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Benefits and Challenges of Digital Audit Implementation in the Malaysian Public Sector: Evidence from the Accountant General's Department of Malaysia

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Abstract

Purpose: The current study aims to investigate the important benefits or advantages of digital audit implementation perceived by the internal auditors of the Accountant General's Department of Malaysia (AGD), and examine the significant challenges faced by the AGD auditors in implementing digital audit.

Design/ Methodology/ Approach: A focus group discussion was conducted with AGD officers involved in digital audit implementation and a questionnaire survey was distributed to the AGD auditors to achieve the research objectives. All 124 auditors responded and returned the completed questionnaire. Thematic analysis was performed on the transcription of the focus group discussion while descriptive statistics of mean scores, standard deviations, and mean score ranking were utilised to analyse the questionnaire data.

Findings: The top five ranked benefits of digital audit implementation perceived by the respondents were improving the quality of audit report, increasing the efficiency of audit, assisting auditors in identifying material misstatements, improving the quality of the audit processes and enhancing audit effectiveness. The top three challenges were requiring additional education and training to acquire the necessary digital skills, high implementation costs and the risk of data security (leakage) and confidentiality.

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Originality/ Value: The present study contributes to the existing limited empirical evidence on the fundamental advantages and challenges of digital audit implementation despite various conceptual discussions on the two implementation aspects.

Keywords: Digital audit, public sector, advantages, challenges, internal audit

1.0 Introduction

The rapid advancement of digital technologies has revolutionised various life aspects and has fundamentally redefined organisational operations and interactions. The public sector is a crucial pillar of service delivery with the primary goal of integrating digital technologies into public sector operations to promote higher transparency and efficiency (Alvarenga et al., 2020; Otia & Bracci, 2022). The digital transformation in Malaysia is a propagated agenda of the Malaysian government in line with the global response to the Industrial Revolution (IR) 4.0. The digital transformation is highlighted in the 12th Malaysia Plan (2021-2025) and the Malaysia MADANI or SCRIPT[1] (Ibrahim, 2022). The government has introduced a decennial Malaysia Digital Economy Blueprint (2021-2030) or MyDIGITAL to stipulate the direction and initiatives for Malaysia to become a digitally driven and high-income nation while serving as a regional leader in digital economy implementation. Recently, the Prime Minister of Malaysia, Dato' Seri Anwar Ibrahim, and the President of the World Economic Forum, Borge Brende, have announced the establishment of the Centre for the Fourth Industrial Revolution Malaysia (C4IR) in May 2023 as a further initiative to accelerate the digital transformation agenda of the country (World Economic Forum, 2023).

The auditing field is one of the public sector areas with the progress of digital transformation. Several governments, such as Belgium, the Netherlands, Brazil, and the European Union, commenced with taxation audits for subsequent digital audit transformation (Bezverkhyi & Poddubna, 2023). Nevertheless, the intricate regulatory environment in the public sector has prompted the creation of labs or incubators to experiment with potential innovations before being adopted for large-scale digital implementation (Otia & Bracci, 2022). Multiple distinct versions of tax audits have been implemented and customised to suit the specific requirements of each country (Bezverkhyi & Poddubna, 2023). Specifically, digital audits integrate advanced technological tools, including data analytics, cloud computing, and artificial intelligence (AI), to empower auditors to conduct more comprehensive and real-time assessments of financial records beyond the traditional audit processes (ICAEW, 2019). The shift towards digital audit provides numerous benefits. The automation of mundane audit processes effectively eliminates repetitive manual tasks while enhancing auditors' efficiency and productivity (Tiberius & Hirth, 2019; Kelly, 2020) by mitigating the risk of human errors (Moffitt et al., 2018). Big data and data analytics also elevate the quality of audit engagement (Kelly, 2020; Lazarevska et al., 2022). The establishment of an information analysis system (IAS) in Russia has empowered auditors to conduct remote audits, which facilitates assessments of over 130

[1]MADANI is the Malay acronym for SCRIPT which stands for Sustainability, Care and Compassion, Respect, Innovation, Prosperity, and Trust. It is a policy framework designed to achieve a sustainable and prosperous Malaysia.

information systems across more than 30 state agencies. The approach has discovered 650 procedural violations and concealments in public procurement within one year (Otia & Bracci, 2022). The application of the concurrent control model (CCM) in Peru has also resulted in savings of approximately USD26.5 million in construction and reconstruction costs associated with the El Nino phenomenon (Otia & Bracci, 2022).

While digital audit transformation entails a comprehensive and strategic change that redefines the existing organisational operation (Gong & Ribeire, 2021; Otia & Bracci, 2022), public sector entities are not ready or willing to transform. Substantial financial investments are required, which is challenging for public sector entities constrained by budgetary limitations (Danielsen, 2021). Furthermore, concerns related to data security, the complex regulatory environment, resistance to change, and lack of expertise may deter or decelerate the adoption of transformative digital practices in the public sector (Danielsen, 2021; Otia & Bracci, 2022). The National Audit Department (NAD) in Malaysia is the primary entity responsible for auditing public sector entities. Article 106 of the Federal Constitution states that "The accounts of the Federation and the States shall be audited and reported on by the Auditor General" (National Audit Department, 2023a). Three auditing types conducted by the NAD auditors are compliance, financial, and performance audits (OECD, 2011; National Audit Department, 2023b). Meanwhile, a division under the AGD, namely the Internal Audit Management Division (BPAD), is responsible for auditing public sector entities by focusing on financial and compliance audits. The difference in the audit role between the two entities is that the NAD audit is referred to as an external audit, whereas the AGD audit is referred to as an internal audit. The present study recruited the AGD internal auditors as the respondents.

The present study evaluated AGD digital audit implementation and delineated relevant benefits and challenges. The research questions are as follows:

i. What are the key benefits of AGD digital audit implementation?
ii. What are the primary challenges of AGD digital audit implementation?

The findings on the benefits and challenges perceived by the AGD auditors provided insightful information towards understanding the current sentiment of digital audit implementation in the specific context of the BPAD of the AGD. The findings are crucial to various parties, including individual auditors, the BPAD management team, and the AGD top management, for charting and strategising the future direction of the digital audit implementation journey. Moreover, the information could assist various parties in leveraging respective strengths while resolving the current challenges to ensure the success of digital audit implementation by the AGD and the Malaysian government. The paper comprises several sections: Section 2 provides the literature review, Section 3 describes the data collection methodology, Section 4 presents the findings, and Section 5 discusses implications, limitations, future research suggestions, and conclusion.

2.0 Literature Review

Numerous studies have been conducted on public sector audits in recent years, although studies on audit digitalisation in the public sector are limited (Ferry et al., 2022, Otia & Bracci, 2022). While prior empirical studies on digital audit in the public sector are limited, Ahmad et al. (2023) reported in the bibliometric study an increasing research trend on digital

audit in the public sector. The information technology (IT) impact on businesses has grown exponentially and transformed the audit process, which results in both opportunities and challenges for auditors (Mahzan & Veerankutty, 2011). The present study focused on the benefits and challenges of digital audit implementation.

2.1 Digital Audit Advantages and Benefits

Digital technologies in public sector auditing assist in analysing the usage of budgetary funds by the auditee to solve the issue of budgetary resource allocation in each public sector unit (Antipova, 2019). Furthermore, digital audit enables public sector auditors to demonstrate higher professionalism and provides higher value to managing the public sector cost, which subsequently ensures the highest levels of accountability and transparency to the civil public. While the auditing profession is expected to transform due to digitalisation, the purpose of the audit function remains unchanged. A higher emphasis is also provided on accountability and transparency to foster stakeholders' trust that resources are being employed efficiently, effectively, and economically (Pilos, 2020). Simultaneously, big data analytics assist auditors in automating transaction testing and enabling the inclusion of the entire population (Earley, 2015). Digitalising the audit procedure could facilitate auditors to account for the entire population in the auditing process. Bonyuet (2020) also highlighted that digital transactions enable auditors to perform continuous audits as the obtained data are highly reliable for executing the reconciliation process. Huang and Vasarhelyi (2019) concurred that the adoption of robotic process automation (RPA) could significantly elevate the usage of certain procedures from sampling to testing the entire population. Kokina and Davenport (2017) also underscored that the employed technology enables auditors to identify irregularities from the entire population rather than a sample while assisting in locating relevant information before being processed for auditors' usage. Resultantly, auditors can comprehend complex judgmental areas in-depth as the time required for digital auditing is less than traditional auditing processes (Kokina & Davenport, 2017; Melin & Toezay, 2022).

Another result of digitalising the audit function is reducing repetitive and basic tasks as machines are more efficient at performing tedious and rule-based tasks (Cho et al., 2020) which could reduce the auditor's time to conduct an audit (Fossati, 2020). According to Moffitt et al. (2018), repetitive and manual audit work could be significantly reduced, which not only saves a significant amount of time but also guarantees fewer mistakes during the process. The 'man-machine cooperation' is considered the future auditing form (Zhang, 2019). Furthermore, Suffield (2020) highlighted that technological advancement in auditing processes could improve audit quality and contribute higher value to the process. The latest auditing standards must be developed to measure the quality of the audit process, including data management and relevant technologies (Tang & Karim, 2017). Traditional audit procedures could be less effective and efficient due to large databases and wider sources, which require proper consideration of the conventional auditing method (Dai & Vasarhelyi, 2016), especially in the public sector. The private sector audit in the Netherlands also integrated RPA into the audit process to mimic human actions, thereby reducing labour-intensive tasks, such as copying or re-typing data (Meuldijk, 2020). The assimilation of alternative evidence types through AI could also improve the effectiveness of audits (Issa et al., 2016). Additionally, developing algorithms on the historical data from engagement files enables suggestions of relevant risks, challenges, and strategies based on the derived characteristics, which could improve the audit process by providing input instantaneously to assist auditors in

the decision-making process (Meuldijk, 2020). Summarily, advanced technologies, including big data analytics, AI, blockchain technology, and RPA, reduce human involvement in the auditing process while enabling the testing of a huge and wider population rather than just a sample (Said Almaleeh, 2021; Melin & Toezay, 2022). The automation would allow auditors to devote more time to more challenging auditing areas, such as estimating fair value investments or looking into probable anomalies, for higher audit quality (Moffitt et al., 2018).

2.2 Digital Audit Implementation Challenges

Digital transformation of the audit process poses several challenges for auditors. One of the challenges is that both the public and private sectors might be required to recruit fewer accounting graduates for audit work in the future. Digitalising the audit procedure suggests that certain areas could be automatically managed, such as the continuous audit aspect. Technological tools also allow more efficient processes with task automation for higher productivity (Pacific Standard, 2015). Issa et al. (2016) proposed that AI could potentially replace the auditor in various automated tasks in the future. Another challenge in digital implementation is the cost of the employed technology. The digitisation process could boost the economy while rendering a country uncompetitive owing to financial constraints in implementing the latest technology (Peterson, 2016; Melin & Toezay, 2022). In addition, the public and private sectors must allocate a budget for education and training purposes to digitalise the auditing process (Lois et al., 2020; Yilmaz, 2017). The skills acquired through training are imperative when the auditing process is automated despite higher costs. While digital auditing can be advantageous, several obstacles may decelerate the process. Data collection, preparation, and documentation processes must be automated before the auditor performs data analytics. The analytics can identify any outliers and exceptions and allow focus on the areas with higher risks. Nevertheless, the utilisation of digitalised data and data analytics in the public sector remains limited.

Numerous auditors have not gained sufficient skills for automated audit workflow and may not be ready for digital transformation, which is a significant challenge in appropriately training and educating future auditors (Joshi & Marthandan, 2018; Okab, 2013) to tackle the issue. The digital audit requires auditors to possess adequate knowledge, education, experience, and appropriate training in the IT field (Shaqqour et al., 2022). Specifically, auditors are anticipated to acquire the appropriate skillsets and competencies in utilising current information and communication technology (ICT) skills, working in various applications and fields, applying knowledge of programming languages, rapidly searching and processing data, and managing digital technologies (EY, 2015; Zhang et al., 2018; Alisherovich & Isoqovna, 2022). Other obstacles include the cost of specialised auditing software, the high prices of public programmes, and the lack of suitability for all business establishments (Okab, 2013). Hence, the public sector should invest in future auditing techniques and train auditors to resolve the issue of inadequate expertise (Ellul & Buttigieg, 2021). While various advantages or benefits and challenges of implementing digital audit in the public sector were acknowledged and emphasised in prior studies, empirical research work on the two research questions is limited. The present study sought to bridge the literature gap while contributing to the governmental digital transformation agenda by empirically investigating the key benefits and challenges of digital audit implementation in a developing economy, namely Malaysia.

3.0 Methodology

Two research methods were employed, namely (1) a questionnaire survey and (2) a focus group discussion. The following subsections describe the procedures of each method.

3.1 Questionnaire Survey

An online survey questionnaire was administered in June 2023 to appraise the advantages and challenges of digital auditing implementation in the public sector, specifically the BPAD of the AGD.

3.1.1 Research Instrument, Respondents, and Data Collection Procedures

A structured survey questionnaire was constructed based on existing instruments derived from prior literature (Okab, 2013; Issa et al., 2016; Kokina & Davenport, 2017; Antipova, 2019; Zhang, 2019; Pilos, 2020; Melin & Toezay, 2022, Otia & Bracci, 2022), with several additional questions included to suit the purpose of the present study. The questionnaire was segmented into two main sections as follows:

i. Section A: Demographic Profile (respondents' background)
ii. Section B: Advantages and Challenges of Digital Audit Implementation in the Public Sector

The respondents were the AGD auditors attached to the BPAD. The researchers utilised Google Forms as an online survey administration tool. The online survey was selected to efficiently collect, store, and visualise data at a cost-effective level, which allowed for swift administration (Nayak & Narayan, 2019). The researchers collaborated with the appointed BPAD staff to disseminate the survey to auditors and ensure a high response rate. As a result, all BPAD auditors responded to the survey. The questionnaire was pre-tested before being distributed to assess the comprehensibility level of the questions among the BPAD top management and accounting lecturers. Most feedback was received from the lecturers primarily on the construction of the sentences. Meanwhile, the BPAD top management team agreed with the questionnaire items. Adjustments were also made to the wording to develop more comprehensible questions and instructions.

3.1.2 Data Analysis

Data obtained from the survey were analysed via the Statistical Package for the Social Sciences (SPSS) software. Specifically, descriptive statistics were performed to quantitatively describe and summarise the results.

3.2 Focus Group Discussion

A semi-structured interview via a focus group discussion with four BPAD top management members of the AGD was conducted on 16 June 2023. The session lasted for three hours and was attended by the Deputy Director (Special Auditing Section), Deputy Director (Operations Section), Deputy Director 2 (Asset and Inventory Accounting Compliance Unit), and Chief

Assistant Director (Quality Control and Risk Management Unit). The primary objective was to identify and understand perspectives and directions towards digital audit implementation and the encountered challenges. The interview transcript was analysed and themes were developed to obtain insights into digital auditing practices in terms of the implementation advantages and challenges.

4.0 Findings and Discussion

4.1 Respondents' Demographic Profile

Table 1 depicts that the majority of the respondents were female, which constituted 73.4% of the total respondents. The largest age group was between 31 and 40 years old accounting for 46.8% of the total respondents. A total of 45.2% of respondents possessed a Bachelor's degree, followed by 46.7% with STPM or diploma qualification. More than half of the respondents were assistant accountants while 33% were accountants at different positions. The largest group of governmental officers were employed for 11 to 15 years, followed by 16 to 20 years. More than one-third of the total respondents were experienced in audit-related work in the private sector before joining the public sector. Most respondents with experience in private audit-related work possessed below five years of working experience.

Table 1: Respondents' Demographic Profiles

Category	Description	Frequency	Percentage (%)
Gender	Female	91	73.4
	Male	33	26.6
	Total	**124**	**100.0**
Age (years)	20-30	7	5.6
	31-40	58	46.8
	41-50	51	41.1
	51-60	8	6.5
	Total	**124**	**100.0**
Educational Level	STPM or Diploma	58	46.7
	Bachelor's Degree	56	45.2
	Master's Degree	5	4.0
	Professional Qualification	4	3.2
	Others	1	0.8
	Total	**124**	**100.0**
Current Position in the AGD	Deputy Director	3	2.4
	Chief Assistant Senior Director	6	4.8
	Chief Assistant Director	4	3.2
	Senior Assistant Director	10	8.1
	Assistant Director	18	14.5

Table 1: Respondents' Demographic Profiles (continued)

Category	Description	Frequency	Percentage (%)
Current Position in the AGD	Assistant Accountant	76	61.3
	Others	7	5.6
	Total	**124**	**100.0**
Employment Years as a Governmental Officer	1-5	15	12.1
	6-10	8	6.5
	11-15	44	35.5
	16-20	43	34.7
	Over 20	14	11.3
	Total	**124**	**100.0**
Years of Experience in Audit-Related Work (Private)	No experience	77	62.1
	Less than 1 year	20	16.1
	1-5	21	16.9
	6-10	5	4.0
	11-15	1	0.8
	Total	**124**	**100.0**
Years of Experience in Audit-Related Work (Public)	Less than 1 year	19	15.3
	1-5	58	46.8
	6-10	27	21.8
	11-15	9	7.3
	16-20	8	6.5
	Over 20	3	2.4
	Total	**124**	**100.0**

4.2 Perceived Benefits and Advantages of Digital Audit Implementation

Table 2 presents the mean score, standard deviation, and mean score ranking for each of the 16 statements on digital audit implementation advantages or benefits to the public sector. The mean scores range from 3.57 to 3.80, which posits that all identified advantages or benefits are perceived as crucial by the AGD auditors. The top five ranked perceived benefits or advantages of digital audit implementation in descending importance order are improving the quality of audit reports, improving the efficiency of audits, assisting auditors in identifying material misstatements, improving the quality of the audit process, and improving the effectiveness of audits. Comparatively, the three lowest-ranked benefits of digital audit

implementation are reducing the need for human resources, increasing public confidence in auditors, and being able to access auditees' financial statements in real-time. The following subsections explain and justify each identified top and least-ranked benefit of digital audit implementation.

Table 2: Digital Audit Implementation Advantages

Advantage	N	Mean	Standard Deviation	Rank
Improve the quality of audit reports	124	3.80	0.74	1
Improve the efficiency of audits	124	3.78	0.79	2
Assist auditors in identifying material misstatements	124	3.77	0.71	3
Improve the quality of the audit process	124	3.75	0.74	4
Improve the effectiveness of audits	124	3.75	0.79	5
Reduce the number of repetitive tasks in the audit process	124	3.74	0.80	6
Able to perform continuous audits	124	3.73	0.73	7
Provide a greater possibility for detection of fraud	124	3.73	0.73	8
Improve the reliability of audited reports	124	3.72	0.73	9
Provide a better understanding of the auditees' work	124	3.70	0.72	10
Improve the professional judgment of auditors	124	3.69	0.72	11
Enhance government transparency	124	3.69	0.72	12
Enable to test 100% of the population rather than testing a sample	124	3.67	0.82	13
Able to access auditees' financial statements in real-time	124	3.67	0.74	14
Increase public confidence in auditors	124	3.62	0.73	15
Reduce the need for human resources	124	3.57	0.75	16

4.2.1 Improving the Quality of Audit Reports

The public sector digital audit benefit ranked highest is improving the quality of audit reports. The result was expected as employing technological tools for the audit process would assist in enhancing the credibility and reliability of the audit findings, which consequently led to audit reports with enhanced quality. Furthermore, digital audits could expand the range of items subject to audits (Power, 2022) to enhance the quality aspects of the resulting audit report. Consequently, higher assurance was provided to the interested parties, relevant authorities, and the public. The result is in line with Otia and Bracci (2022), wherein the interviewees highlighted the expected audit outcomes with higher quality after adopting digital audits.

4.2.2 Improving the Efficiency of Audits

The second highest-ranked digital audit benefit perceived by the respondents was improving the efficiency of audits. Generally, efficiency refers to achieving higher output with the available resources (Sundqvist et al., 2014). Employing technologies in the public sector audit, including big data analytics and RPA, enables the audit process to identify irregularities more efficiently and accurately (Huang & Vasaehelyi, 2019), which will ease auditors' workload and enhance the efficiency of the audit work. Kokina and Davenport (2017), Melin and Toezay (2022), and Otia and Bracci (2022) also demonstrated that auditors would be able to comprehend more of the judgmental aspects by reducing the time for the previous audit process, which led to higher audit efficiency. The current result is consistent with Lazarevska et al. (2022) investigating external and internal public sector auditors in North Macedonia and discovering that the auditors highly perceived the automation of routine audit procedures as improving audit work efficiency.

