the first scoring. The scoring was carried out twice to ensure the consistency and reliability of the results. The data gathered from the WAES content analysis were analysed using frequency distribution. Then, the frequency distribution was grouped into the respective categories of transparency and analysed based on the percentage of the level of transparency of the e-procurement system. The overall percentage analysis was based on the total items disclosed of the total disclosure items. The findings were interpreted using the score range and transparency level that were previously used by the MGPWA (2010) for

assessing the disclosure level of the government portal and website. The scoring is shown in Table 1.

5. Findings and discussion

5.1 Overall transparency level

Table 2 presents the overall results of the level of transparency as well as the overall results for each of the five transparency categories and the interpretation of the results is based on the measurement as shown in Table 1.

As shown in Table 2, in terms of the overall score, 17 out of 23 transparency disclosure items of WAES were disclosed in the e-procurement system, representing an overall transparency level of the e-procurement system of 73.91%. Based on the MGPWA's (2010) interpretation of the score as shown in Table 1, it falls under the four-star rating, which indicates a high level of transparency. Subsequently, the result implies an acceptable level of accountability has been discharged by the government to the stakeholders in terms of the information disclosed in e-procurement. This is a positive result as it is in tandem with the result of a similar assessment by MDEC (2010). The result on the overall transparency level of the Malaysian e-procurement system also seems to be higher than the results of other countries as reported by previous authors, including from Brazil (Ribeiro *et al.*, 2011), Poland (Owsinski *et al.*, 2004) and Nepal (Parajuli, 2007). To further investigate the level of transparency of the Malaysian e-procurement system, Tables 3 to 7 present the findings concerning the transparency disclosure level for each of the five transparency categories.

Star	Score range (%)	Transparency level
5-star	80–100	Very High
4-star	60–79	High
3-star	40–59	Moderate
2-star	20–39	Low
1-star	1–19	Very Low

Table 1.
Star rating in MGPWA adapted for the level of transparency of E-procurement

No.	Category	Accumulated score	(%)
1	Ownership	2/3	66.67
2	Contact information	3/6	50.00
3	Organizational information	7/9	77.78
4	Citizen consequences	4/4	100.00
5	Freshness	1/1	100.00
Overall		17/23	73.91

Table 2.
Overall results of transparency level for each category

No.	Items	Score
1	Agency involvement with the site	1
2	Provides different webmaster from the main government page	0
3	Provides obvious tailoring indicating agency itself has ownership of the site content	1
Total score		2/3

Table 3.
Level of transparency under ownership category

5.2 Transparency level for ownership category

Based on the results in Table 3, two out of three items under the ownership category are present in the Malaysian e-procurement website, which implies a transparency level of disclosure for ownership information of 67%, which is a high level of transparency since it is above 50%. The items present on the e-procurement site are "agency involvement with the site" and "provides obvious tailoring indicating agency itself has ownership of the site content".

Based on the discussion with the IT Officer of the Government Procurement Division, MoF, the absence of the item, "provides a different webmaster from the main government page", is because of the control and direct contact of the e-procurement website. The current practice is that the e-procurement website is solely under e-procurement control without any agency interference. Hence, the users of e-procurement are required to manually open the respective agency website if they need any further details of that agency.

5.3 Transparency level of contact information category

The disclosure of the contact information category, as in Table 4, shows 50%, which represents a moderate level of transparency. The items that can be accessed through the e-procurement system are, "the central agency regular mailing addresses", "telephone numbers, or any other mailing data of the office" and "e-mail address to webmaster within the agency". However, half of the items cannot be accessed under the contact information category, such as the "e-mail address to someone inside the agency", "addresses of employees within the agency beyond the top level" and "addresses for sub-elements within the agency".

The absence of the three items is due to the management of the e-procurement system. The e-procurement site is owned by the MoF and developed by Commerce Dot Com Sdn. Bhd. The development of the system is based on the contractual agreement between the government of Malaysia and Commerce Dot Com Sdn. Bhd. Thus, without government consent, no internal contact information is made accessible to the users of the e-procurement site (MoF IT Officer, 2018).

5.4 Transparency level of organizational information category

The third category is evaluating the organizational information, which shows that seven out of nine items are on the e-procurement website, thereby implying high disclosure in terms of the transparency level since it is above 50%. The items that can be accessed through the e-procurement site are, "various activities of the agency"; "other issue related to government addresses"; "non-issue related to other agency addresses"; "the organizational structure in graphic form"; "reports, research, laws, and regulations are in an easily readable format on screen"; "archives"; and "downloadable publications are available". However, two items are not presented in the e-procurement website, i.e. the "details of senior officials" experience' and the

No.	Items	Score
1	Provides central agency regular mailing addresses	1
2	Provides telephone numbers or any other mailing data of the office	1
3	Provides an e-mail address to webmaster within the agency	1
4	Provides an e-mail address to someone inside the agency in addition to the webmaster	0
5	Provides some kind of addresses for employees within agency beyond top level (e.g. shows a phonebook with position)	0
6	Provides addresses for sub-elements within the agency (can you write them a snail mail letter with this address?)	0
	Total score	3/6

Table 4.
Level of transparency under contact information category

"vision or mission statement of the agency". This is also because of the development of the system that separates the information of the MoF and e-procurement. The details of senior officials" experience are internal information, not available to the public and the vision or mission statement of the agency is not available in the e-procurement site due to the separate control of information. Hence, the stated information is unavailable on the e-procurement website (Table 5).