4.2.3 Assisting Auditors in Identifying Material Misstatements

Another top-ranked digital audit benefit was assisting auditors in identifying material misstatements. The technological component in the audit process would assist in pinpointing material misstatements automatically compared to the traditional and manual audit procedures. The red flags could be captured after auditors stipulated the justified limit of indicators in the system. The red flags are useful for the auditors to decide on further investigation. Previous research also revealed that digital tools in auditing potentially facilitated the detection of anomalies or irregularities in financial statements (Cunningham & Stein, 2018; Krahel & Titera, 2015; Lombardi et al., 2015). Similarly, Dagiliene and Kloviene (2019) discovered that external auditors in Lithuania acknowledged that the usage of data analytic tools assisted in identifying irregularities or red flags.

4.2.4 Improving the Quality of the Audit Process

Improving the quality of the audit process was ranked as the fourth digital audit benefit. According to Meuldijk (2020), digital audits provide useful inputs, such as risk levels and areas, challenges, and strategies, instantaneously from the historical data in the engagement files. The information could significantly assist the auditors in conducting audits, which improves the quality of the audit process. Similarly, Appelbaum and Nehmer (2017) and Suffield (2020) emphasised that the technology infused in the audit process is a value-added process, which enhances audit quality. For instance, utilising drones in conducting inventory inspection, counting, and observation would significantly improve the audit work (PwC, 2019).

4.2.5 Improving the Effectiveness of Audits

The fifth top-ranked digital audit benefit perceived by the AGD internal auditors was improving the effectiveness of audits. Prior studies, including Issa et al. (2016) and Otia and Bracci (2022), underscored achieving higher effectiveness through digital audits. Effectiveness in the public sector refers to the achievement of the outcomes from governmental activities and programmes, including higher life quality, improved transparency of public spending, and enhanced accountability of the government to the public. Effectiveness in public sector auditing pertains to the achievement of positive audit outcomes, which include enhancing public trust

in governmental spending of public monetary resources through more reliable audit findings and higher-quality public facilities and services by optimally utilising governmental resources.

4.2.6 Reducing the Need for Human Resources

The last ranked digital audit benefit perceived by the BPAD auditors was reducing the need for human resources. While the time for earlier audit processes is significantly reduced with digital audits, the additional time is crucial for auditors to thoroughly comprehend the initial findings in decision-making areas that require human judgments. Therefore, the need for human resources will not be reduced. Nonetheless, the need for human resources could be reduced by RPA adoption in various tasks (Huang & Vasarhelyi, 2019). Burgess (2016) highlighted that the operational cost of RPA software is approximately one-ninth of employing a human, and robots can operate continuously without pausing. Nevertheless, the focus group discussion revealed that a different division and not the BPAD incorporated RPA, although the AGD implemented RPA:

> "For the time being, at the AGD, we already have RPA, we use RPA for processing unclaimed money. That's already implemented, we have two robots for that purpose." (M4)

Hence, the benefit of reducing the need for human resources was ranked among the lowest by the respondents due to the limited benefit of RPA implementation. Tiberius and Hirth (2019) also concluded that digitisation impacts on auditing are positive, wherein the latest technologies will not replace auditors in the future but instead provide assistance and support.

4.2.7 Increase Public Confidence in Auditors

Increasing public confidence in auditors was ranked second last as the digital audit benefit. The finding was anticipated as BPAD auditors were yet to embark on a full-fledged digital audit. Therefore, the advantage of enhancing public confidence in auditors would not be immediately acquired as the public has yet to observe the positive outcome of digital audit implementation. Another justification for the ranking was owing to the ambiguous AGD image and status revealed in the focus group discussion:

> "…. People questioned why there is an internal audit department in the AGD. People sometimes confuse us as Accountant's General and National Audit Department" (M1)

Nevertheless, the internal audit plays a crucial role in fostering trust between departments and senior management (Ferry, 2022).

4.2.8 Able to Access Auditees' Financial Statements in Real-Time

The third lowest digital audit benefit ranked by BPAD auditors was the ability to access auditees' financial statements in real-time. According to M4, BPAD auditors were inclined to perform continuous audits. Nevertheless, the current system, namely the Audit Command

Language (ACL), could not be integrated with other systems, except for iGFMAS[2], which prohibited the action. Various systems were employed in each ministry, which presented a significant challenge for auditors to monitor real-time ministerial performance:

> "…if Python is successfully integrated, it will add value to the existing ACL." (M4)

Hence, the limitation of the current software employed by the BPAD led to the auditors exploring the usage of Python.

4.3 The BPAD Challenges in Achieving a Full-fledged Digital Audit

Table 3 potrays that BPAD auditors perceive additional education and training for digital skills as the most significant challenge to implementing digital audits. The finding indicated that further training and education were required to proficiently utilise digital audit tools and technologies. High implementation costs, data security risks, and the absence of clear guidelines and standards on digital audit implementation were also significant challenges. Meanwhile, inadequate job opportunities for accounting graduates, political interferences, and lack of management support were regarded as the least challenging. Accordingly, a certain support level was received from the top management in facilitating digital audit implementation, which resulted in BPAD auditors not perceiving management support as a significant challenge.

Table 3: Digital Audit Implementation Challenges

Challenge	N	Mean	Standard Deviation	Rank
Require additional education and training to acquire the necessary digital skills	124	3.80	0.76	1
Require high implementation costs	124	3.64	0.76	2
Risk of data security (leakage) and confidentiality	124	3.59	0.75	3
Lack of guidelines on digital audit implementation	124	3.57	0.71	4
Lack of standards for digital audit implementation	124	3.55	0.73	5
Limited financial resources	124	3.50	0.74	6
Impair the professional judgment of auditors	124	3.44	0.74	7
Fewer accounting graduates hired in the future for audit work	124	3.37	0.72	8
Improper political interferences	124	3.31	0.69	9
Lack of top management support	124	3.19	0.82	10

[2]iGFMAS is the accounting system of the Malaysian Federal Government.

4.3.1 Additional Education and Training for Digital Skills

Digitalisation and technology adoption past business operations, which necessitates high proficiency in speaking and writing the language of technology. The Association of Chartered Certified Accountants (ACCA) in 2016 emphasised the importance of the digital quotient as one of the skills that accountants must develop to remain relevant in the digital era (ACCA, 2020). The transition to digital audit processes requires auditors to develop personal digital skills appropriately, especially the knowledge of applications or tools and techniques to implement digital audits (Otia & Bracci, 2022). The majority of BPAD auditors in this study also recognised that digital audit implementation would entail significant changes to conventional audit processes, including the incorporation of digital or technological tools and data-driven strategies, which necessitates the development of digital skills. Therefore, developing digital skills was perceived as the most significant challenge. The result indicated a certain level of resistance to change (Danielsen, 2021; Otia & Bracci, 2022) or lack of preparedness for the transformation. Acquiring alternative skills frequently requires significant effort in terms of time and dedication. Attending courses and training sessions while simultaneously working on the current tasks could be exhausting. Moreover, changing the existing workflows to a different method could be overwhelming due to multiple adjustments, which could lead to resistance to change. Digitalisation initiatives in Norwegian public organisations led to citizens in the system concerned and being critical owing to increased responsibility and the difficulty of adapting to a completely different system, which resulted in continuing the current approaches (Danielsen, 2021). Otia and Bracci (2022) also discovered that managing traditional and conservative auditors who resisted change was more challenging. Certain organisations implemented additional initiatives to provide intrinsic and extrinsic motivations for auditors to enjoy learning alternative skills (Otia & Bracci, 2022).

4.3.2 High Implementation Costs

High implementation costs in acquiring and implementing necessary technologies were perceived by BPAD auditors as one of the significant barriers to digital audit implementation (Danielsen, 2021). The total cost of ownership (TCO) for a different system could vary depending on company size and expenses on purchasing different software and hardware, providing training, performing installation, and conducting maintenance, which could range from thousands to millions of dollars (Hall & Lutsey, 2019). Significant costs would also be incurred for automated systems, including RPA (Otia & Bracci, 2022). Public organisations are frequently required to manage limited resources and encounter competing demands for project funding, which leads to higher difficulty in prioritising investments in digital initiatives when the current method is cheaper (Danielsen, 2021). A similar concern was raised by the BPAD management team members during the focus group discussion:

> "…it comes down to budget constraints. If we had the budget, everything would be up and running already. We are ready though. But in terms of budgeting, if we want to do it properly, we [will] need around RM1 million…" (M4)

> "…it is not that we do not want to use certain things [technology], but one of our constraints and challenges is, of course, the budget." (M1)

4.3.3 Data Security and Confidentiality Risks

Data security and confidentiality risk was ranked the third digital audit implementation challenge by the BPAD auditors. Governmental data contains sensitive and confidential information, such as personal records and classified financial data, which could pose a threat to data losses during the integration process. For example, 400 different non-integrated systems required rigorous planning to integrate all systems into one digitalised system in a Norwegian public organisation, which led to users being sceptical about data privacy and security (Danielsen, 2021). Any data breach or loss would result in detrimental impacts, including legal implications and financial losses. Additionally, different governmental agencies were not highly prepared for disaster recovery plans (Al-Ruithe et al., 2018). A BPAD management team member highlighted the need to postpone RPA implementation in auditing processes due to security issues related to the cloud database location:

> "…we found many potential areas for RPA. We wanted to integrate RPA in ACL initially. However, RPA within ACL is not as good as using it in the UiPath platform. UiPath is specifically designed for RPA processes. The problem is that it [the data] has to be tagged to the cloud in Singapore [UiPath office]. This means that our data will flow [out of Malaysia], even within one second… that's not allowed…because of security reasons…so, we could not proceed with that [plan]." (M4)

4.3.4 Fewer Accounting Graduates Being Hired in the Future for Audit Work

The lack of job opportunities for accounting graduates was perceived by the BPAD auditors as a less significant challenge, which propounded that accounting skills remain essential despite increasing technological advancements. Ismail et al. (2020) examined the perceived employability skills of accounting graduates and revealed that IT skills were the most preferred skillset by Malaysian employers. Specifically, the ability to utilise spreadsheets and accounting software is vital for accounting graduates. Ebaid (2021) also demonstrated that analytical thinking, communication, and collaboration skills are the most desired skills for accounting graduates. Other empirical findings (Lim et al., 2016; Afolabi, 2014; Kwarteng & Mensah, 2022) discovered that computer or IT skills are the required skills in the execution of accounting tasks. Thus, accounting skills remain essential despite more mundane accounting tasks being automated or digitalised.

4.3.5 Improper Political Interferences

Political interferences occur when political leaders intervene in the decision-making processes of public administration, such as planning, organising, coordinating, reporting, budgeting, allocating, and utilising public funds (Mfuru et al., 2018). The BPAD auditors did not consider improper political interferences as a significant barrier to digital audit implementation, which postulated that the department functions independently without any political influence to perform work responsibilities effectively. Themsen and Skærbæk (2022) also discovered that the decision to terminate the internal audit department in the Danish central government was not attributed to politicians but rather to the input from civil servants.

4.3.6 Lack of Management Support

Top management plays a crucial role in ensuring the success of any change implemented within a business by effectively articulating and properly communicating the vision and strategy to the entire organisation (Otia & Bracci, 2022). The changes frequently involve organisational restructuring, in which effective communication is crucial to address potential concerns or resistance (Hall & Lutsey, 2019). Table 3 illustrates that the BPAD auditors do not consider lack of management support as one of the significant challenges to implementing digital audits, which suggests that the BPAD top management is supportive of implemented changes and initiatives within the organisation. Each BPAD management team member in the focus group discussion was enthusiastic about the digital audit implementation plan:

> "We all, especially BPAD, have been focusing on implementing online auditing since the Movement Control Order (MCO). Even the highest management, Datuk [Dr. Yacob] AG [Accountant General] is looking forward to digital audits." (M1)

> "…we have an ICT Strategic Plan. This plan was developed by the AGD… emphasising digital audit implementation in the BPAD." (M3)

> "…we are exploring Python, but there is no specific model [audit] for it. We have tried asking PwC, Deloitte, and KPMG…we even went to UTM [Universiti Teknologi Malaysia] for that purpose because they have experts there." (M4)

> "…the Accountant General's aspiration for the ACL is not just limited to using the analytic module. If possible, we want to take [adopt] the automation module as well." (M3)

5.0 Implications, Limitations, Suggestions for Future Research, and Conclusion

The present study empirically examines the advantages and challenges of digital audit implementation in the public sector. The study respondents were the BPAD auditors of the AGD. The perceived digital audit advantages included enhancing the quality, efficiency,

and effectiveness of audit work processes and outputs or outcomes. The challenges faced were the lack of financial resources and expertise and data security and confidentiality risks, which required a strategic approach to ensure the success of digital audit implementation. An explicit strategic plan and initiatives are recommended for digital audit implementation to be included in the ICT Strategic Plan of the AGD to ensure the strategies are aligned. Furthermore, the strategic initiatives on BPAD digital audit implementation should not only be accessible within the division but also among other AGD divisions and other governmental auditing entities, including the NAD and internal audit divisions of other government agencies and departments. The initiatives could encourage synergetic collaborations between government entities responsible for auditing in terms of expertise and technology usage.

Various parties involved in public sector digital audit implementation play unique roles in ensuring smooth and successful implementation. The AGD and BPAD top management should also formulate the optimal digital audit implementation strategies, restructure the organisation to suit the digital and technological environment, transform the work processes to increase the acceptance level, create the appropriate digital culture in the organisation, incorporate necessary technologies to fully support the digital audit work, and provide sufficient monetary allocation to support the digital transformation and progress. A new position, namely the Chief Digital Audit Officer (CDAO) or Chief Information Officer (CIO), could be created to lead the digital audit implementation agenda. The CDA or CIO must be a leader with sufficient audit knowledge and expertise to drive digital transformation by overseeing the implementation of digital technologies, employing the latest technologies and data, and transforming the organisational culture and work processes. Procuring more advanced tools, such as Python, is also pivotal. Currently, the BPAD utilises the ACL to perform analytics with data extracted from iGFMAS. Python is integral as the software could extract data other than from iGFMAS and allow the audit team to perform extensive statistical and advanced data manipulation to identify data anomalies, patterns, and trends.

Specific IT expertise is crucial among the BPAD auditors, such as the knowledge and skills to use audit software and advanced technological and analytical tools, apart from the knowledge and skills related to AI and machine learning (ML). Empowering BPAD staff with essential skills is fundamental to higher productivity and efficiency in adapting to digital transformation. Regular training and workshops related to IT or digital audits should be regularly provided to the staff internally or externally. Knowledge sharing and training by the trainers or during the workshops will encourage the immediate application of knowledge and skills acquired from the training sessions or workshops.

Meanwhile, the present study contains several limitations. This study only focused on digital audit implementation in the BPAD of the AGD. The NAD is also the primary entity responsible for auditing all other public sector entities. Including NAD auditors to understand the current digital audit implementation status is equally vital for future research. Moreover, future studies could compare the two entities on various implementation aspects to identify the potential collaboration to accelerate digital transformation and digital audit advancement.

Digital auditing is relatively less widespread in the public sector, especially in developing countries. Hence, more research is required to scrutinise the current implementation state. Future research could appraise the readiness of developing countries for digital auditing by considering the resource-constrained environment in terms of financial or human skills. Future research could also conduct a comparative analysis of digital auditing frameworks comprising technologies, regulations, and human and financial resources implemented in developed countries and the applicability level in developing countries. Simultaneously,

evaluating data security and privacy concerns in data sharing, which is the core of digital auditing, would be a valuable avenue for future research.

In conclusion, the Malaysian government demonstrated a commitment to digital transformation, namely digital audit implementation, via various initiatives and support. Revealing the advantages while mitigating the challenges with practical solutions will assist in advancing digital audit implementation in Malaysia.

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Challenges in Constructing a Commercial Public Sector Entity Definition Framework in Malaysia

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Abstract

Purpose: This study aims to examine the challenges in constructing a commercial public sector entity definition framework in Malaysia.

Design/ Methodology/ Approach: This study employed a qualitative methodology, specifically utilising interviews as the primary data collection method. The participants in this study were individuals affiliated with public sector organisations in Malaysia. A total of 23 individuals were involved in this study.

Findings: This study identified ten primary challenges surrounding the construction of a commercial public sector entity definition framework in Malaysia. The ten issues comprise the legal identity of an entity, controlling party, internationally recognised accounting standards for private companies, the future of Malaysian Public Sector Accounting Standards (MPSAS), threshold setting in categorising entities, guidelines on the application of accounting standards, profit distribution of entities, Malaysian Accounting Standard Board (MASB) mandate, government funding, and establishment. These ten issues were evaluated to determine the definition of a commercial public sector entity (CPSE).

This article is part of a research on Constructing a Common Definition for Commercial Public Sector Entities in Malaysia, supported by the Accountant General's Department of Malaysia through *Geran Penyelidikan Perakaunan dan Kewangan Sektor Awam Tahun 2023* (JANM.IPNCPD.100-3/3/2 Jld.6 (70)).

Research Limitations/ Implications: The implications of the study's results highlight that it is necessary to assess these issues prior to developing the framework for defining commercial public sector firms. This assessment is crucial to guarantee that the framework aligns appropriately with the scope of public sector entities in Malaysia.

Practical Implications: The implications of the study's results suggest the potential for developing a framework for defining commercial public sector entities within Malaysia.

Originality/ Value: This study is the first attempt towards constructing a commercial public sector entity definition framework in Malaysia.

Keywords: Commercial public sector entity, definition, framework, public corporation, Malaysia.

1.0 Introduction

One of the key objectives of the Government Transformation Programme (GTP) is to strengthen the commercial orientation of government agencies (Jabatan Perdana Menteri, 2010). The initiative was implemented in 2009 with the objective of attaining measurable improvements in seven National Key Results Areas (NKRAs): crime, corruption, education, urban transit, poverty, rural infrastructure, and cost of living (Siddiquee, 2019). The programme aligns with the observation that governments worldwide are increasingly adopting commercial practices, leading to the creation of CPSE as significant catalysts for transformation (Xavier et al., 2016). This technique is recommended due to the numerous opportunities it presents for achieving high performance despite potential hurdles.

Commercialising public sector entities presents numerous challenges. One such challenge is the absence of a clear definition for a CPSE, not only in Malaysia but globally. As per the MPSAS, the CPSE, as presently in existence, is plausibly analogous to a "government business entity" (GBE). While the International Public Sector Accounting Standards Board (IPSASB) has provided a definition for GBE, it is excessively general in scope. Due to various GBE-related concerns, the IPSASB has decided to discontinue further debate on the issues and disregard its definition. The definition of GBE stipulates that the entity in question must possess the legal capacity to enter into contracts in its own name. This requirement is designed to demonstrate the autonomy of the entity. Nevertheless, in certain jurisdictions where government ministers are legally required to sign all contracts with public sector entities, meeting this requirement has proven challenging. The jurisdiction in which public sector entities are not authorised to enter into contracts may vary. Despite having explicit commercial objectives and a consistent history of attaining profit targets, a GBE is defined as an entity that meets these conditions. The formulation of the CPSE definition is anticipated to present comparable difficulties. There have been discussions regarding whether a GBE-eligible entity should be disqualified from classification solely, as all contracts must be signed by a

government minister, as mandated by law. Comparable obstacles are expected to emerge during the process of defining a CPSE.

Another challenge is that the organisation must have been granted the financial and operational autonomy to carry out commercial activities to qualify as a GBE. Although all GBEs possess a degree of operational and financial autonomy, the governance and autonomy of GBEs vary according to the arrangements in place in each jurisdiction. Certain GBEs function within rigorous financial and performance limitations established by the government during their establishment, which are subjected to periodic evaluations. In contrast, some entities enjoy a higher degree of autonomy in their operations. When a government takes over a financially troubled business, it typically establishes objectives and reporting lines for the entity. Other government-owned enterprises may be subject to the decisions of government-appointed regulators to examine issues such as service standards and pricing independently. Hence, when developing the definition of CPSE, it is imperative to carefully consider and make informed decisions regarding the level of autonomy that ought to be granted to the entity, and determining the appropriate governance framework it should follow.

Additionally, an organisation must not depend on government funding to sustain its operations to qualify as a GBE. The IPSASB has highlighted the ambiguity in the definition of "continuing government funding", suggesting that the application of this criterion varies among jurisdictions. Certain jurisdictions permit the government to provide guarantees to resource providers or concessionary loans to entities to facilitate fund acquisition for investment or working capital by a controlled entity. Additional sources of government funding comprise periodic loans for the acquisition of assets and/or expansion of the entity's scope of operations, in addition to loans or equity infusions for initial financing. Entities that do not acquire direct operational subsidies may be forced to rely on such continuous financing. Hence, when constructing the definition of CPSE, one must consider the limits of government funding. Therefore, this study aims to examine the challenges in constructing a commercial public sector entity definition framework in Malaysia. The study's findings are anticipated to provide some understanding of the challenges in constructing the CPSE definition in Malaysia. The remainder of this study is structured as follows: A literature review relevant to this study is in the next section. Subsequently, the research methodology is explained, followed by the study's findings. The final section concludes this study.

2.0 Literature Review

2.1 Public Sector Entities in Malaysia

The Malaysian public sector is of paramount importance in driving the nation's pursuit towards global competitiveness. This pursuit is achieved through the facilitation of the efficient and effective execution of governmental programmes (Nik Abd Rahman, 2006). The public sector comprises the economy segment encompassing public services and companies. The public sector also encompasses a range of entities that provide public goods and offer governmental services, including but not limited to law enforcement, infrastructure development, public

transportation, public education, and individuals employed by the government. Public companies are commercial organisations that function by depending on a self-financing basis and are owned by the public. These entities offer a variety of private products and services for sale, often operating within a commercial framework (Flynn, 2007). Public sector organisations refer to permanent or semi-permanent bodies within the governmental structure that are responsible for overseeing and administering certain duties, such as the planning agency (Njoki, 2011).

Public sector entities can be categorised into four distinct groups: entities falling under the jurisdiction of the Federal Government and Ministries, entities falling under the jurisdiction of the State and Departments, and public corporations, which can be further subdivided into entities established under statutory laws and entities established under non-statutory laws (Department of Statistics Malaysia, 2022). Table 1 displays the five different features associated with each category, including the source of power, the party accountable for governance, governance practises, annual reporting, and accounting requirements, and the auditor.

New Public Management (NPM) has been linked to public sector reform and modernisation in the Organisation for Economic Co-operation and Development (OECD) and developing nations since the 1980s (Mongkol, 2011; Siddique, 2019). Since its adoption in Western liberal democracies, NPM has driven public sector reforms, including several notable public sector changes globally (Islam, 2015). The initiative aims to align financially constrained and inefficient public sector organisations with entrepreneurial concepts and methodologies, thereby enabling the private sector to assume a greater share of government obligations and services (Hope, 2001). Public-sector organisations should be more integrated into business management practices, with Malaysia typically leading emerging nations in public service improvement. The NPM approach suggests major modifications to the bureaucracy's structure and functioning, potentially leading to public sector commercialisation (Siddique, 2019). In addition, corporate governance is promoted by NPM in public sector organisations. By increasing the participation of the private sector in government services, NPM seeks to enhance cash-strapped, inefficient businesses (Savoie, 2008). Based on the principles of managerialism and public choice theory, NPM argues that the ineffectiveness of public sector bureaucracy necessitates the implementation of private-sector remedies (Hughes, 2012). Due to the massive and inefficient public sector bureaucracy, private sector ideals, management approaches, market mechanisms, and competitive procedures are employed to supply public services (Hughes, 2012). The approach aims to instil public organisations and their staff with a more business- or consumer-oriented market vision (Diefenbach, 2009).

Commercialisation in the public sector entails delineating the offer or product, establishing the public need objectively on the basis of firm evidence, marketing to identify the demand for the new product or service, and establishing an operating environment that maximises the return per pound invested. These elements are critical to building a new revenue stream successfully. In order to sustain a competitive market position, the delivery of public services

must have a greater degree of regularity and consistency in its "commercial" nature. Each organisation must build the necessary systems, competencies, skills, and routines to achieve such a state (Creswell, 2020). Special restrictions apply to the commercialisation of public administration, especially for government business entities (GBEs), which aim to preserve the existing state of affairs. Currently, GBEs are defined by standard setters as government organisations with a separate entity and primary function. Therefore, GBEs sell products or services to private individuals and non-governmental organisations. On the other hand, state-owned enterprises (SOEs) are organisations that the government has created with the intention of undertaking commercial business on its behalf. The GBEs are autonomous companies equipped with the operational and financial means to distribute goods to non-governmental organisations and individuals.

Table 1: Types and Characteristics of Malaysian Public Sector Entities[1]

Category	Federal Government and Ministries	State Government and Departments	Public Corporations	
			Federal Statutory Bodies	Non-Statutory Entities
Source of power	Federal constitution and special laws	State body laws and specific enactments	Special Act (e.g. FELDA - *Akta Pembangunan Tanah 1956 [Akta 474] & MARA - Akta Majlis Amanah Rakyat 1966 [Akta 489])*	Companies Act 2016
The party responsible for governance	Prime Minister	Chief Minister	As provided by law	Board of Directors
Governance	Ministry of Finance	Ministry of Finance	Ministry of Finance and Establishment Act	Companies Act 2016 and Corporate Governance Code
Annual reporting and accounting standards	*Perlembagaan Persekutuan dan Akta Tatacara Kewangan [Akta 61]*	*Perlembagaan Persekutuan dan Akta Tatacara Kewangan [Akta 61]*	Special Act (e.g. FELDA - *Akta Pembangunan Tanah 1956 [Akta 474] & MARA - Akta Majlis Amanah Rakyat 1966 [Akta 489])*	Companies Act 2016 and Corporate Governance Code
Auditor	National Audit Department	National Audit Department	National Audit Department	National Audit Department or Independent Auditor
Example	MAMPU, JPA, EPU, Federal Treasury	MAIS, JCORP, MBSA	FELDA, KEMAS, SIRIM, MARA	MAS, FIMA, HICOM, PERNAS

[1]Source: Department of Statistics Malaysia. (2022). Note: Statutory entities refer to entities formed under an act or statute of parliament or state legislative assembly, but this does not include a local authority or a corporate body that is incorporated under the Companies Act 2016 (https://www.mof.gov.my/portal/pdf/bahagian/sbm/faq-en.pdf).

2.2 Government Business Entity

In accordance with Accounting 101: Financial Reporting Frameworks in MPSAS, Malaysia has embraced the IPSASB-established definitions of GBE. The IPSASB defines GBEs as entities possessing each of the subsequent characteristics (IPSASB, 2014; IPSASB, 2016):

i. An entity with the power to contract in its own name.
ii. Has been assigned the financial and operational authority to carry on a business.
iii. Sells goods and services to other entities at a profit or full cost recovery in the normal course of business.
iv. Is not reliant on continuing government funding to be a going concern (other than purchases of outputs at arm's length).
v. Controlled by a public sector entity.

Two key approaches to IPSASB's policy on public sector firms developing GBE accounting standards have been examined:

i. The first approach relates to describing characteristics of public sector entities. The GBE definition is not provided in this approach. However, there are two options within this approach. Option 1a is IPSASB's existing and upcoming terminology, or Option 1b that involves the use reporting requirements and explanatory advice from Government Finance Statistics (GFS).
ii. The second approach is modifying the current definition of a GBE in IPSAS 1 with the intention to resolve problem in its application. There are two options in this approach. Option 2a relates to clarifying the current GBE definition and Option 2b involves narrowing the existing GBE definition. Option 2a and 2b need not be exclusive. Option 2a and 2b might clarify and restrict the GBE concept (IPSAB, 2016). Both methods led to various issues. Thus, the IPSASB decided to stop discussing GBE and allow nations to argue and define it based on their own beliefs and CPSE. These traits arise from the original GBE definition. Therefore, instead of GBE, IPSAS is used.

Nevertheless, IPSAS mentions only "public sector entities" and defines a public-sector entity as meeting all of the following criteria:

i. It is the responsibility of public sector entities to provide services that benefit the general public and/ or to redistribute wealth and income.
ii. The organisation derives the majority of its direct and indirect funding from fees, taxes, remittances from other levels of government, social contributions, and debt.
iii. Its principal objective is not to generate profits.

In conclusion, to date, there is still no definition of CPSE in the Malaysian context. A potential application of the definition of CPSE could involve the classification of GBEs.

2.3 Construct Definition

Gilliam and Voss (2013) suggested six-step phases for defining latent constructs. The first phase is to compose a preliminary definition. The more abstract the concept, the more indirect the mode of observation necessary to "see" it (Achinstein, 1968). Specific instances are located at the bottom of the ladder. The first step of the ladder contains the abstracted impressions of the world. As higher rungs generalise to bigger sets of situations, each rung becomes less particular (Zaltman et al., 1973). With each rung, the concept's reach broadens, making the precision of definition and the accuracy of measurement more challenging. This issue emerges due to the fact that the human capacity to generate correspondence rules, which describe links between constructs and observable terms, is affected by the amount of abstraction, with higher levels of abstraction posing more challenges (Ryan & O'Shaughnessy, 1980). In this phase, construct definitions and measurements should be carefully matched to the study's objective, with knowledge of the consequences.

In the second phase, a literature assessment and the construction of the nomological network are conducted. Cronbach and Meehl (1955) posited that the "implicit definition" of constructions is determined by their position within the nomological network. "We will be able to say 'what anxiety is' once we have discovered all of the laws involving it; in the meantime, because we are still discovering these laws, we do not yet know precisely what anxiety is" (Cronbach & Meehl, 1955, p. 294). The approach addresses the discrepancy between the mandatory nominal definitions and the theory's implicit definitions by mandating a review of the definition within the intended nomological network. The researcher conducts a literature review in phase two to expand the search to identify the most suitable nomological network. Literature from all subfields and disciplines containing pertinent concepts must be reviewed.

Phase three entails evaluating the value contributed since constructs should be developed in relation to current concepts (MacKenzie, 2003). Lewis (1970) raised several pertinent concerns, as listed below:

i. What is the history of the phrases, and what is their present widespread meaning among language users?
ii. What happens to rejected theories?
ii. How many little changes are enough to warrant redefinition?
iv. Do we reframe in terms of the old or the new theory?

Lewis (1970) did not offer solutions, but researchers should be mindful of the possible issues of definition or redefinition and apply judgment that demonstrates concern for the field as a whole rather than simply the project at hand. Phase three requires the researcher to examine the literature on diverse subjects through the eyes of a critic rather than an inventor.

The definition is refined in phase four. In order to establish a sound construct definition, ambiguity and vagueness must be eliminated (Bunge, 1967). Hempel (1952) posited that definitional ambiguity and vagueness arise from the absence of clear delineation of word meanings and the inconsistency of meaning among individuals. According to philosophical scholars, complete elimination of ambiguity and vagueness is unattainable. Nevertheless, concerted efforts to mitigate them yield significant benefits (Van Deemter, 2010). An ambiguity occurs when the definition fails to limit itself to a single concept, for instance, when elements of other concepts are inadvertently incorporated, typically due to inadequate phrase selection (Teas & Palan, 1997). It is essential to select precise phrases to minimise uncertainty. A reduction in the number of words that are repeated in definitions of similar constructions leads to a decrease in ambiguity, suggesting that the description ought to be as unique as possible (Wacker, 2004).

The subsequent stage, phase five, entailed a procedure of expert evaluation. The researcher attempts to establish validity in this phase by demonstrating that the items are comprehensible to domain experts. Hardesty and Bearden (2004, p. 106) examined the effects of expert item judging in an experiment. They concluded, "Notably, the current findings support the crucial ability of expert judges to improve eventual scale reliability and, by extension, subsequent validity." The involvement of specialists from the field or industry of research methodology may be highly pertinent, contingent upon the construct being examined (Diamantopoulos, 2005). The nomological network map, the proposed construct, its proposed definition, and definitions for all included constructions with pertinent citations must be provided to peer reviewers. In evaluating the proposed concept and its definition, evaluators must juxtapose them with the most analogous constructs within the network.

The final phase, which is phase six, consists of revising the definition and iterating over the following: Two decision obstacles are presented in phase six regarding the proposed construct, subsequent to the integration of information obtained from domain experts in phase five. The first obstacle concerns whether further refinement could improve the construct's lucidity, explanatory capacity, or predictive power. Subsequently, in this scenario, the procedure should be replicated by commencing at phase two and progressively reducing it to phase six. Consequently, an audit is conducted on the revised construct definition to determine whether the alterations implemented in the suggested construct have increased its resemblance to previously acknowledged pertinent constructions or currently bear a resemblance to any other established constructs (Mowen & Voss, 2008).

3.0 Research Instrument

3.1 Participants

This study involved obtaining an understanding of the issues surrounding the definition of CPSE from the perspective of various public sector entities. In this study, a total of 23 participants from public entities were approached to request their participation. Entities of both statutory and non-statutory bodies were selected, as they are more likely to either qualify or

not qualify as CPSEs. This selection is in contrast to federal government ministries and state government departments, which are confirmed as ineligible CPSEs due to their establishment under Act 240. Table 2 presents the details of the representatives of the chosen public sector entities who agreed to be interviewed, as they are involved with the preparation of the financial report for the entities.

Table 2: Malaysian Public Corporation Participation

Entity	Acronym	Governing Entity	Governing Law
Malaysia Institute of Accountants	MIA	Ministry of Finance	Accountants Act 1967
Malaysian Accounting Standard Board	MASB	Ministry of Finance	Financial Reporting Act 1997
Suruhanjaya Syarikat Malaysia	SSM	Ministry of Domestic Trade and Consumer Affairs	Companies Commission of Malaysia Act 2001
Malaysian Qualifications Agency	MQA	Ministry of Higher Education	Malaysian Qualifications Act 2007
Johor Corporation	JCorp	Johor State Government	Johor State Development Corporation Enactment 1968
Rubber Industry Smallholders Development Authority	RISDA	Ministry of Rural and Regional Development	RISDA Act 1972
Majlis Amanah Rakyat	MARA	Ministry of Rural and Regional Development	Majlis Amanah Rakyat Act 1966
Lembaga Kemajuan Kelantan Selatan	KESEDAR	Minister of Rural and Regional Development	Kelantan State Development Corporation Enactment 1978
Malaysian Palm Oil Board	MPOB	Ministry of Plantation Industries and Commodities	Malaysian Palm Oil Board Act 1998
Perbadanan Kemajuan Negeri, Negeri Sembilan	PKNNS	Negeri Sembilan State Government	Negeri Sembilan State Development Corporation Act 1969

3.2 Data Collection

This study involved interviews with participants from selected entities in public corporations to represent the population. The participants who agreed to participate in this study are considered to represent the entities to which they belong. The participants were approached through telephone and email, inviting them to participate in this study. The interviews were conducted either in their offices or online. The aim of this interview was to obtain an in-depth understanding of the issues surrounding GBE and CPSE. An effective qualitative methodology incorporating semi-structured interviews permits a more personalised dialogue, specifically concerning matters pertaining to GBE and CPSE (Creswell & Poth, 2016). In addition, the interviews allowed the researchers to identify potential characteristics of a CPSE.

Prior to conducting the interview, the researcher prepared a set of semi-structured questions to address and achieve the objectives of the current study. The questions asked during the interview sessions were tailored based on different respondent functions, reflecting the diverse roles of participants across various government sectors, including the federal government and ministries, state government departments, and public corporations.

In addition, triangulation is a strategy used to enhance the validity and reliability of data in qualitative research. It involves verifying evidence from multiple respondent sources and perspectives. Reliability can be achieved by matching the data to the definition and description of each theme to ensure that it matches the operational definition. In connection with this study, data collection was undertaken until accuracy was achieved. Accuracy is achieved when there is no longer a different response from the respondents and the data is saturated.

Table 3: Number of Participants

Organisation	Date	Officer	Designation	N
MQA	29 March 2023	Miss A, B, C	Accountant	3
RISDA	13 April 2023	Miss D, E, F, G, H, and Mr. A, B, and C	Finance Officer	8
SSM	12 April 2023	Mr. D	Senior Manager	1
MIA	13 April 2023	Miss I	Director	1
MASB	14 April 2023	Miss J	Assistant Associate Director	1
KESEDAR	9 May 2023	Miss K	Accountant	1
JCorp	5 April 2023	Miss L	General Manager	1
MARA	17 April 2023	Mr. E, F, and G	Deputy Director/ Accountant	3
MPOB	11 May 2022	Miss M and Miss N	Accountant	2
PKNNS	7 June 2022	Mr. H and I	Accountant	2
			Total	**23**

Table 3 presents the details of participants involved in the study. The number of participants is considered sufficient as the responses of the 23 participants from various public entities are almost consistent, indicating that the data is saturated. This strategy aligns with Creswell and Poth's (2016) suggestion that when a qualitative researcher conducts a study, evidence saturation marks a point where further data collection may not yield significant new insights. In order to reduce bias, interviews were conducted by two researchers. Hence, the presence of two researchers limits bias in terms of the interpretation of the findings.

3.3 Data Analysis

Data analysis for this finding begins with providing transcription and encoding, reducing data to the theme through a coding process and presenting the data in the discussion section. As suggested by Miles et al. (2019), the data analysis comprises data preparation and analysis. The data preparation is based on Miles et al. (2019), which begins with raw data processing before the data is available for analysis. Field notes must be converted to expanded writing, either printed directly or transcribed from the original. Subsequently, the coding begins with the first cycle of coding, followed by pattern coding, and is published with a more general theme.

After the transcription, the coding process is undertaken based on the definition proposed in this study (Refer to Table 4). It continues with the reduction of data to a meaningful segment with a given name. Subsequently, the code is merged into a larger category or theme. In addition, the coding process contributes to an in-depth reflection of the data and, thus, analysis and interpretation of the meaning of data (Miles et al., 2019). This study began with the first coding cycle, initially summarising the data segments and using descriptive coding. Descriptive coding comprises labels given to data to summarise using short words or phrases. Coding is undertaken continuously after each interview, and transcription is completely analysed.

Subsequently, the second cycle of coding, pattern coding, is employed to condense the data into a smaller number of themes. Pattern coding involves creating descriptive or inferential codes that identify themes based on the coding established in the operational definitions provided in Table 4, which have been developed according to Companies Act 2016, the Financial Reporting Act (FRA) 1997, the Act 240 Statutory Bodies (Accounts and Annual Reports) Act 1980, Improvements to MPSASs 2023 (Accountant General's Department of Malaysia, 2023), MPSAS 1: Presentation of Financial Statements (Accountant General's Department of Malaysia, 2013), MPSAS 24: Presentation of Budget Information in Financial Statements (Accountant General's Department of Malaysia, 2013), and the Handbook of International Public Sector Accounting Pronouncement (IPSASB, 2022).

Table 4: Identified Themes and Operational Definition

No.	Theme	Operational Definition
1.	The legal identity of the entity	The legislation associated with the incorporation of an entity. For example, private companies are incorporated under the Companies Act (CA) 2016.
2.	Controlling Party	The party that controls the operational decisions of an entity through the holding of ordinary shares of an entity.
3.	Internationally recognised accounting standards for private companies	The need to use globally accepted accounting standards for private companies that meet the information needs of investors.
4.	Future of MPSAS	The development of the MPSAS will align with the Malaysian Financial Reporting Standards (MFRS) in the future, with some conditions that will remain permanently different due to the unique treatment of public sector entities.
5.	Threshold setting in categorising entity	The need to use some important thresholds in determining the type of entity, whether public sector or CPSE.

Table 4: Identified Themes and Operational Definition (continued)

No.	Theme	Operational Definition
6.	Guidelines on the application of accounting standards	The need to establish a committee under Jabatan Akauntan Negara Malaysia (JANM) responsible for evaluating and developing guidance on the application of appropriate accounting standards for government entities and their subsidiaries.
7.	Profit distribution of entity	Government entities that pay dividends or other types of returns to shareholders.
8.	Mandate of MASB under the law.	The purpose of establishing the MASB in accordance with the relevant laws based on the FRA 1997.
9.	Government funding	Financial resources provided by a government entity.
10.	Purpose of establishment	The purpose of why an entity is established.

As indicated in Figure 1, each opinion statement was written in Microsoft Word and sent to ATLAS.ti for code-based analysis. The coding technique was based on the operational definition. The coding trend was subsequently used to generate ten key themes. Figure 1 depicts the ATLAS.ti application used for data analysis in the code manager.