5.5 Transparency level of citizen consequences category
The fourth category is citizen consequences, which has 100% disclosure, thereby implying the highest transparency level. Under this category, all four items on the checklist are available on the e-procurement website. The items evaluated are, "availability of the text of the regulation/laws/agency research or in-depth explanations of the requirements imposed on citizens resulting from agency activities", "availability of instructions on how to complete the actions", "forms in graphic form for screen capture or copying" and "the availability of an appeal process for decisions or address of any ombudsman". All the items are available since the checklist items are solely related to the ePerolehan activities, such as related to laws and regulations, manual completion of certain actions, graphical forms and appeal process for any complaint investigation (Table 6).

No.	Items	Score
1	Provides details on senior officials' experience	0
2	Provides vision or mission statement of the agency	0
3	Provides various activities of the agency	1
4	Provides other issue-related government addresses	1
5	Provides non-issue-related to other agency addresses	1
6	Provides organizational structure in the graphic form	1
7	Provides reports, research, laws, and regulations in an easily readable format on the screen	1
8	Provides Archives (is there a possibility of searching in the archives for bulletins, regulations, etc.)	1
9	Downloadable publications are available (such as internal publications of the office, such as protocols)	1
	Total score	7/9

Table 5. Level of transparency for organizational information category

No.	Items	Score
1	Provides the text of regulation/laws/agency research or in-depth explanations of requirements imposed on citizen resulting from agency activities	1
2	Provides instruction on how to complete these actions	1
3	Provides a form in graphics for screen capture or copy	1
4	Provides an appeal process for decisions or address of an ombudsman (complaint investigation)	1
	Total score	4/4

Table 6. Level of transparency for citizen consequences category

No.	Item	Score
1	Latest published "last updated" date (YYYY-MM-DD) on the main page, or if none, a key subordinate page, or 0 if no date listed on any of these pages	1
	Total score	1/1

Table 7. Level of transparency for freshness category

5.6 Transparency level of freshness

The final category to evaluate the transparency level under the WAES checklist is freshness, which assesses how up-to-date the information of an agency is by evaluating the frequency with which the key pages of the site are changed (Demchak *et al.*, 2000). The only item evaluated on the e-procurement site is the latest published date on the main page or key subordinate page. This item is directly related to the e-procurement site, which is under the management of the e-procurement division and the latest published date on the main page and key subordinate page available to the users of e-procurement. The result indicates that the e-procurement website discloses information on the date that the website was last updated. This is an important information because it tells users on how updated the information on the website is.

6. Implications of the study and conclusion

This study investigated the level of transparency of the e-procurement system in Malaysia using the 23 items on the WAES checklist. The items were classified into five categories – ownership, contact information, organizational information, citizen consequences and freshness. Of the 23 items, 17 items are disclosed and the remaining six are absent. Hence, the overall transparency level is 73.91%. Generally, the result indicates a high level of transparency disclosure of the e-procurement system.

Although the overall level of transparency disclosure of the e-procurement system is high, the detailed results show that three categories, i.e. ownership, contact information and organizational information, have not been fully disclosed, which imply there are areas for improvement. The relevant authority, specifically the unit under the MoF, that is in charge of the e-procurement system may want to review its existing contents and to consider including the information that is recommended by the WAES, which has yet to be captured in the e-procurement system. In particular, a request to Commerce Dot Com (i.e. the private company that is responsible for developing and maintaining the e-procurement website) to add additional information in including the contact details, such as name, telephone number and email address of the person or officer-in-charge of e-procurement in the respective government agencies, would be useful. This is a proactive action to further improve the transparency level of the e-procurement system.

Furthermore, to ensure continuous improvement in transparency, the government may collaborate with experts, researchers and academicians to further research the transparency of the e-procurement system or public procurement activities using other improved transparency measures. This collaborative effort may help the government to achieve its strategic goal of developing effective, accountable and transparent institutions at all levels, in line with Goal 16 of the UNESCO Sustainable Development Goals, i.e. "to promote peaceful and inclusive societies for sustainable development, to provide access to justice for all, and to build effective, accountable, and inclusive institutions" (MAMPU, 2019).

More importantly, improved transparency of the e-procurement website is a positive indication that the government is moving in the right direction to improve its procurement activities to achieve the objectives of economic growth, efficiency and effectiveness of the government (Alkaraan, 2018). This is important as it directly can assist in the achievement of the government agenda to curb corruption activities related to public procurement. This can ultimately increase the CPI score of the country and enhance governance and the accountability of the government to the public.

The current study is not without limitations. It mainly used a quantitative method of content analysis to assess the disclosure level of transparency information in the e-procurement system. Qualitative research techniques, such as interviews, can be used

in future research to actively engage with the respondents and gain valuable opinions. The present study also mainly evaluated the transparency level of the e-procurement system. Future studies may want to further investigate the relationship between the transparency level and outcomes in terms of the positive impact on the government's goal to reduce corruption in public procurement and to increase accountability of the government. Despite the limitations, the current study may inspire researchers to undertake more in-depth studies on the areas of public procurement to improve related activities, which ultimately can lead to more benefits and greater value for money to be achieved by the public at large.

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