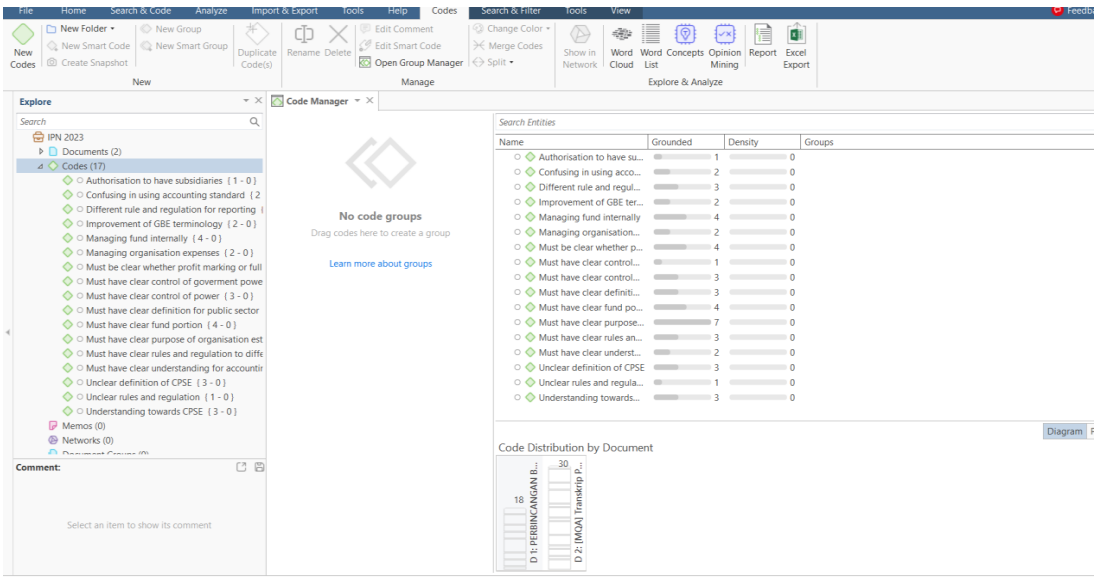

Figure 1: Example of ATLAS.ti Coding Process

4.0 Findings

From analysing the interviews, ten themes related to issues in constructing the CPSE emerged. The ten issues that need to be considered are the legal identity of the entity, the controlling party, internationally recognised accounting standards for private companies, the future of MPSAS, the threshold in categorising an entity, guidelines in the application of accounting

standards, profit distribution, the mandate of MASB under the law, government funding, and the purpose of establishment.

4.1 Legal Entity

One of the issues that has been dominantly discussed during the interviews with the respondents is the legal identity of the entity. In this study, the legal entity refers to the legislation associated with the incorporation of an entity. For example, private companies are incorporated under the CA 2016. In determining whether an entity should be classified as a CPSE or non-CPSE, it should look into the legal identity of the entity. If the entity's legal identity is established under the CA 2016 or the FRA 1997, the entity should be classified as a CPSE and apply the Malaysian Financial Reporting Standards (MFRS). Conversely, if the entity is founded on regulations outside the purview of the CA 2016 or the FRA 1967, it should not qualify as a CPSE. In view of this difference, MASB is established under FRA 1997 instead of the Statutory Body Act 240. Hence, the JANM has no authority to govern and direct MASB to use MPSAS since MASB is subject to the requirements of FRA 1997. This statement aligns with the view of one of the participants, Miss J:

> I think at the point when we first started our International Financial Reporting Standards (IFRS) journey, MPSAS was not yet born. MPSAS came in very much later during this stage, so of course, at that time, the applicable accounting standards were MFRS. So fast forward to now, and why we are still applying the MFRS is because, if we look at the legislation so well, we have the circular or the government directive for the public sector to apply emphasis or an encouraging basis. They are not saying it is mandatory, but the approach is to look at the source of power, right? What is the source of power for a regulator? in this case, JANM, to mandate the application of MPSAS to all of the public sector? So, in all the discussions that we have with JANM, informally or formally, I think the approach is always to look back into the identity of the entity. [translated]

Miss J provides further explanation:

> So, like MASB, we are established under the FRA 1967, and the FRA 1967 has a clear scope exclusion that says that Akta Badan Berkanun's Act 240 does not apply to it. So I think that is one of the key criteria in determining, and we are not the only ones; there are a few other federal statutory bodies that apply MFRS, and that is basically the justification or the decision behind it, like, if we go back to the legislation, what is the legal identity, what is the identity of an entity, and whether it is clear in the act that the entity is corporate or incorporated as to what would be the financial reporting framework that is applicable. [translated]

Public sector entities commonly have subsidiaries. Some of the subsidiaries are acquired through shareholdings, while others are established by the entities. The participants were queried about the classification of subsidiaries of the public entity, including whether these subsidiaries were established with the intention of generating profit or providing public services. This study posits that although the parent company may follow different accounting standards, determining the applicable standards for the subsidiary depends on its own legal identity. If the subsidiary is a company incorporated under the Companies Act, the appropriate accounting standards, such as Malaysian Private Entities Reporting Standards (MPERS) or MFRS, should be applied. Miss J responded to this issue:

> Well, the subsidiary may not be a public sector entity, in my personal view. Well, overall, if you are looking at a broader picture, yes, they are there to support the parent, and the parent here, RISDA or Federal Land Development Authority (FELDA), is ultimately a public sector entity, but I think we also need to apply the principle, I would say, at the level of the entity, so now we are talking about entity-specific accounting standards and what would be the applicable accounting standards for that particular entity. Of course, the parent will eventually consolidate it, and the parent may use a different set of accounting standards, but in order to determine the subsidiary level, we must consider what the subsidiary's actual activity is. In that case, I believe the question is: Is the subsidiary a business that has been incorporated under the Companies Act? If it is, then clearly the accounting standards that should be applied to them must be MPERS or MFRS, depending on the legal identity of the entity. [translated]

This study reveals that some public sector entities were established under CA 2016, indicating that the legal identity of these entities does not fall under the definition of the federation of the statutory bodies. As per the provisions outlined in Act 240, a statutory body is any entity, regardless of its name, which is incorporated in accordance with federal law and functions as a public authority or an agency of the Government of Malaysia. This definition excludes local authorities and body corporates incorporated under the CA 1965. A federal statutory body is a distinct legal entity, comparable to a corporation, with the authority to administer, sue, and be sued in its own name, execute contracts, and own, purchase, and retain assets. In the case of one entity, the interviewee explained that her entity is formed under the CA 2016 and, therefore, is not considered a statutory body. Miss F explained:

> RISDA has 15 subsidiaries established under the CA 2016 to assist RISDA operations, such as RISDA Fertiliser, which processes fertilisers. Due to that, the subsidiaries must use MASB accounting standards. [translated]

4.2 Controlling Party

The second theme that has emerged is controlling parties. In this study, the controlling party refers to the party that controls the operational decisions of an entity through the holding of

ordinary shares of the entity. The participants were asked whether a public sector entity should be classified as a CPSE if it is a fully government-controlled entity. This question arose in response to IPSAS, which has withdrawn the definition of GBE and delegated it to each jurisdiction to provide the definition of CPSE, which replaced GBE, for the purpose of applying appropriate accounting standards. In response, this study discovered that most of the participants agreed that the entities that are classified as CPSE may, but need not be controlled by the public sector entities. Miss J provided her opinion as follows:

> I think, first and foremost, that IPSAS no longer provides a definition of what would constitute a GBE or CPSE, the current term. And I think the reason for that is because they are catering to the world, and it's unlikely for them to basically come up with a rule for each jurisdiction, so it is then up to the jurisdictions to determine the right. So here we are determining what CPSE is for the context of Malaysia, but I think it is also made clear in the MPSAS that if you are not a public sector entity, then this is not applicable to you. So, if we are looking at that route and we are just following back in terms of what's stated in the MPSAS, which is very clearly stated that if you are a public sector entity and here are the criteria of a public sector entity and you need to apply MPSAS, if you are not, then it's basically you're out. So, once you are out, what would be the next applicable approval grounding standard in Malaysia? There's MPSAS, of course, which you can apply to on a voluntary basis, and there's also a MASB-approved accounting standard. So, I think that's also an approach that maybe the researcher can consider looking into. So, coming back to question two, we don't think that it needs to be a fully controlled government entity for an entity to be a CPSE because then it kind of blurs the line between what is really a public sector versus a CPSE if a CPSE also needs to be fully controlled by the government. [translated]

Another notable finding from this study is that there are few public sector entities contending that they can be classified as CPSEs due to their accountability to shareholders. Miss L noted that:

> We are accountable to our shareholders. At the holding, shareholders are the State Government of Johor, which has one special share, and *Menteri Besar* is the chairman of JCorp. From our subsidiaries, we have shareholders since the companies are all public listed companies. [translated]

This view is further supported by Miss I, who presented a compelling argument that, despite the majority of council member positions being held by representatives from public sector entities, the ultimate authority for major decisions still lay with the President, who was appointed by the oversight committee. She further clarified this statement by stating the following:

> That is, the control is not really there; it's just that we do report to the Ministry of Finance (MOF). Financial statements are all filed with MOF. The appointment of the CEO is not under the MOF, only the appointment of council members. We have 30 council members. Twenty are appointed by MOF. Then, ten will be elected when we have the AGM. So yes, in a way, maybe we are controlled. Actually, if we look at the definition of control in MRFS 10, perhaps we are being controlled by MOF. The CEO is not the MOF appointee. The President is appointed through voting by the council members themselves. The CEO is appointed by the oversight committee of the MIA. This oversight committee is appointed among the council members. [translated]

4.3 Internationally Recognised Accounting Standards for Private Entities

During the interview sessions, internationally recognised accounting standards for private entities were also mentioned multiple times. This theme refers to the necessity for private companies to utilise internationally recognised accounting standards that satisfy the information requirements of investors. Consolidation and reporting are two critical components of financial accounting and reporting. They entail the procedures through which financial data for an organisation or a group of organisations is organised and communicated meaningfully. In this process, the financial statements of multiple entities under common control are consolidated to present the financial position, performance, and cash flows of the group as if it were a single economic entity. When a business has subsidiaries, partners, or joint ventures, consolidation is required to provide a unified view of the group's financial activities, subject to the regulations of the applicable jurisdiction.

The participants were asked about their opinions with regard to the necessity for the legislation to be changed to ensure that the subsidiaries adopt the same accounting standard, which is MPSAS, as the parent company. Several participants mentioned that there would definitely be potential challenges and implications from applying different accounting standards to subsidiaries of public sector entities due to the fact that the current reporting ecosystem for private entities seems to be more advanced, effective, and internationally recognised. In addition, a few of the participants also agreed that similar to foreign investors, they would be more appreciative of the consistency in accounting standards, which can facilitate understanding and harmonisation of financial reporting. Miss L explained:

> JCorp is established under the Corporations Act. The rest of the companies (approximately 250) were established under the CA and registered with SSM. So, we decided to use only MFRS, including for JCorp, for two reasons. First, we have public listed companies and private companies (established under the CA) in our group, which are required by the Act, Bursa Malaysia, and the Securities Commission (SC) to use MFRS. So, it is better for us to use only one accounting framework, MFRS, including JCorp. Secondly, JCorp issues Sukuk to commercial banks and becomes an entity that has public interest (banks). Once the entity has a public interest, financial statements must be

> prepared using MFRS. In addition, the banks will request a financial statement from JCorp on a regular basis. So, better financial statements for JCorp are prepared using MFRS.

This study also discovered that the participants opined on whether it was necessary to change the current legislation. Imposing MPSAS on subsidiaries that adopt MFRS can be confusing, especially to foreign investors, which will obviously impact relationships. If MPSAS is to be imposed on the subsidiaries, the legislative measures should define which entities are subject to specific accounting standards. Nevertheless, this study finds that it is common for the parent company and the subsidiary to use different accounting standards, which is quite normal. In addition, a gap analysis during the consolidation process is also common. Miss J provides her opinion as follows:

> Well, I think it is a far-fetched point, but possible or impossible. It depends on how strong the force is and whether the government really wants to pursue this agenda or not; that also plays a role in how far this idea can go. Coming back to the overall structure and the overall ecosystem that we are currently in, I think that when it is not broken, there is already an ecosystem for the private companies to report, and our ecosystem is not our own, which means we are internationally recognised, and our accounting standards are internationally recognised. So foreign investors find it very pleasing with our reports because it speaks the same language as theirs, you know, so while the subsidiaries of a public sector may have a so-called direct or indirect link to the parent being a public sector, they themselves are the engines of generating profits, and they are in the environment of so-called commercial, so if we were to impose MPSAS on them, foreign investors may be frowning like, "I do not know what you're reporting on; I'm not familiar with you," so that is a very high-level point, and the second point is also about the process. [translated]

4.4 Future of MPSAS

The subsequent theme that has emerged from the interview sessions is the future of MPSAS. This theme refers to the development of the MPSAS, which will be consistent with the MFRS in the future. Nevertheless, some conditions will be permanently different due to the unique treatment of public sector entities. The participants were asked for their opinion on whether IPSAS will eventually be consistent with IFRS in the future. Most of the participants opined that MASB and MPSAS are expected to align with IPSAS and IFRS in the future. Nonetheless, they opined that MPSAS may have unique accounting treatments for specific transactions that may not be applicable to a business entity. Miss J opined:

> Yes, that is a very fair point because IPSAS, if we see the trend, started with a very unique accrual-based standard for the government and the public sector, and as time goes by, they also consider what's happening in other parts of the world and what's happening in the IFRS world because now there is also an

> accrual basis. So, the recent episodes of amendments to IPSAS have been very closely mirroring what is in IFRS. So, I agree with that point. [translated]

This study also discovered that the participants feel it is still early for JANM to impose MPSAS on entities. The participants opined that Malaysia has yet to reach this level. At this stage, the government is still struggling to apply accrual accounting instead of cash accounting. The suitable time has not arrived for JANM to apply uniform accounting standards for the preparation of financial statements that can provide information on the total amount of national assets and liabilities. As explained by Miss J:

> That is a very big question because we all know that our government has not reached that point yet, right? All they have is that, yes, they have separate reporting based on accrual, but it is not there for the public to see what their accrual is. How much is your asset? How much is the federal government making? We don't know on an accrual basis, and we don't know on an MPSAS basis because they are not there yet. But at the same time, they are asking all the entities under them to apply it already. That is why I said, in the beginning, I was not really sure about why because the government itself, well, they say 2016, and then they postponed to 2018 or 2020, but till now, there hasn't been any, and when we were, you know, casually chatting in that community of JANM, well, they see it depends on who is at the top. That one to really bring this agenda forward, that one to really let you know when they have an accrual financial statement for the government of Malaysia. So, I really do not know the motivation behind it. [translated]

Another finding that can be found in this study is that MPSAS is still in progress and slowly inching towards MFRS. Therefore, the future of MPSAS is transitioning, and certain accounting treatments for specific transactions need to be reclassified to align with MFRS. Miss I was also optimistic that IPSAS would eventually be consistent with IFRS in the future. She opined that MPSAS may have unique accounting treatments for specific transactions that may not be applicable to a business entity. Miss I emphasised that:

> Indeed, for example, I am IPSASB's technical advisor, as at the last meeting in March, IPSASB approved the revenue standard. This standard revenue indeed has two approaches. One with performance obligation, another without performance obligation. The one with performance obligations is the same as MFRS 15. It's just that the IPSAS, without performance obligation, has its own guidance that it develops. But with performance obligations, it's the same as IFRS 15. So, I believe the 16 will most likely use the same approach. And then, after 16, there is no longer a major standard, which is IRFS 17. I think most public sector entities don't use IFRS17, maybe except for, I don't know, Social Security for the Self-Employed and Platform Workers (SOCSO), which has another different IPSASB with a different project on that, and so other than that, there is no standard major anymore. [translated].

This response is further supported by Mr. D:

> I did not read the MPSAS in great detail, but from what I understood, the MPSAS is the accounting standard that was a few versions before MFRS. So, I think it is like you are scaling down MFRS backwards. So, MPSAS is now catching up to MFRS, but they are just a bit lagging behind. I do not think there should be any issue with the transition from MFRS to MPSAS; we only have to reclassify certain figures. I understand somebody in the market has done a comparative study between MFRS and MPSAS. From there, it has to transition to MFRS, where certain figures or certain things may be different from MPSAS and MFRS. [translated]

When questioned about the relationship between the FRA, MASB, MFRS, MPERS, and the CA, this study discovered that the FRA would determine whether an entity should be adopting the MASB standards since a violation of such adoption would lead to non-compliance with the CA. Mr. D noted that:

> Under the FRA, which is administered by MASB, they are the organisation that issues MFRS with MPERS, and under the Companies Act, it states that you must implement the standard issued by MASB, so there is no alternative. If this is the case, there is no other option; they must choose between MFRS and MPERS. If not, it will violate the company's act. [translated]

4.5 Threshold Setting for Categorising an Entity

Another theme that has emerged from the interviews is threshold setting for categorising an entity. In this study, this theme refers to the need to use several important thresholds in determining the type of entity, whether public sector or CPSE. During the interviews, participants were queried about the necessity of establishing a specific threshold for public service expenditure as a percentage of total revenue to classify an entity as a CPSE or a public sector entity. The findings revealed that thresholds can vary depending on the business cycle and the broader economic context, leading to inconsistencies in accounting practices. As noted by Miss H:

> It is also possible. However, we should not only rely on the threshold to determine whether an entity is a CPSE or a public sector entity. This is because the amount of revenue is not fixed from year to year, which will impact the threshold. For example, if, in a given year, the entity does not get a sufficient grant from the government to cover administrative expenses, sales proceeds need to be used. Therefore, the classification of a CPSE or public sector entity must be based on the objective of its establishment and cannot be solely based on a threshold. [translated]

The study's findings reveal that the participants agree that there is no need for using a threshold as a measure, as it is a quantitative and mathematically based approach. Instead, the focus should be on the principles, which is legal identity, rather than relying solely on quantitative measures. Miss N provides her explanations:

> I do not think we should go that route because threshold is a very quantitative measure. And threshold depends a lot on the cycle of a business or the economy; there's a bigger picture that would affect this threshold, so what if one year or three years you're in because of your threshold, the next two years you're out, and just because of that threshold, which is very quantitative and mathematical, that would, you know, force you to switch or change your accounting? So, I think perhaps the better option is to go back to the principles as opposed to, you know, having a quantitative measure. [translated]

This study also discovered that some government entities generate a surplus from self-funding operations that should be utilised to provide a public surplus. This finding led the researchers to explore how government entities determine or guarantee that surplus funds are appropriately allocated. Mr. F responded to this issue by stating that:

> Because, if it is self-financing, it returns all of its income to the holding company shareholder as a dividend, making it abundantly evident that it is a CPSE. The problem with the government funding threshold is that when the government self-finances, it allocates any operational surplus to the public service. Moreover, it is a challenge. If we set a revenue ceiling for the public sector, we can conduct business while still serving the public. If the service is public, the MPSAS code should be used. [translated]

4.6 Guidelines on the Application of Accounting Standards

In this study, guidelines on the application of accounting standards refer to the need to establish a committee under JANM, which is responsible for evaluating and developing guidance on the application of appropriate accounting standards for government entities and their subsidiaries. The participants were asked about their opinions on this issue. This study found that the participants agree on the existence of a clear guideline related to the application of accounting standards, whereby JANM must form a committee to review and create a policy on which institutions must use MPSAS and which must not use it. It can reduce the problem of exemptions for MPSAS applications. The participants also opined that companies should use advanced accounting standards since they were developed with current accounting issues in mind. For example, MFRS 9 (not yet within MPSAS) was developed to address accounting issues related to financial instruments. As noted by Miss I:

> That is basically how it has been structured, right? And if we are going to use the existing ecosystem, there's MPSAS; this must be a proof of accounting standards, and applicability will then depend on your scope. And the point that

> you mentioned about they keep on getting letters from JANM, I say in that committee, JANM, that looks after all these applications from statutory bodies of exemption from MPSAS, we need more years; we need our system to be MFRS9; MFRS9 is not in MPSAS. So why do we need to go to MPSAS when we are already applying IFRS 9? Isn't that a reverse as opposed to, you know, moving forward? So those are some of the things that that committee looks into. I kind of understand the background to it, but in your case, one statutory mode is to apply MFRS, and I think because maybe in their perspective, they have the global parts of it - you know, foreign investments; they used to have a public listed company under them, right? So again, if it's not broken, why amend it? I think maybe they are also on that principle. We have been applying MFRS, and our investors are happy. For the purpose of reporting to the government, if need be, we will provide you with the necessary information. But yes, I think. [translated]

This study also discovered that the JANM's goal is to encourage as many public sector entities as possible to adopt MPSAS, although without a directive (legal requirement). Public sector entities have their own unique identity and may be not-for-profit, but their reporting still needs to be aligned with their activities and legal identity. The legal identity and purpose of the establishment make it difficult to enforce the uniform application of MPSAS across all public entities. Miss J explained:

> Well, we would like as much as possible for the public sector to apply MPSAS, even though there is no directive. But again, the public sector has its own unique identity. You may be a private limited company, but you are not making any profit. But that does not mean that your reporting needs to be changed accordingly. At one point, you may change your activity because you are allowed to buy the company's act to do a raise of activities, right? So that has been the mode at that committee; the previous time was very strong and very adamant that all a public sector entity needs to do is apply, but when we present the legislative aspect of it, the advancement versus MFRS and MPSAS, you know, those are the things that legislatively may be quite a challenge also. [translated]

The researchers asked the participants about overcoming the issues related to adopting MPSAS. The response was positive, and they opined that the problems would only arise in the first year of adopting MPSAS. Mr. B explained the following:

> For our entity, which has to use MPSAS, I do not see any issues anymore after the first year of using MPSAS, as the opening balance issue will be completed in the second year onward. Meanwhile, for the subsidiary, I think it is better to continue using MASB accounting standards. Then, for consolidation purposes, the financial statements of the subsidiary need to be adjusted to be in line with and comply with MPSAS. [translated]

Nevertheless, the interview revealed that the participants must comply with the regulators' requirements for preparing their financial reports. When the researchers questioned about the effect of using accounting standards on her entity, which also needs to comply with the requirements of the Bank Negara Malaysia (BNM), Miss H explained:

> RISDA Insurance previously used MPERS, but because it had to report to the BNM, we had to change to MFRS. And to simplify the consolidation process, we encourage all subsidiaries to use MFRS as well (not MPERS). If RISDA has to use MPSAS, the subsidiaries have to follow the parent, i.e., use MPSAS. If not, it will be difficult for the consolidation process. But MFRS is a good standard and is more advanced compared to MPSAS. We should continue to use that MFRS. So, I think the JANM can make an exception for RISDA to continue using MFRS to facilitate the consolidation process with subsidiaries. [translated]

4.7 Profit Distribution

One interesting theme that has emerged from the interviews is profit distribution. Profit distribution in this study refers to government entities that pay dividends or other types of returns to shareholders. The participants were asked about the possibility that entities that pay dividends or provide any returns to their shareholders could be considered CPSEs. According to the findings from the participants' responses, if the entity aims to pay dividends to its shareholders, then the objective of its incorporation is profit, and it should be a CPSE. Nevertheless, the participants opined that the distribution of dividends alone is not an appropriate criterion for defining a CPSE. Instead, the legal framework in which it was established should be considered. Miss J commented:

> So, in the case where the entities are not providing any returns to the shareholders, there is no dividend payout. That is basically the driving force behind it if that is really the case. But what about the aspect of who the entity really is? I mean, we can go that route in determining it, but what about this aspect of who I am actually, where in which law was I born, is it under the provision of the act, for example, and hence I'm a statutory body, I'm not a corporate per se, but if I am a corporate but my parents asked me not to do any activities that generate returns to my shareholders, first it is kind of a bit counter-intuitive because why you are setting up a corporate when the objective is not profit-making, it is not for generating the overall profit for the group? And secondly, the identity of the company itself may not be profit-making; I'm not sure really whether we can really use the dividend distribution as a so-called identifier or factor when we want to define CPSE. [translated]

Nevertheless, the participants argued that although a government entity aims to make a profit, considerations must be made about utilising the profit. Some of the entities make profits, but the profits are channelled back to the public in the form of corporate social responsibility.

As noted by Mr. D:

> There are a few organisations during one of the engagements with the ministry - I can't remember which ministry - where they are profit-oriented: someone produces goods, sells them as is customary like trading companies do, and they make money - but then they give the money back through CSR. So, it is actually self-funded. It did the business; the profit that was ploughed back into CSR was channelled to the orphanage, to old folk homes, and to the less fortunate in rural areas. So, in that kind of situation, I think they should be adopting the CPSE and the MPSAS. Because although they are profit-oriented, the money is not used as per normal profit, so it's used towards serving the public. [translated]

4.8 MASB Mandate

The MASB mandate in this study refers to the purpose of establishing the MASB in accordance with the relevant laws (FRA, 1997). The participants were questioned why MPSAS is not under the responsibility of MASB. One of the participants explained that the mandate of MASB is under the law, there is no specific agenda for it, and it is clearly not guided by FRA. The FRA states that the MASB is mandated to develop accounting standards for private companies that are supervised by the three regulators, namely the SC, BNM, and the Suruhanjaya Syarikat Malaysia (SSM). Nevertheless, MASB contributes to the MPSAS's development by being part of the JANM Committee and participating in the discussion process in developing the MPSAS. Miss J explained:

> There is no specific agenda for that, and the reason is because we are guided clearly by our Act. The FRA says standards must be developed for the use of entities that have large financial statements with the three regulators: the SC, BNM, and SSM. So that's really our mandate. So, we cannot do beyond that, but how we contribute is that we become part of the JANM's committee, we take part in their discussion process, and we contribute indirectly because it is really not our mandate to look into the public sector entity. [translated]

The study's findings reveal that if the entity is given the choice of whether it wants to adopt MFRS or MPSAS, stringent criteria must be imposed to ensure that the entity does not take advantage of the alternative given. Mr. D commented:

> If we want to give choice, then we have to make the criteria very stringent; they cannot be arbitrary. If not later, some will take the easy way out, and ok, then, MFRS or MPSAS. So, we have to set the criteria very stringently. For instance, if the entity is under government control, it has no choice but to choose MPSAS. However, if it is not under government control - perhaps the government owns a 49 per cent stake but does not exercise control over it - then it has the option of using MFRS. But you also have to see how it fits

> with the objective of the organisation, whether to serve the public or to be profit-oriented for the organisation. [translated]

This study also attempts to identify the reasons why the participants prefer using either MFRS or MPSAS. The findings indicated the presence of challenges for the participants to adopt MPSAS accounting standards. As noted by Mr. A:

> Currently, subsidiaries are still using MASB accounting standards as they are established under the CA. Our holding needs to use MPSAS. For consolidation purposes, there needs to be another set of financial statements for subsidiaries prepared using MPSAS accounting standards. The most obvious challenges are in the opening balance and accounting for leases. Previously, our entity prepared financial statements using MASB accounting standards. When using MPSAS, adjustments to the opening balance need to be made. In addition, the MPSAS framework still has no standards, such as the new MFRS 16, which classifies all lease transactions as finance leases (no more operating leases), while under MPSAS, there is still an operating lease. So, the financial statements of subsidiaries that have adopted MFRS 16 need to be amended for consolidation purposes with those of our entity, which adopted MPSAS. [translated]

4.9 Government Funding

Another issue discussed during the interview is whether funding type plays a role in determining the definition of CPSE. An entity in the government can either be government-funded or internally funded. Government funding refers to financial resources provided by a government entity at the local, regional, or national level to support projects, initiatives, programmes, or organisations that align with the government's objectives and priorities. It involves the allocation of public funds from the government's budget to various sectors or areas of focus. Government funding can take different forms, including grants, subsidies, contracts, loans, tax incentives, or equity investments. These funds are typically disbursed to entities such as non-profit organisations, research institutions, educational institutions, small businesses, startups, local governments, or other public sector entities. On the other hand, internal funding refers to the funds generated by a company or organisation from its own operations and activities. These funds are typically used to finance the company's ongoing operations, investments, and growth initiatives without relying on external sources of financing, such as loans or equity investments.

During the interview, this study discovered that most of the government entities received government funding, particularly operating grants and grants that have been deferred for payments. The researchers asked the participants about the precise goals of the funding and how these funds impact the entities' operations and development budgets. Mr. E responded to this issue. He noted that:

> Yes, including grants received. That includes the grant we paid for the current year; we will spend it on the current year only. If you follow that, I read about RM3.7 billion, RM1.2 billion for operating grants, and RM1.9 billion for grants that have been deferred to be paid off, which means that this is development spending. Other operating income was RM8 billion. Exchange transaction revenue is about RM122 million plus RM313 million. So, you have operation one for exchange transaction results of around RM435 billion. [translated]

The participants' responses also indicated that most of the grants were spent on helping the smallholders. For example, Miss G noted that:

> The grant received is for the economic development of smallholders. We will receive government grants to finance every development project we have planned. If the grant received is less than the requested amount, we will support it by using internal funds (from Rubber replanting assistance deduction refund (SES) collection). For salary payments, RISDA will receive a government grant under the management budget. For other expenses, we will use the internal fund and monies from the collection of SES. [translated]

In one of the government entities, the source of funds originates from two sources. Miss A explained regarding the government money or emolument expenses received by her entity and, subsequently, how these funds were allocated and used:

> In terms of internal resources, we have two sources. Firstly, it is a source from the government, which functions as an emolument expense, and the second source is our internal source, which includes our income. Our internal source of income has two categories: accreditation service income and other income. So, the income of the accreditation service comes from the fees or charges that we charge directly to the institutions of higher learning to evaluate each programme that we offer. During the accreditation assessment, we also charge other charges such as certificate charges, re-evaluation charges, etc. These are all the services we categorise as accreditation services. In fact, the charge we impose on the Higher Education Provider (Pemberi Pendidikan Tinggi [PPT]), which is our main source and our main internal source. In terms of other income, we also have cash, and from that cash, we make a fixed deposit, and we also have tenant rent. We also have our own building, where we have a floor that is still rented by tenants. This is because when we made the purchase of this building, we bought it once with the tenant. Further, we have an extra income from the rental income, and if we do seminars or training courses for PPT, that is also one of our income categories. The other income we get is from small sources such as courtesy sales, books, and so on. [translated]

This study also discovered the methods used to create internal revenue in the participants' entities and the way they set the charges or prices for services rendered. Miss B explained:

> We are not a profit-making company. We are an entity that aims to be an agency that was established to fulfil the wishes of MOF, which is not to make this organisation completely dependent on the government. Since 2008, every year we have made various requests for a budget but mostly got certain parts, so we could not get the full budget as requested. For example, if we make a budget request of RM30 million but only RM26 million is approved, it also has several parts that will be divided according to the current percentage rate for the budget. Since 2008, we have also experienced various restrictions, and 2018 was the last year in which we were unable to run our business because we did not have enough budget to cover all the operating budgets. Therefore, we are not classified as a company that focuses on profit because we are an important agency for MOF and can generate our own income to sustain our agency. Maybe one day, the emoluments will not be paid by the government. [translated]

In terms of the considerations and criteria that are taken into account while allocating funds for various operational expenses, one of the participants explained from the perspective of her entity. Miss C provided her explanation:

> Similar to a research university, they only received 90% of the requested compensation. Consequently, MQA may experience the same predicament as them. In this case, we attempt to save money and create personal budgets for the future. [translated]

Nevertheless, in cases where the government entity faces losses, the government will still intervene to save the entity. Miss C explained:

> In fact, it already happened a few years ago when MQA was categorised as a loss. Thus, MQA can apply for additional allocations from the government, and we have also made this application in 2019. If MQA does not submit this additional allocation application, then our party will be responsible for all losses, forcing us to use our own internal resources. This is because we have cash reserves, and from here, we are able to cover some of the operating costs ourselves. In the meantime, we also made improvements in terms of savings. As mentioned before, we are not a company that focuses on the company's profit solely, which is based on the charges that are levied, but all the charges that are levied are based on the approval of the minister. [translated]

4.10 Purpose of Establishment

Generally, it is known that a government entity is established to deliver services to the public. They are typically established to perform duties that government agencies would be prohibited from performing for legal or other reasons. Nevertheless, profit-based entities are permitted to operate under the auspices of government entities. A profit-making entity is an organisation whose principal aim is to generate financial returns and profit for its shareholders or proprietors. The researchers started the interview with a representative of a public corporation by asking about their business model. Mr. A explained:

> RISDA focuses on smallholders who grow rubber. RIDSA is responsible for helping smallholders increase their income through fertiliser and rubber tree subsidies. In addition, RISDA will also hold training for smallholders. RISDA receives full funding from the government and will spend the funds as directed by the Treasury. [translated]

The researchers proceeded to ask the participants their opinions on the criteria for being categorised as a CPSE. Most participants agreed that the main criteria in identifying whether the entity should be a CPSE is the purpose of establishing the entity. Miss A provided her opinion as follows:

> It should be based on the purpose for which an entity is established. If it is for the provision of public services, then it must be not-for-profit (i.e., a public sector entity). If it is profit-oriented, then it can be classified as a CPSE. [translated]

By commenting from the subsidiaries' point of view, the participants also agree that the purpose of establishment is crucial in determining whether the subsidiary companies should be categorised as CPSE or non-CPSE. Miss I posited that:

> You can refer to IPSASB's actual framework, which has a definition. It's just that I think the issue when it comes to the subsidiary may have to be changed a little because this government is direct, meaning it provides the public service, but things like the listed subsidiary of RISDA, it's not direct. Indirectly, so whether we need to factor that in if we want to make a definition because I have a first early argument even though he is a listed company but at the end of the day, he wants to support RISDA right or the Tabung Haji Plantation board wants to support Lembaga Tabung Haji like that. [translated]

The aim of an entity is to cover all of its costs through the fees or charges it imposes on its customers or users. Full cost recovery entities focus on ensuring that the revenue they generate fully covers their operational expenses, including direct and indirect costs. Due to this scenario, questions have been raised on whether the entities should be classified as CPSE. Miss K provided her opinion about her entity:

> In my opinion, we are still under government administration, where the services that we provide and the function of our entity are to provide services to the people. This refers to Act 605. [translated]

The researchers asked the participants about the possible issues that a CPSE can face when offering corporate social responsibility (CSR) services to the public while charging fees and what are the main causes for achieving both goals (CSR and fees) concurrently. Miss C explained:

> CSR is a service provided to the public, and it will be difficult when there is an established authority. This is because we want to provide the best service to the public while also charging them a reasonable fee. If we intend to continue using CPSE in the agency, the CSR concept cannot be achieved, and the fee charged will also increase. [translated].

After considering the above findings, a new framework that depicts the CPSE definition is proposed in this study. The framework serves as guidance for JANM to determine whether a government entity is a CPSE or non-CPSE. Figure 1 illustrates that in determining whether an entity is a CPSE or a non-CPSE, the first step is to identify whether the entity is controlled by the government. If the entity is government-controlled, the next step is to determine the legal framework related to the establishment of the entity. Based on the content analysis performed in this study, three main types of public sector entities were identified: entities under the federal constitution and special laws, entities under state laws and special enactments, and entities under public corporations. Under public corporations, there are two types of entities: entities formed under statutory laws and non-statutory laws.

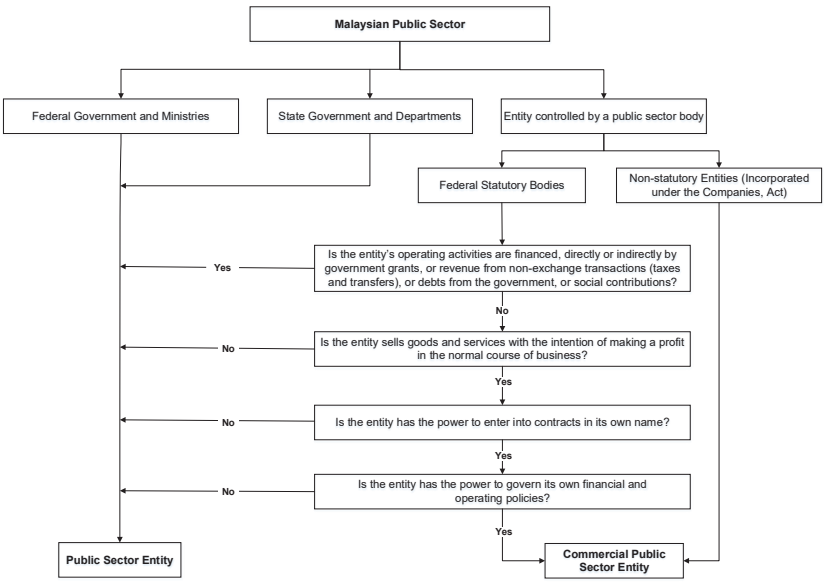

Figure 2: Classification of an Entity

Figure 2 posits that all entities formed under the federal government and ministries and entities under state governments and departments are non-CPSE and, therefore, governed under MPSAS. On the other hand, public corporation entities formed under non-statutory laws are confirmed as CPSE since they are governed under MASB. Therefore, they must adhere to MFRS or MPERS. The issue of determining whether a public sector entity is a CPSE or non-CPSE focuses on those entities that are formed under statutory laws, often in the form of Special Acts. The researchers identified whether these entities fulfil the criteria of a CPSE.

In determining whether an entity that is formed under statutory laws under the Special Acts is a CPSE, this study assesses four criteria. First, whether the entity relies on government funding is a going concern. If the entity is reliant on government funding, the entity is to be considered a non-CPSE. Nevertheless, if the answer is otherwise, the entity is possibly a CPSE. Nevertheless, the entity has to fulfil the three remaining criteria:

i. The entity sells goods and services in the normal course of its business at a profit or full cost recovery.
ii. The entity has the power to contract in its own name.
iii. The entity has the power to set its own financial and operational policies.

If the entity fulfils all three criteria, the entity is considered a CPSE and, therefore, has to adhere to the MFRS or MPERS.

5.0 Conclusion

This study examines the issues related to the construction of the CPSE definition. The study's findings identified ten key issues surrounding the building of the CPSE definition in Malaysia. The ten issues are the legal identity of the entity, the controlling party, internationally recognised accounting standards for private companies, the future of MPSAS, threshold setting in categorising entities, application guidelines for accounting standards, profit distribution among entities, the mandate of the MASB, government funding, and establishment. The CPSE framework was derived by analysing these issues.

This study holds significance due to the fact that the primary consumers of financial reports and the objectives of financial reporting vary between profit-driven and service-oriented organisations. Misclassification of a public sector entity may result in the implementation of financial reporting standards that contain unsuitable obligations. The unsuitable obligations may compromise the integrity of the financial data for consumers, thereby obstructing its capacity to fulfil the goals of financial reporting.

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A Comparison Study of Risk-based Auditing in Four Developed Countries

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Abstract

Purpose: This study aimed to identify and compare the best practices of a risk-based audit (RBA) approach used in four developed countries.

Design/ Methodology/ Approach: A thorough library search and examination of the literature on the RBA approach was conducted. Denmark, Australia, Canada, and the United Kingdom were selected based on their excellent positions in the Corruption Perception Index 2022 ranking.

Findings: The four countries adopted the Institute of Internal Audit standards in conducting their RBA. All four countries, except Denmark, used the ISO 31000:2018 as a guidance framework. Furthermore, the four countries used comparable risk determination, assessment, and control techniques. Additionally, the RBA risk governance structure of the four countries is based on the Three Lines of Defence concept.

Research Limitations/ Implications: Most of the data were from secondary sources. Only four countries were compared and were selected using only one index. Additionally, the study focused on internal auditing practices as a public governance tool.

Practical Implications: The results presented the opportunity for government internal auditors to reconsider and enhance auditing procedures to increase public sector delivery system efficacy.

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Originality/ Value: This article covers the RBA used by internal auditors in four developed countries. The results could catalyse investigations into the efficacy and best practices of additional elements in public sector governance.

Keywords: Risk-based audit, internal audit, public sector, governance, risk management.

1.0 Introduction

The public sector is the primary provider of services to the public. A smoothly operating public sector ensures a comfortable life for all citizens. Conversely, an underperforming public sector leads to the unsuccessful execution of planned policies. Public sectors worldwide, especially those in developing countries, do not function well due to widespread fraud, poor governance, corruption, and inefficiency (Hartt, 2016; Jones, 2022; Lyra et al., 2022). For example, Shuwaili et al. (2023) stated that there is an increasing trend of fraud, corruption, and inefficiency in expense management in the Iraqi public sector. Such incidences prevent the government from fulfilling the people's aspirations. Furthermore, the government does not fulfil its citizens' needs. Thus, citizens remain unable to enjoy the basic facilities of life. The effects of government delivery system failure and various unethical activities erode public confidence. For this reason, public sectors worldwide must improve their governing effectiveness. Government agencies and institutions must be ready to address public governance challenges and have specific strategies for resolving new issues.

A government with an organized risk management method and system can manage issues effectively. Risk management aims to ensure that all management-related activities effectively and directly accomplish organisational goals (Tchankova, 2002). The internal auditor evaluates the effectiveness of the management's risk management practices and improves government performance. Nonetheless, internal audit function and effectiveness in governance practices remain debated. Mohd Yusof et al. (2016) supported the effectiveness of internal audits in Malaysia when public sector fund leakage is frequently reported in the Auditor General Report and causes substantial national financial losses. Thus, an internal auditing method requires constant improvement. Therefore, internal auditors should consider and comprehend RBA. As RBA uses the greatest available risk analysis, auditors can increase organizational efficiency with its support.

Implementing RBA in the public sector depends on government commitment and determination to improve internal audit service quality. The RBA may lead to less public funds leakage and better government fund management. As the authorities determine an auditing method, government auditing might lack uniformity. The non-uniformity of auditing practices renders it challenging to compare efficiency and effectiveness between governments. Nevertheless, any good RBA practice should be a reference for a government in developing a reliable auditing method. The RBA may be a common and accepted practice in countries with a dependable public administration system but might be a novelty in countries with a complex public administration structure.

Based on the aforementioned issues, this study aimed to identify the best practices of an RBA approach used in four developed countries. This study examined the extent of RBA practice in

the selected countries and how it contributes to public sector management efficiency. Understanding the RBA practices and models in the four countries will be an example and guide the Malaysian government internal audit department in developing an appropriate RBA model.

2.0 Literature Review

2.1 The RBA Approach

Auditors use the RBA approach when conducting an audit, where they focus on analysing and managing different risks that could lead to material misstatements. The RBA approach provides an independent and objective opinion of organisational management on whether its risks are managed to acceptable levels (Knechel, 2007). The RBA focuses on the application and effectiveness of risk management procedures, risk assessment methodologies, and a critical evaluation of the internal control system adequacy and effectiveness (Zainal Abidin, 2017). Furthermore, RBA differs from other internal audits and requires extensive knowledge of the business and its risks. Thus, the approach is frequently considered complex. Nonetheless, the RBA increases auditing efficiency, is risk-focused and -oriented, adds value to the organisation, has a more transparent audit trail, encourages strong risk management processes, and classifies and reports risk appropriately (Chaudhari, 2017).

Risk-based internal auditing focuses on strategic analysis and business process evaluation (Campbell et al., 2006). Additionally, goals, risks, and controls that must combine for organisational success are evaluated (Rivenbark, 2000). Internal auditing ensures that resources are sufficient and directed toward goals by recognizing, evaluating, and tracking organisational risk (Kunkel, 2004). Generally, RBA assesses areas of heightened risk (Griffiths, 2006) and conducts continuous risk assessments (O'Regan, 2002). Management and the board should be informed of the findings from a thorough yearly risk assessment and from risk assessments conducted at the beginning of each internal audit engagement (Jackson, 2005).

2.2 RBA Practices in Four Developed Countries

The Transparency International Corruption Perception Index (CPI) is an appropriate index for identifying countries with strong internal control. The CPI measures perceptions of public sector corruption, which indicate how well national institutions manage and prevent corrupt practices. Countries with higher CPI scores frequently have effective internal control mechanisms, such as transparent processes, accountable leadership, and strong regulatory frameworks. High CPI scores suggest a culture of integrity and ethical behaviour in the government and business sectors, which are essential aspects of robust internal control. As corruption undermines internal control by eroding trust, altering decision-making, and increasing operational risks, countries with lower perceived corruption levels (reflected in higher CPI scores) are likely to have better internal control practices to mitigate these risks.

The CPI provides practitioners with a helpful starting point for creating reform action plans. Customized programs should be highly contextual and adapted to political and bureaucratic situations to be successful (Beschel, 2018). Numerous published articles have used the CPI as a trustworthy metric. For example, Graeff and Mehlkop (2003) reported that the direction

and magnitude of the effect of certain aspects of economic freedom on corruption depend on whether the country is rich or poor. Furthermore, Damania et al. (2004) used the CPI to explore the influence of legal regulation compliance on corruption practice resilience. The following section analyses the RBA practices in Denmark, Australia, Canada, and the United Kingdom.

2.2.1 Denmark

Internal control and supervision are paramount in ensuring responsible public funds management, where responsibility cascades from ministerial leadership to accounting teams. Departments oversee control systems and risk management and emphasise the establishment of relevant guidelines and risk report assessments, particularly audit comments. The Danish governance framework uses the Three Lines of Defence model, in which management addresses the first line, independent oversight units (internal audit) form the second, and external entities (national audit office) constitute the third line. Hence, the model ensures transparency and accountability.

Danish governance and internal audit practices are structured across three national, regional, and local levels and encompass ministries, agencies, regions, counties, and municipalities. The strong position of Denmark in the CPI underscores its commitment to good governance and robust internal audit practices. In Denmark, internal audits are centralised at national ministries, while national-level agencies have independent internal audit departments and central oversight units within the ministries. Remarkably, Copenhagen is the only local government that maintains its Internal Audit Department. Interestingly, Denmark lacks legal mandates for internal audits. Instead, it relies on recognised standards, such as the Institute of Internal Auditors (IIA) and The Good Public Audit Standard (Jóhannesdóttir et al., 2018).

The Danish risk-based internal audit practices are integral to enhancing governance, risk management, and control systems within public sector organisations. Denmark ensures effective governance and transparency by addressing critical risks, utilising technology, promoting compliance, and fostering collaboration, which aligns with international standards and adapts to changing public and private sector landscapes (Government of Denmark, 2022).

The RBA practices in Denmark encompass comprehensive risk assessment, prioritisation of critical risks, integrated audits, data analytics, compliance focus, continuous monitoring, stakeholder collaboration, adherence to international standards, and maintaining independence. Recent regulatory changes strengthened handling of audit comments, centralised reporting of supervision conclusions, and appointed control environment officers in institutions. These changes aimed to mitigate public fund fraud and enhance vigilance. A guide was developed to facilitate the implementation of these new requirements.

A risk management study on a Danish municipality demonstrated that risk management created unanticipated uncertainties rather than reducing uncertainty. Among the uncertainties were the legal aspects of risk management solutions, specifically the document types deemed legally valid, risk management definition and operationalization, and the resources available for expanding risk management. Generally, these uncertainties related to operational managers' professional identities and tasks presented by the framing devices (Vinnari & Skærbæk, 2014). Therefore, internal audit practices should be improved to be more structured and comprehensive.

2.2.2 Australia

In 2023, the IIA Australia released a white paper entitled “Integrated Risk-Based Internal Auditing”. The white paper highlighted that integrated risk-based internal auditing aims to deliver increased value through effective, efficient, and relevant internal auditing. RBA does so by combining aspects, approaches, and techniques into a single audit while focussing on the areas of highest risk to customers, stakeholders, organisations, communities, and the environment. Notably under the IIA Implementation Guide 2010 ‘Planning’, the IIA International Professional Practices Framework (IPPF) states that “the Chief Audit Executive (CAE) is responsible for establishing a risk-based plan to determine the priorities of the internal audit activity. The audit works need to be consistent with the goals and aligned with documented risk assessment, which is undertaken at least annually” (IIA Australia, 2023).

“Internal Audit Manual & Charter 2020-2021” outlines the Information and Privacy Commission (IPC) RBA processes for internal audit management and oversight in accordance with the Treasury Policy & Guidelines Paper TPP 15-03 Internal Audit and Risk Management Policy for the NSW Public Sector (TPP 15-03). The TPP 15-03 Core Requirement 2 requires that the internal audit function be consistent with the International Standards for the Professional Practice of Internal Auditing (IIA Standards) and additional practice requirements established by the Policy (IPC NSW, 2021). Australian government agency internal auditors also refer to “AS ISO 31000:2008 Risk Management - Guidelines” when conducting RBAs (NSW Government, 2023).

Internal audit planning involves the establishment of an Annual Internal Audit Plan (“Plan”) and Internal Audit Project Brief. For example, if there are changing priorities or emerging risks that require adjustment to the Plan, the Audit & Risk Committee will review the proposed changes for approval by the Chief Executive (IPC NSW, 2021). The Plan aims to balance financial, compliance, performance, and operational reviews and between business processes, future projects and change initiatives. The Plan includes a rolling two-year strategic summary of internal audit activity to provide an overview of previous internal audit activity, proposed current-year reviews, and potential reviews identified during the planning (IPC NSW, 2021).

Strategic planning for internal audit and assurance services is crucial throughout RBA planning to guarantee that the internal audit is focused on areas that will yield the greatest value and benefit to the IPC. A risk-based planning process allows for the identification of internal audit engagements in the best interests of IPC and that do not overlap with other internal and external assurance and review mechanisms. The IPC adopted an RBA to determine the priorities for the Plan.

Performing an audit involves the Audit Cycle, which covers all aspects of an audit from initial plan to final resolution of all matters raised. The Audit Cycle is based on the performance standards outlined in the IIA International Standards for the Professional Practice of Internal Auditing (IPC NSW, 2021). The CAE together with the Service Provider (Internal Audit) as in Figure 1 below is responsible for Step 1 of the Audit Cycle; the Service Provider (Internal Audit) is responsible for Steps 2, 3, and 4; and the CAE and the Service Provider (Internal Audit) is responsible for Step 5.

Figure 1: Audit Cycle
Source: Internal Audit Manual & Charter 2020-2021 (IPC NSW, 2021)

2.2.3 Canada

The Canadian federal system of government is divided into federal, provincial, territorial, and municipal levels (Farshadfar et al., 2022). Each level has the authority to determine the accounting policies applied. The Canadian government strongly emphasises the concept of accounting conservatism (Cziffra et al., 2023). Furthermore, auditing quality can be improved by examining the auditor's work through a specific body or evaluating it through other auditors. Dutta (2020) stated that internal audits added value to the federal department by improving management control, governance practices, and risk management. Moreover, the internal audit was placed appropriately in the department, which rendered it more innovative. This result aligned with the role of internal auditors of managing strategic risks and avoiding mismanagement risks (Sakka, 2020).

The Direct Engagement Manual facilitates auditing work in Canada. The manual guides auditors on the basic concepts of auditing and audit procedures, planning, and reports. The manual contains the Chartered Professional Accountants of Canada (CPA Canada) standards of assurance, the Auditor General's policies, and guidance on applying standards and policies. Furthermore, the Treasury Board issued a Risk Management Policy that guides risk management in the Canadian public sector. The policy aims to protect the interests of government rights (government property) and civil servants. Additionally, audit guides and tools are generally used in audit procedures, related tools, and specialised areas. The Canadian Standards on Assurance Engagements (CSAE) 3001 are among the most relevant standards related to risk and audit practices. Based on the standards, auditors must choose the audit type and extent that will be performed and reported and determine the nature, scope, and report. Furthermore, the standard requires auditors to consider and identify risks when planning and conducting audit activities.

The government hopes that the RBA method will focus internal audit resources in the organisation on higher-risk units without neglecting other units. Accordingly, a risk assessment survey and consultation should be conducted with customer management to identify the areas that require audit focus. The process will increase internal audit efficiency and value

(Government of Canada, 2021). An audit of a Canadian public entity reported that there was an integrated risk management process and a clear governance structure to support good risk management practices. Nevertheless, the audit report also suggested implementing an enterprise risk management framework to identify, monitor, and update significant risks (Government of Canada, 2023).

2.2.4 The United Kingdom

The United Kingdom public sector audit shares key similarities with corporate audit, where financial audits are conducted under the International Standards of Auditing (ISA) and financial statements are prepared based on the International Financial Reporting Standards (IFRS). Nevertheless, the public and private sector audits differ slightly in the audit report scope and the complexities of financial reporting complexity in the central and local government bodies. The United Kingdom Public Sector Internal Audit Standards (PSIAS) are based on the IIA international standards, with additional requirements and interpretations directly applicable to all United Kingdom government sectors. The PSIAS requirements apply generally to all United Kingdom public sector engagements but do not include sector requirements or guidance for specific parts of the government (Chartered Institute of Public Finance and Accountancy, 2019).

Risk management in public services can be improved through sufficient time, resources and top-level commitment; clarity regarding responsibility and accountability supported by scrutiny and robust challenge; reliable, timely, and current information; risk management throughout department delivery networks; and the need for departments to continue to develop understanding of the common risks and to cooperate to manage them (National Audit Office, 2011).

A study by the IIA (UK & Ireland) (2005) cited in Nuno et al. (2009) on the development of internal auditing in Ireland reported that among the CAEs, 89% used risk-based methods when preparing annual audit plans, 93% used a risk-based method in their internal audit assignments, 81% liaised with divisional or business heads when compiling their internal auditing plans, 72% worked in accordance with international standards, and 32% were responsible for compliance or risk management. The implementation and operation of RBA in the United Kingdom focuses on: (1) risk maturity assessment, (2) periodic audit planning, and (3) individual audit assignments (IIA, 2014). Under the risk maturity assessment stage, the internal auditor obtains an overview of how the board and management determine, assess, manage, and monitor risks, thus indicating the risk register's reliability for audit planning purposes. During the periodic audit planning stage, the internal auditor identifies the assurance and consulting assignments for a specific period (usually annual) by identifying and prioritising the areas on which the board requires objective assurance. These areas include the risk management processes, the management of key risks, and risk recording and reporting.

The RBA plan must incorporate or be linked to a strategic or high-level statement of how the internal audit service will be delivered and developed in accordance with the internal audit charter and how it links to the organisational objectives and priorities (PSIAS, 2017). Ensuring this alignment is the essence of Standards 2010 - Planning, 2010.A1, 2010.A2, and 2010.C1, where the CAE is responsible for developing a plan of internal audit engagements based on a risk assessment performed at least annually (IIA, 2020). The subsequent step is to conduct

individual risk-based assignments to provide assurance for the risk management framework, which includes mitigating individual or groups of risks. The annual internal audit opinion must conclude on the overall adequacy and effectiveness of the organisational framework of governance, risk management, and control (PSIAS, 2017).

3.0 Research Methodology

This study conducted a library search and reviewed the literature on RBAs and the internal auditing profession to achieve the study objective. The library search included print and online sources, journals, and newspaper articles. The references were collated using Web of Science, Scopus, ScienceDirect, and Google Scholar. Most publications included were published in the last five years.

The Transparency International CPI 2022 was used to select four developed countries for the comparison. The CPI is a ranking system based on expert evaluations and opinion polls that determines the degree of corruption of a national public sector. The index indirectly reflects the national delivery system effectiveness. Furthermore, the researchers could easily obtain and access data on the RBA approach practised in the chosen countries, namely Denmark (#1), Australia (#13), Canada (#14), and the United Kingdom (#18).

4.0 Results and Discussion

4.1 Comparison of RBA Practices Among Four Countries

Valuable insights can be obtained from countries renowned for their audit practices, such as Denmark, Canada, Australia, and the United Kingdom. These countries have developed sophisticated RBA approaches that serve as examples globally. The methodologies of these countries encompass strategies and techniques that can be adapted and integrated into a new audit framework. Studying these best practices enables the identification of commonalities and unique elements that can be incorporated into a tailored RBA approach. Table 1 presents the RBA approach practices in the four countries, where the following comparisons were made: (i) regulatory framework, (ii) use of IIA standards, (iii) risk assessment, (iv) audit planning, and (v) reporting line.

Table 1: Comparison of RBA Practices Among Four Countries

Comparison	Australia	Canada	United Kingdom	Denmark
Regulatory Framework	• Internal Audit Manual & Charter 2020-2021 • Treasury Policy & Guidelines Paper TPP 15-03 Internal Audit and Risk Management Policy for the NSW Public Sector (TPP 15-03) • AS ISO 31000: 2018 Risk Management - Guidelines follow Section 3.6 of the GSF Act 2018 by outlining minimum	• CSAE 3001, Committee of Sponsoring Organizations of the Treadway Commission (COSO)	• ISA UK, International Standards on Quality Management (ISQM) UK IFRS, COSO Framework, ISO 31000:2018, IPPF	• No laws imposed; only applies IIA and National Audit Office (NAO) guidelines
Use of IIA Standards	• Applies IIA Standards	• Applies IIA Standards	• Applies United Kingdom PSIAS • Applies IIA Standards	• Applies Good Public Audit Standard from Denmark NAO • Applies IIA Standards
Risk Assessment	• Examines areas with greatest exposure to key risks	• Identifies and considers significant risks	Five components: • Controlled environment • Risk assessment • Control activities • Information system • Monitoring controls	• Determines the contextual risk level Identifies programmatic and institutional risks • Prioritises • Monitors risk development during implementation and adjusts risk response measures accordingly

Table 1: Comparison of RBA Practices Among Four Countries (continued)

Comparison	Australia	Canada	United Kingdom	Denmark
Audit Planning	• Identification of internal audit engagements • Engagements do not overlap with other internal and external assurance and review mechanisms • Establishment of an Annual Internal Audit Plan and Internal Audit Project Brief	• Audit objectives, criteria, scope, and approach	• Annual internal audit opinion and assurance framework • Links to the organisational objectives and priorities (PSIAS, 2017)	• Assesses the risks • Prioritises the risks • Determines objectives, operations, and key risk areas • Outlines the scope, objectives, and resources allocated to each audit engagement
Reporting Line	• Uses Three Lines of Defence	• Uses Three Lines of Defence	• Uses Three Lines of Defence	• Uses Three Lines of Defence

Table 1 demonstrates that the Australian government audit framework applies the Internal Audit Manual & Charter 2020-2021. Furthermore, the Treasury Policy & Guidelines Paper TPP 15-03 Internal Audit and Risk Management Policy for the NSW Public Sector (TPP 15-03) and AS ISO 31000:2018 Risk Management - Guidelines follow Section 3.6 of the GSF Act 2018 by outlining the minimum requirements to be followed. The internal auditors' fundamental RBA reference is the IIA standards. For planning, internal auditors examine areas with the greatest exposure to the key risks as their base of reference. In the planning stage, internal auditors identify internal audit engagements, ensure that the engagements do not overlap with other internal and external assurance and review mechanisms, and establish an Annual Internal Audit Plan and Internal Audit Project Brief. The independent oversight bodies, external auditors, and internal audits are all part of the Three Lines of Defence model, which encourages responsibility and reliability.

The United Kingdom has a well-established RBA model that emphasises transparency and public trust. The regulatory framework adheres to the ISA, the Committee of Sponsoring Organizations of the Treadway Commission (COSO) Framework (2013), IIA Standards, the United Kingdom PSIAS, and ISO 31000:2018. Audit planning is strategic and considers the most critical government objectives, internal audit opinion, and assurance framework that links to organisational objectives and prioritises risks. Risk assessments in the United Kingdom include quantitative and qualitative analyses, which enable auditors to identify potential pitfalls comprehensively. The risk assessment elements include a controlled environment, risk assessment, control activities, information system, and monitoring control. The Three Lines of Defence model includes government departments and internal and external audit bodies, which ensure layered accountability.

The comprehensive Canadian RBA methodology is well-known. The RBA regulatory framework is governed by the stringent CSAE 3001, the COSO, and the IIA standards. Audit planning in Canada is systematic and emphasises understanding the government objectives,

criteria, scope, and audit approach. Risk assessment is data-driven and uses sophisticated tools and methodologies. Canada also uses the Three Lines of Defence model, which fosters accountability and reliability and encompasses internal audits, independent oversight bodies, and external auditors.

In Denmark, the regulatory framework strongly emphasises transparency and accountability. The Danish public sector applies the IIA standards and adopts National Audit guidelines with government agencies to develop audit plans that align with policy goals and objectives. Risk assessment is integral, and audits are frequently prioritised based on the potential influence on key risk areas by determining the contextual risk level. Denmark utilises the Three Lines of Defence model, which involves government entities, internal audits, and external auditors. This collaborative approach ensures checks and balances throughout the auditing.

4.2 Implications, Limitations, and Future Research

The results provide an overview of RBA practices in Australia, Canada, the United Kingdom, and Denmark, which have a high CPI ranking towards corruption. A high perception of corruption reflects the service quality and public sector governance efficiency. Indirectly, the corruption perception level demonstrates the ability of the public sector to conduct orderly monitoring, control, and risk management tasks and minimise their negative influence. Every government interested in utilizing RBA can implement the strategies employed by the aforementioned countries. Crucially, RBA procedures can proactively detect organizational risks, and strategic decisions should be made based on internal auditors' opinions and conclusions. Nonetheless, considering the structural elements of government public sector capacities is important when establishing RBA. Therefore, the RBA procedures utilized by the four countries might require improvement or modification based on specific national circumstances. The public sector is expected to gain from RBA through more methodical risk management, decreased public fund waste and leakage, and increased societal affluence.

One limitation of this study is the focus on RBA in the four countries, which could have affected a thorough examination of the topic. The primary limitation is that the CPI was the only criterion used to select the four included countries, which are all developed countries. Consequently, the results might not be applicable to other countries. Furthermore, the data used in this study are secondary data.

Nevertheless, these limitations present opportunities for additional RBA studies. Researchers can select other countries for inclusion using other indices, such as the Global Governance Indicators and Sustainable Governance Indicators. Research may concentrate on countries that share a continent, geographic region, or economic position. Considering the respective traits, economic backgrounds, and cultural aspects is critical when comparing countries. Lastly, the results derived from secondary data can be supplemented using the interview approach, where stakeholders, such as policymakers and internal audit practitioners, can be interviewed.

5.0 Conclusion

This study included Denmark, Australia, Canada and the United Kingdom based on their high rankings in the 2022 CPI. The RBA practices of the four countries were compared using library research information. Australia, Canada, and the United Kingdom implemented ISO

31000:2018 in their regulatory frameworks. Additionally, the RBA approaches in the four countries used IIA standards. Furthermore, the four countries used comparable risk assessment methods, which include risk identification, analysis, evaluation, and treatment. Lastly, the four countries used the Three Lines of Defence model.

The results suggested that other countries seeking to improve their auditing procedures might view RBA as suitable. Understanding the background and capabilities of national public sector resources is necessary to ensure successful RBA implementation. An appropriate RBA approach can positively influence audit quality, and risk management can help improve public sector service quality.

Numerous instances of public sector misconduct cast doubt on the ability of internal audits to effectively manage risks that could jeopardize public sector goals. The traditional auditing methodology that prioritises compliance must be reassessed. Risks in an organization can be managed using the RBA approach. Nonetheless, given the varied and complex composition and structure of national public administration, public sector internal audit faces challenges in using the RBA. Examining how RBA is applied in other countries was necessary to enable other countries to use the results as a reference. Importantly, risk management and RBA methods should be modified to match the current framework of public sector governance.

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Implementation Barriers to Management Accounting Practices in the Malaysian Public Sector

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Abstract

Purpose: This study seeks to examine implementation barriers to management accounting reporting in the Malaysian public sector.

Design/ Methodology/ Approach: A qualitative approach was utilized, wherein interviews were conducted with both accountants and non-accountants in two ministries and the Accountant General's Department of Malaysia (AGD). In addition, documentary reviews related to the management accounting reporting framework and guidelines were analysed.

Findings: Implementation barriers related to the current management accounting reporting and analysis were categorised into three primary domains, namely cognitive, technical, and organisational. Cognitive barriers refer to the mindset of accountants and non-accountants about the instrumentality of management accounting reports and the underlying budgetary philosophy of the Malaysian public sector. The organisational barriers are related to coordination among different parties involved due to the fragmentation in managing processes and rules and regulations of management accounting reporting. Meanwhile, technical barriers are defined as insufficient integrated system support in management accounting software, hardware, components, and elements.

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Originality/ Value: The present study contributed significant insights into the implementation barriers to the management accounting reporting framework by the Malaysian central government.

Keywords: Management accounting reporting, public sector accounting, barriers to change, management accounting implementation, Malaysia.

1.0 Introduction

Management accounting has been crucial in the modernization of the public sector, especially in the face of major problems and uncertainties faced by public sector organisations (Lapsley, 2000). Management accounting offers insights and analytical findings crucial for effective resource allocation, strategic planning, policy evaluation, risk management, and opportunities to ensure continual service delivery, accountability, and public value (Cohen, 2022). Therefore, relevant, reliable, and timely integrated management accounting reports are crucial (Morales et al., 2014; Grossi & Agento, 2022). Likierman (1994) analysed the management accounting impact on the United Kingdom (UK) central government and highlighted its central role in enabling effective governmental reformations. Similarly, the Malaysian government recognises the importance of management accounting reports for internal decision-makers through the AGD to enable more effective public sector financial management (Treasury Circular 1.3, 2021). Management accounting sections are established in accounting units in the ministries and are responsible for producing management accounting reports to respective management. Nevertheless, implementing a large-scale management change resulted in numerous challenges and issues. Rozaidy and Siti-Nabiha (2023) investigated accrual accounting implementation at Malaysian federal ministries and revealed significant barriers and prolonged issues encountered by the AGD during the accounting change at the central level, including implementation delays, inadequate understanding among ministerial members, issues in developing accounting frameworks and standards, and technical issues related to developing and integrating alternative accounting information systems.

The AGD currently undertakes an institutional transformation similar to the previous accrual accounting implementation, with hindrances and issues predicted to occur during the implementation process of alternative accounting policies and techniques. Nonetheless, the management accounting framework and standard setting do not fully correspond to financial accounting reporting standards, tools, and techniques. Thus, the implementation issues that might arise while implementing management accounting reports might differ in both contextual and practical aspects compared to previous accrual accounting implementation.

The implementation of management accounting analysis and reports requires addressing various issues, such as the skills and competencies needed to prepare relevant reports, as well as the level of acceptance of these reports among users. Empirical research demonstrated that introducing alternative accounting techniques commonly practised in private settings into the public sector frequently encounters challenges and barriers to effective implementation and achieving the intended outcomes (Harun et al., 2012; Siti-Nabiha & George, 2021). Most management accounting tools and techniques introduced in the Malaysian public sector, such as outcome-based budgeting and risk management, are not part of the traditional public

accounting domain. Furthermore, research on management accounting implementation in governmental settings remains in the infancy stage.

The contextual setting of management accounting implementation provides a significant research venue for understanding how a central governmental agency (AGD) could internalise the latest accounting techniques commonly practised in private organisations into a highly centralised governmental environment, namely federal ministries. Management accounting im plementation is limited in highly embedded institutions or agencies in the public sector (Battilana, Leca & Boxenbaum, 2009; Thornton, Ocasio, & Lounsbury, 2012; Rozaidy & Siti-Nabiha, 2023). Examining the barriers at the federal level provides an opportunity to enrich the comprehension of implementing management accounting commonly practised in highly institutionalised environments. Accordingly, the current study seeks to answer the research question, namely the barriers to implementing management accounting reporting and analysis, by employing a qualitative approach. Section 2 provides a literature review of the barriers and challenges of management accounting implementation in the public sector. Section 3 describes the method utilised in this study. Section 4 presents the findings and discussion while Section 5 provides a brief conclusion.

2.0 Literature Review

2.1 Management Accounting Practices in Malaysian Public Sector Organisations

Management accounting has been utilised to support and maintain various reformations implemented in the public sector by the Malaysian government. The focus of management accounting practices is related to budgeting and budgetary control, performance measurement and benchmarking, costing practices, and financial and risk analysis. Budgeting and performance measurement are well-established areas, on which public sector organisations highly rely for planning and resource allocation while performance measurement tools are employed to track progress towards achieving budgetary and strategic goals (Rozaidy & Siti-Nabiha, 2023). While costing practices are not as prevalent as budgeting, certain Malaysian public sector organisations adopt practices, such as activity-based costing (ABC) to thoroughly understand the cost drivers of provided services. The ABC could assist in allocating resources more efficiently and identify pertinent areas for cost savings (Isa et al., 2011). Meanwhile, financial and risk analysis is a growing area. Public sector organisations recognise the importance of financial analysis for strategic decision-making and risk management (Said et al, 2020). Organisational accountability could also be improved by practising risk management driven by performance measurement usage to accomplish relevant objectives (Abu Bakar et al., 2019).

Insufficient risk management awareness, knowledge, and skills are observed among public managers (Wan Muhammad Ali & Beh, 2019). Empirical studies also revealed several issues related to applying management accounting tools and techniques, especially in emerging economies (Helden & Uddin, 2016). The tools and techniques created for the private sector might not be suitable for the public sector as the objectives and plans of public sector organisations depend more on long-term social outcomes, which are more difficult to quantify and require a longer time to attain. Additionally, connecting outcome-based accomplishments to the employed inputs is challenging due to the ambiguity in the responsibility level of officers or ministries. The adoption of management accounting practices also varies across public

sector organisations. Other barriers include adequate compliance and financial accountability and the higher usage level of advanced cost analysis.

2.2 Implementation Barriers

Significant empirical research was conducted on barriers to innovation in the public sector, namely innovative ideas and processes created and developed for the adopted entities (Walker et al., 2011; Cinar et al., 2019). Cinar et al. (2018) delineated that organisational barriers comprise (i) ineffective administration of process activities, (ii) resistance or lack of support, (iii) lack of resources, (iv) inflexible rigid organisational structure or culture, and (v) insufficient skills and expertise. The barriers to implementing accounting innovation were also categorised in Luder's (1992) framework, which concentrated on the elements of central government accounting reformations in the budgeting and accounting systems of several industrialised countries (Luder, 2002). Luder's (1992, 1994) model specifies the interplay of various political and administrative contextual factors that significantly influence the outcomes of accounting reformation initiatives. The factors encompass the legal system, accounting personnel's qualifications, and the jurisdiction scale (Luder 1992, 1994), which could serve as either barriers or enablers of effective accounting reformations.

Luder's foundational framework was refined based on the insights from existing empirical research before being rebranded as the financial management reform process model (Luder 2002). Accordingly, the barriers and enablers of effective accounting reforms would be contingent on the following factors (Luder 2002, pp. 9-10):

i. The legal system encompasses legal and civil law, which are interrelated to the governance structure. The legal system also includes the electoral system and the flexibility of the budget law, which significantly influences the accounting reformation.
ii. The state structure pertains to the nature of the state, such as whether the state is organised as a federal or unitary system and the division of power among the distinct bodies and executive branches.
iii. The administrative structure refers to the division of authority among the various administrative entities and the organisational features of the administration.
iv. The proficiency and expertise of public officers are generally and specifically the accounting personnel, which significantly impact the duration and cost of implementing accounting innovation.
v. National culture encompasses the broader social, political, and administrative elements, which also refers to attitudes towards risk, power dynamics, and cultural individualistic versus collectivist orientations.

Luder (2002) argued that implementation barriers concern the accounting reformation at the national level rather than at the institutional, departmental, or ministerial level. The challenges of implementing accounting reformations or innovation could also be scrutinised through the works of Gond et al. (2012), which were established based on Hoffman and Bazerman (2007). Gond et al. (2012) and Moon et al. (2011) examined the barriers to integrating sustainability

strategy in the management control system, with the developed concepts pertinent to understanding the barriers to implementing management accounting reporting and analysis. Gond et al. (2012) and Moon et al. (2011) categorised the barriers as follows:

i. Organisational, which refers to how processes are organised and structured in the respective organisation.
ii. Cognitive, which is the mindset of involved individuals, namely accountants and non-accountants.
iii. Technical, which refers to the tools, systems, and expertise.

Moon et al. (2011) demonstrated several integration barriers. Particularly, the cognitive challenge arises from cost and risk uncertainties associated with sustainability and performance. The organisational challenges pertain to higher coordination among various units and functions and senior management commitment. Meanwhile, the technical challenges relate to issues in formulating appropriate indicators that could be used across diverse organisational functions and operations and issues related to information technology (IT).

3.0 Methodology

A qualitative approach was utilised in this study, which involved interviews conducted with 13 accountants and non-accountants in two Malaysian ministries and the AGD in June 2023. The interviews included individuals involved in Management Accounting (MA) implementation in the respective ministries and potential users of information derived from the MA system. The issues discussed during the interviews related to MA adoption, which were guided by Moon et al. (2011) and Gond et al.'s (2012) categorisation of implementation barriers. Moreover, the focus of the interviews was on the information received and required by the users of MA reports. The interviews were recorded and transcribed. Documentary reviews related to the MA reporting framework and guidelines were also analysed. The list of documents reviewed is depicted in Table 1. Subsequently, the transcribed interviews and documentary data were analysed thematically. Key similarities and differences between each interview and documentary review were determined to obtain a more holistic perspective of the phenomena and for triangulation purposes to ensure the reliability and validity of the findings.

Table 1: The List of Documentary Reviews

No.	Document Name
1.	PS 1.3 Malaysia Treasury Circular Management Accounting Implementation *PS 1.3 Pekeliling Perbendahaaran Malaysia Pelaksanaan Perakaunan Pengurusan*
2.	Guidelines of Accountant General Malaysia No. 2/ 2021 - Management Accounting Implementation: Financial Statement Analysis and Risk Assessment *Garis Panduan Akauntan Negara Malaysia Bil. 2/ 2021 - Pelaksanaan Perakaunan Pengurusan: Analisis Penyata Kewangan dan Penilaian Risiko*
3.	Guidelines of Accountant General Malaysia No. 5/ 2021 - Management Accounting Implementation: Costing *Garis Panduan Akauntan Negara Malaysia Bil. 5/ 2021 - Pelaksanaan Perakaunan Pengurusan: Pengekosan*
4.	PS 5.1 Financial Management and Accounts Committee Implementation Guidelines (Amendment 2021) *PS 5.1 Garis Panduan Pelaksanaan Jawatankuasa Pengurusan Kewangan dan Akaun (Pindaan 2021)*

Table 1: The List of Documentary Reviews (continued)

No.	Document Name
5.	Terms of Reference for Management Accounting Working Committee Members (Appendix A) *Terma Rujukan Ahli Jawatankuasa Kerja Perakaunan Pengurusan (Lampiran A)*
6.	Terms of Reference for Management Accounting Steering Committee (Appendix 1) *Terma Rujukan Jawatankuasa PEMANDU Perakaunan Pengurusan (Lampiran 1)*
7.	PB 1.3 Guidelines for Preparation of Federal Expenditure Budget Proposal (Year 2024) *PB 1.3 Garis Panduan Penyediaan Cadangan Anggaran Perbelanjaan Persekutuan (Tahun 2024)*
8.	Treasury Instructions (Amendment 2023) *Arahan Perbendaharaan (Pindaan 2023)*
9.	Public Sector Management Accounting Blueprint 2018 Blueprint *Perakaunan Pengurusan Sektor Awam 2018*
10.	Annual Reports of Ministries *Laporan Tahunan Kementerian*

4.0 Findings and Discussion

The issues and challenges in implementing MA reporting and analysis were analyzed based on three critical areas as referred to in the works of Gond et al. (2012) and Hoffman and Bazerman (2007).

4.1 The Strategic Management Accounting and Reporting (SMARt) Implementation

The MA emphasis is becoming increasingly crucial following the implementation of accrual accounting in the Malaysian public sector and outcome-based budgeting (OBB) requirements. The AGD developed the public sector MA blueprint in 2018, followed by the issuance of Treasury Circular PS 1.3 in February 2021 listing the four MA components to be analysed and reported, namely financial statement analysis and risk assessment, costing, performance measurement, and resource analysis. The Management Accounting Section (SPP) has also been established in each Ministry through the Accrual Accounting initiative. The MA section prepares the SMARt report bi-annually. The detailed guidelines for the MA implementation on financial statement analysis and risk assessment and costing were issued on August 18, 2021, and December 22, 2021, respectively. Contrarily, the detailed guidelines for resource analysis and performance measurement were not publicly issued, which suggested that SMARt implementation was in the early stages. Nevertheless, SMARt reports on the financial statement and risk assessment and costing were prepared and submitted to the AGD by the two ministries involved in this study. The report was presented during the accrual accounting committee meeting chaired by the top executive of the ministries.

4.2 The Cognitive Barriers to Implementation

One significant impact of SMARt reporting was the changing and expanded role of ministerial accountants in providing information and analysis for decision-making. The findings revealed that most public officers perceived that accountants would continue to play the traditional role of preparers of historical reports. Accountants were regarded to be primarily involved in the back-end process or provision of historical data through financial reporting. In addition, the MA perspective among accountants was a significant barrier to the effective implementation of

SMARt reporting. The accountants explicated the disadvantage of posting in the SPP compared to other accounting-based technical departments. Financial accounting and reporting are highly procedural and are governed by accounting standards. The procedures are structured differently than MA, which requires judgment and a thorough understanding of the organisation. Hence, accountants are required to be creative in analysing various financial and non-financial information during MA analysis and reporting. Furthermore, the implementation of the MA framework and SMARt reporting was at an early stage, in which SMARt reporting guidelines were not completely developed. Accounting staff posted in the SPP would experience significant challenges in adopting alternative methods of analysing and preparing MA reports. Such endeavours would negatively impact accounting staff's work motivation owing to the higher difficulty in coping with the different working environment compared to colleagues in other departments working in a more familiar and guided environment.

The MA does not contain accounting standards to guide the analysis compared to financial accounting. The nature of the organisations would also influence the analysis based on accountants' judgement. More challenges would be encountered by the accountants to formulate the report as financial accounting activities are perceived to be more effortless and less complicated than MA. The situation would be aggravated with the rotation-based staff placement method employed by the AGD, wherein the accountants would be rotated around the ministries when being promoted to higher grades. Resultantly, the accounting department could not retain experienced accounting staff with SMARt reporting requirements and negatively impact SMARt reporting quality. Additionally, public sector accountants in Malaysia underwent significant institutional changes. The implementation of accrual accounting at the federal level required the accountants to completely reform the previous institutional setting from a cash accounting system to an accrual accounting system. The change highly pressurised the accountants to adapt and realign the existing working methods. The accountants were required to maintain cash-based operational procedures as the law was not formalised for accrual accounting. Simultaneously, the accountants were required to incorporate accrual accounting-based information into the system, which was compounded by incorporating an MA model and SMARt reporting as part of the operational workload. The additional workload was not assisted with additional hiring or supporting staff. The daily operations at the MA department were conducted by only several officers, who must perform both SMARt reporting and other operational tasks.

Another significant cognitive barrier was the inadequate awareness and understanding of the instrumentality of MA reports to relevant users due to the early stage of SMARt implementation and the perception of MA reports. The barrier posited that the SMARt understanding required further development, especially related to the concept of public sector management accounting and the benefits of SMARt reporting in facilitating strategic decision-making. Notably, the most significant cognitive barrier emerged due to the budgetary control philosophy within the Malaysian public sector. One of the SMARt reporting objectives is to enhance financial management efficiency, although the focus on efficiency is compromised due to the budgeting philosophy or practice in the Malaysian public sector. Particularly, the conventional public service mindset, which revolves around the national budgetary philosophy, limited the usage of SMARt reporting. Spending effectiveness is not solely based on cost-efficiency initiatives but also on fulfilling annual budgetary commitments by federal ministries. The financial priority is to finish the allocated budget rather than conserving financial resources.

Failing to fulfil budgetary targets or the inability to expend the allocated budget results in penalties, such as budget cuts for the subsequent budgetary cycle, which leads to budgetary slack. Furthermore, a general perception exists that specific financial resources will be provided to ensure the continuation of service provisions, regardless of whether fulfilling the cost-efficiency target. The perception emanated from the underlying nature of the establishment as a public sector entity. Subtle resistance behaviours, including late report submissions, shallow report presentations, delays in data handouts, and unfriendly acceptance by top management, would be exhibited when the perception is embedded in the public sector, especially by public sector staff without an accounting background.

4.3 Organisational Barriers to Implementation

The complexity of the Malaysian governmental organisational structure is constantly a significant challenge, especially when introducing the latest policies or regulations in the governmental setting. The complexity of the governmental structure posed several issues for SMARt model implementation. Specifically, a disorienting chain of communications was observed in the data-gathering process. The SMARt reporting commences with the AGD at the central level by developing and distributing the SMARt model guidelines to governmental agencies. The analysis is prepared by the accounting unit or department at the ministerial level. The accountants would experience significant challenges in collecting and gathering data, information, and reports from various departments, units, centres, and agencies under ministerial supervision. For example, the accountants are required to collect data from 135 hospitals, 11 specialist medical institutions, 1,057 clinics, 1,749 rural clinics, 86 maternity and children's hospitals, and 255 1Malaysia or community clinics under the Ministry of Health (MOH; MOH's Annual Report, 2021; page 3), which presents a significant challenge to ensure timely and accurate data collection.

The complex chain of data distribution from a low hierarchy of operations, such as clinics, to the district level creates a significant barrier. The data are required to be recompiled and reanalysed for a simpler version before being submitted for reporting and presentation at the central level. The data values and purposes might be lost in translation. Data reporting would also require accountants to obtain relevant information from various ministerial units or divisions as other parties outside the accounting section perform certain information processing or analysis. The MA accountants are both information preparers and users. The accountants provide information through the report to the top management and the AGD. The accountants must also conduct and incorporate the analysis into the report by obtaining the data and information from other ministerial units. For instance, the accountant is required to gain access to the various units, such as key performance indicators (KPI) report from the KPI unit and the budgetary information from the finance and strategic units, during resource and performance analyses. The process requires cohesive collaboration between different departments. Nevertheless, establishing a cohesive collaboration between various departments in delivering MA reports is highly challenging owing to the specific nature of each department. Furthermore, overlapping roles and responsibilities in the analysis exist.

The collected data are required to be analysed again by the accountants by thoroughly comprehending the ministerial nature and complexity. The CGMA/AICPA report (2017, pg. 8) elucidated that:

> "As a profession, management accounting requires a thorough understanding of the business (including the business model) and its operating environment so that organisational risks and opportunities are known."

Thus, preparing the report and determining the analysis requires a high understanding of the nature of involved ministries, complexities of the focus, and strategies and required data requirements for decision-making to pinpoint relevant issues, risks, and opportunities. Nonetheless, understanding is scarce in the current situation due to insufficient expertise of the accountants in preparing the report as adequate training and skills were not provided. The accountant possesses lower knowledge and understanding levels of costing analysis types required and beneficial to the management. The scarcity of comprehension and knowledge in preparing for cost analysis and the challenge in gathering information from each responsibility centre, i.e., *Pusat Tanggungjawab* (PTJ) for PTJ-based costing (PBC) and outcome-based costing (OBC) reporting led to inadequate cost information observed in SMARt reports. The circumstance was exacerbated by the challenge of identifying measurable outcomes for ministerial programmes or activities, which limited the usefulness of SMARt reports in decision-making.

4.4 Technical Barriers to Implementation

A technical barrier is a constraint or obstacle within an organisation or institution that hinders overall functioning, efficiency, or progress. The barrier could manifest in various manners, such as inadequate infrastructure, obsolete technology, poor communication systems, or inefficient workflows. The barrier also refers to the methods of employing relevant tools, which could impede the organisational ability to achieve goals, adapt to changes, and maintain a competitive edge in the market. Generally, the discrepancies in the facilities related to MA model implementation and SMARt reporting can be categorised into two aspects, namely software and hardware. Software or systems refers to various applications ranging from operating systems and productivity software to specialised business or accounting solutions. Meanwhile, hardware refers to the physical components of a computer system and other electronic devices, which play a critical role in the functionality and performance of technology-driven organisations. The following are the issues expressed by the respondents, which are divided into specific levels with direct and indirect connections to SMARt reporting at the two ministries in this study.

4.4.1 Inadequate Software or System and Non-Integrated System

The inadequacy of the existing system is a hurdle to effective SMARt implementation. For instance, the costing analysis requires data from the MyCost system, which is a broad system. The accountant is required to calibrate the system and be creative in formulating the cost variables in the system owing to the lack of a specific standard operating procedures that caters to the complexity of the ministries. Preparing the reports becomes a time-consuming task, which negatively impacts timely report submissions. The situation is further compounded by different PTJs with respective systems tailored to specific requirements and contexts. Simultaneously, relevant information and data required by the SPP are only available at respective PTJs. The non-integrated system creates accessibility issues to relevant data and information from relevant PTJs, which is highly time-consuming as relevant data must be continually extracted and transferred from and between several fragmented systems. Various

systems also exist in the organisation when each PTJ possesses and employs the respective system, which may lead to system duplication and redundant produced data.

4.4.2 The Applicability of the Rules and Guidelines

The complexity of ministries requires pertinent judgement and analysis for preparing SMARt reports. The non-standardised practice between ministries in the SMARt reporting structure reduces the quality of expected SMARt reporting outputs. Certain preparers explained that current SMARt reporting outputs are superficial and unguided and preferred standardising SMARt reporting guidelines. Meanwhile, the AGD provided a different perspective on reporting standardisation, in which SMARt reporting guidelines should be broad and non-specific for flexibility. The accountants expressed that the AGD was required to develop a generic template or guideline during the early implementation phase due to the complexity of the Malaysian governmental structure. A generic template allows the preparers to realign collected data based on the specific ministerial context, which provides more freedom not to report all elements mandated by the SMARt reporting guidelines. Not all elements are necessarily applicable in each report. While the costing guidelines provided by AGD are detailed and contain a specific template for specific reporting, such as PBC and OBC, users perceived the guidelines as highly general. The costing analysis should be tailored to the ministerial nature in terms of functions, operations, characteristics, and contexts. The preparers of SMARt reports are required to be creative in determining corresponding outputs and be transparent with expected outcomes based on the nature and performance target of a specific ministry. The requirement becomes a challenge to the accountant's lack of experience in the technical components of the costing reports.

5.0 Conclusion

The challenges and uncertainties in the Malaysian public sector require MA information that enables highly informed decisions, which is addressed by introducing MA reporting in 2021. The current study highlighted several barriers hindering the effective implementation of MA reporting in the Malaysian public sector, namely the mindset of the accountants and non-accountants, the fragmentation in the organisational processes and structures preventing the integration between various units and divisions, and inadequate technical infrastructure and integrated system support. Resolving the barriers requires changing mindset through more enriching engagement with accountants within the ministries and between AGD and the ministries. The engagement could lead to a higher awareness of SMARt reporting and relevant benefits and usefulness for more informed decision-making. The engagement should be undertaken concurrently with actions to foster coordination, reduce fragmentation in the ministerial units, streamline bureaucracy, and allocate adequate budgets to improve IT infrastructure. The Malaysian public sector should effectively resolve the challenges to enhance MA and enable the usage of provided information for highly informed decision-making.

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Issues and Challenges in Accounting for Infrastructure Assets in the Malaysian Government and the Way Forward

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Abstract

Purpose: The current study seeks to examine the issues and challenges encountered by the Malaysian government accounting staff in recognising and measuring infrastructure assets. Additionally, recommendations for further actions by the Accountant General's Department of Malaysia (AGD) and suggestions for future research were delineated.

Design/ Methodology/ Approach: This study employed a qualitative approach through archival search and semi-structured interviews. Interviews were conducted with 52 government staff representing 10 ministries, three state governments, and three local governments. The respondents were selected through purposive sampling and snowballing techniques.

Findings: Accounting for infrastructure assets in Malaysia adheres to Malaysian Public Sector Accounting Standards (MPSAS) 17 and several other government guidelines. Several ministries experienced difficulties in identifying the infrastructure assets due to lack of clarity in the definition and flexibility of the current accounting standards and guidelines. Moreover, the unique features of infrastructure assets, namely a long useful life and being part of an asset system or network, led to challenges in recognition and measurement.

Practical Implications: The findings provided several practical recommendations for the AGD's understanding of the issues and challenges encountered by the accounting staff, which would assist in formulating policies and guidelines for infrastructure asset accounting.

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Originality/ Value: The present study significantly contributed to the existing body of literature on accounting for infrastructure assets which remains scarce in Malaysia.

Keywords: Infrastructure assets, recognition, measurement, IPSAS 17, MPSAS 17.

1.0 Introduction

Governments acquire and maintain huge amounts of infrastructure assets in delivering services to society. The Organisation for Economic Cooperation and Development (OECD) defines infrastructure asset as "the system of public works in a country, state, or region, including roads, utility lines, and public building - in essence, the tangible backbone of essential goods and services underpinning an economy" (OECD, 2021, p. 15). Infrastructure assets are physical structures and systems encompassing infrastructures for transportation, utilities, water, energy, and public buildings employed by governments to serve citizens.

Nonetheless, numerous countries reported significant challenges in ensuring the performance of quality infrastructure assets over the life cycle of assets (OECD, 2023). The recent incident of the collapsed dam in Libya was reported as a "disaster of epic proportions" and associated with poor infrastructure maintenance and misappropriation of public funds (Al Jazeera, 2023). Therefore, proper accounting and management of the infrastructure assets are integral to high service quality while preventing calamities.

The Malaysian government has consistently allocated a significant portion of the budget for infrastructure developments through numerous Malaysian Plans. High investments provided via the 11th Malaysia Plan have contributed to various improvements in basic infrastructure and amenities. For instance, access to public health centres achieved 92.6% in 2019. Access to clean and treated water supply was 95.1%, access to broadband coverage in populated areas was 95.5%, and access to electricity supply was 98% in 2020.

In addition, access to rural paved roads reached 3,982 km from 2016 to 2020 (Economic Planning Unit, 2021). Subsequently, the government allocated RM400 billion for infrastructure development in the 12th Malaysia Plan, which was revised to RM415 billion in 2023. Thus, the plan signifies a higher governmental commitment towards infrastructure development (Key Developments, 2023).

The Malaysian government has adopted accrual-based International Public Sector Accounting Standards (IPSAS) since 2011. A total of 36 MPSAS out of 44 IPSAS developed by the International Public Sector Accounting Standards Board (IPSASB) were issued by the AGD in 2023. While the adoption of accrual accounting was challenging, introducing MPSAS and implementing the Integrated Government Financial Management Accounting System (iGFMAS) facilitated the move towards full adoption in the public sector (Abu Hasan, Saleh & Isa, 2022).

Specifically, IPSAS 17 is the reference point to account for all assets, including infrastructures. IPSAS 17 was adapted as MPSAS 17 in Malaysia to guide all governmental accounting treatments of assets. Nevertheless, IPSAS 17 and MPSAS 17 did not provide detailed descriptions and accounting treatments for infrastructure assets. As such, relevant accounting offices must clarify and standardise respective treatments of infrastructure assets within the boundaries provided by the MPSAS 17 to ensure accurate records.

Accounting for assets was found to be the most challenging in the early stages of accrual accounting adoption. Issues varied from asset identification, recognition, valuation, and disclosure (Abu Hasan et al., 2022; Rosli, Kasim & Kamaluddin, 2020; Rosli, Hasbolah & Yahya, 2019; Ismail, Abdullah & Zainuddin, 2013). Many trainings and human resources development were conducted to support the accrual accounting adoption. Numerous fixed assets were successfully accounted for after several years of introducing MPSAS 17.

Nevertheless, certain ambiguous areas persist, especially for assets commonly possessed only by governments, such as heritage, intangible, biological, and infrastructure assets. Currently, government accountants encounter challenges in recognising, measuring, and disclosing infrastructure assets, which may reduce the efforts in enhancing public spending accountability and transparency in terms of acquiring, maintaining, or disposing of assets. The brief guidelines on the assets provided in MPSAS 17 also resulted in variations in accounting practices, which was compounded by the limited comparable practices in the private sector as infrastructure assets are only common for governments.

The present study could assist the Malaysian government in understanding the issues related to accounting for infrastructure assets in public sector organisations. The findings could also assist the Malaysian government in searching for feasible solutions for the identified issues and determine the most optimal approach to implement the best accounting practices for infrastructure assets.

This study aimed to discuss the issues and challenges encountered by the Malaysian government in accounting for infrastructure assets while highlighting practices and guidelines from other countries. Several practical recommendations were also provided to resolve the encountered issues. The subsequent section reviews governmental guidelines, including MPSAS 17, and prior studies on accounting for infrastructure assets. The methodology is described in Section 3 and a discussion of the findings is delineated in Section 4. Section 5 concludes the study.

2.0 Literature Review

Infrastructure assets are the physical structures and systems possessed and operated by governmental entities at the local, regional, or national level. The assets are generally developed to provide essential services to the public and support economic activities (Miller, 2021). Well-maintained infrastructures also serve as a primary indicator to differentiate between prosperous and impoverished nations (Ojomo, 2018). Meanwhile, the infrastructure asset definition varies depending on a specific context even in governmental documents (Miller, 2021). For example, Investopedia (2023) defines infrastructure as the basic physical systems of a nation, which tends to be capital-intensive, costly, and highly vital to national economic

development and prosperity. Investopedia (2023) also categorises infrastructure into hard and soft types.

Comparatively, the Chartered Institute of Public Finance and Accountancy (CIPFA) states in Bulletin 12 that "infrastructure assets are inalienable assets, expenditure on which is only recoverable by continued use of the asset created (i.e., there is no prospect of sale or alternative use). They are often homogenous assets that work as a part of a continuous network that is maintained in a relatively steady state though there may be distinctive parts of this network, e.g., carriageways and structures, e.g., bridges. They are assets that generally have very long lives" (CIPFA, Section 1, para. 15, 2023). According to Merrit Research Services (2023), infrastructure assets are long-lasting capital assets providing value to land and tend to be part of a larger system. Certain examples are bridges, dams, tunnels, streets, sidewalks, water mains, and lighting systems.

2.1 Guidelines for Accounting of Infrastructure Assets

Public sector organisations generally adhere to the IPSAS developed by the IPSASB. Accounting treatment for infrastructure asset is included in IPSAS 17 on the Property Plant and Equipment (PPE) (IPSASB, 2020). In Malaysia, IPSAS 17 was adopted as MPSAS 17. All aspects of accounting treatments for infrastructure assets are not elucidated in IPSAS 17 except for a minimum definition. IPSAS 17 (IPSASB, 2020, para. 21, p. 542) on the PPE stated that while there is no universally accepted definition of infrastructure assets, these assets category comprises any which has some or all the following characteristics:

i. They are part of a system or network;
ii. They are specialised in nature and do not have alternative uses;
iii. They are immovable; and
iv. They may be subject to constraints on disposal.

IPSAS 17 will be replaced by a different standard, namely IPSAS 45, effective on 1st January 2025. While a specific definition of infrastructure assets is not provided in IPSAS 45, the characteristics to identify the assets are clearer. Furthermore, application and interpretation guidance are provided to assist in recognising and measuring infrastructure assets. Governments could distinguish infrastructure assets from other PPE types and apply suitable accounting treatments (IPSASB, 2023).

The MPSAS 17 guidelines on infrastructure assets in Malaysia are available in various circulars, including *Garis Panduan Pelaksanaan Perakaunan Akruan Bil. 1 Tahun 2013 - Aset Kerajaan Asas Akruan and Surat Pekeliling Akauntan Negara Malaysia (SPANM) Bil. 3 Tahun 2022 - Tatacara Perakaunan Aset Bukan Kewangan Kerajaan*. Infrastructure assets are categorised under immovable non-financial assets and defined as "a basic facility construction that forms a network system to provide services to the community, which include roads, water, sewerage, and other infrastructures, such as airports, ports, jetties, electrical power supply systems, telecommunication systems, and power station complexes" (SPANM, 2022, p. 38).

The AGD also issued the Federal Government Accrual Accounting Manual to provide further guidelines in accrual accounting implementation. Nonetheless, the Accounting Manual for Property, Plant, and Equipment (MPA 5, 2021), does not provide any reference to infrastructure assets. The *Garis Panduan Pelaksanaan Perakaunan Akruan Bil. 1 Tahun 2013* only provides guidelines on useful life of various infrastructure assets for depreciation purposes, despite no specific definition. Infrastructure assets are also not specified in the Interpretation of Accounting Policies (Revised 2019) issued by the AGD (AGD, 2019).

2.2 Issues in Accounting for Infrastructure Assets

Infrastructure assets represents a major proportion of total assets in state, local governments and several ministries of federal governments (Ivannikov & Dollery, 2020). Infrastructure assets also consist of a significant portion of governmental budgets for maintenance and further development to stimulate economic growth while supporting governmental operations in delivering public services (Farias, 2020; Pallot, 1997). According to Pallot (1997), governments should account for the assets accurately to avoid underestimating the available resources. An increasing interest is also observed among researchers and academics in the topic related to how government identifies and accounts for infrastructure assets (Pallot, 1997; Vermeer, Patton & Styles, 2011).

Ouda (2016) explained the complexities in recognising governmental infrastructure assets are due to the different ways of acquiring those assets. Nevertheless, infrastructure assets must be appropriately accounted for owing to the significance of governmental operations and duties to citizens (Pallot, 1997; Farias, 2020). McDonough and Yan (2023) also highlighted that limited information is available on governmental capital asset accounting policies, although capital assets, including infrastructures, are crucial.

The International Federations of Accountants (IFAC) perceive accurate governmental accounting for infrastructure assets as critical due to the significant allocation amounts (IFAC, 2023). The IFAC also exerted that the deterioration and maintenance of public assets led to increasing public calls for accurate reporting. The challenges in determining the most optimal accounting treatments remain being debated and unresolved after more than three decades (Lombardi, Schimperna, Smarra & Sorrentino, 2021; Simpkins & Jensen, 1995; Micallef, Sutcliffe & Doughty, 1994; Pallot, 1994; Rowles, 1992). Particularly, determining depreciation costs is one of the significant issues in accounting for infrastructure assets.

Burns (1993) asserted that the unique characteristics of infrastructure assets (i.e. very long-life nature, almost infinite, and are renewable rather than replaceable) have led to complexities in determining their economic lives. Economic lives refer to the “period of time beyond which it is economically worthwhile to replace rather than to continue to repair and maintain” (Burns, 1993, p. 92). As a result, the determination of depreciation costs for these assets would be less straightforward and complicated.

Infrastructure assets are parts of governmental systems or networks with multiple interrelated components. The components require integration for the assets to optimally function and provide intended services. The interrelatedness is “the very essence of the infrastructure assets” (Burns, 1993, p. 92). The componentisation of the infrastructure asset network or system refers to “the disaggregation of assets into different parts with several useful lives and

replacement costs" (IPSASB, 2019, para 4.15), which allows for distinguishing the useful life of assets in the system and the depreciation methods. The author also argued that the residual value pattern could significantly impact the depreciation of the assets, which does not decline monotonically.

Furthermore, the Canadian Institute of Chartered Accountants (CICA, 2002) stated that the detailed information provided by componentisation would produce several benefits in asset management. IPSAS 17 requires the application of component approach. However, the componentisation practices observed in various countries differ with some countries adopt componentisation while others opt not to adopt the approach.

Lombardi et al. (2021) reported that only New Zealand adopted the component method while Canada allowed for both componentisation and whole asset. Australia, Austria, France, and the United States of America (USA) did not adopt the component approach. Subsequently, the IPSASB (2019, para 4.15) clearly expressed that it is not suitable to componentise infrastructure assets. Burns (1993) also supported the idea of no componentisation because infrastructure assets consist of interrelated and interdependent parts and effort to disaggregate the assets may outweigh the value of the information for decision-making.

Additionally, the distinctive features of infrastructure assets lead to higher complexity in recognition, valuation, reporting, and disclosures. The lack of specific accounting standards for infrastructure assets also exacerbates the situation by creating more barriers to establishing transparent and comparable information. Hence, IPSAS 17 specifies that governments must disclose relevant information about infrastructure assets in financial statements and other reports. Lombardi et al. (2021) discovered variations in reporting and disclosure practices in different countries, including Australia, Austria, Canada, France, the USA, and New Zealand.

The countries developed their own accounting standard for infrastructure assets, except for New Zealand which fully adopts IPSAS17. In the context of Malaysia, published literature specifically on accounting for governmental infrastructure assets is limited. Most studies on government assets generally reported the challenges and issues in accounting for governmental assets, such as obtaining sufficient information, determining ownership and control, complying with the MPSAS, dealing with the information systems, and resolving human resources issues (Abu Hasan et al., 2022; Rosli et al., 2020; Rosli et al., 2019; Ismail et al., 2013).

Abu Hasan et al. (2022) reported challenges faced in accounting for assets which include (i) recognition and valuation of the assets especially in specific cases where the assets are operated by a third party (concession assets), (ii) determination of initial value and the service life of assets which are taken over from the private sector, local authority, or state government, (iii) inadequate information on additional costs incurred by the third party for repairs and maintenance, and (iv) asset impairment, and asset disposal.

Ismail et al. (2013) also discovered issues related to IPSAS 17 implementation, such as inconsistencies in recognition of assets due to the lack of clear guidelines on the definition, shared ownership of assets which give rise to who should report the assets, and determination the asset value. Meanwhile, recent studies related to infrastructure assets primarily focus on asset management (Tajudin, Khan & Ismail, 2021; Syed Ali, Sheung & Mohd Razali, 2019).

Studies on infrastructure assets in Malaysian public sector organisations are limited. Thus, this study sought to bridge the literature gap while suggesting future research avenues.

3.0 Methodology

The current study employed a qualitative approach comprising both archival search and semi-structured interviews. The approach is appropriate as the research objective involves exploring issues and challenges related to accounting practices for infrastructure assets in public sector organisations. Additional data were also collected by reviewing existing studies, accounting standards and guidelines issued by the AGD, and guidelines and governmental publications in other countries. The preliminary archival searches identified standards, practices, and issues, which enabled the preparation of interview guides.

Archival searches also informed researchers of the requirements, current practices, issues, challenges, solutions, and best practices in various countries. These include MPSAS 17 Property, Plant and Equipment (MPSAS, 2013), Interpretation of Accounting Policies (AGD, 2019), *Garis Panduan Pelaksanaan Perakaunan Akruan Bil. 1 Tahun 2013 - Aset Kerajaan Asas Akruan* (AGD, 2013)*, SPANM Bil. 3 Tahun 2022 - Tatacara Perakaunan Aset Bukan Kewangan Kerajaan (*SPANM*,* 2022*),* and *Manual Perakaunan Akruan* (AGD, 2021). In addition, public sector accounting standards and guidelines in other countries are also examined. Preliminary discussions with AGD accountants were also conducted to confirm the scope and context of the study.

An interview guide was developed based on the issues related to accounting for infrastructure assets identified in the literature as well from the discussion with officers from the Accrual Accounting Implementation Team (PPPA). The interview guide was emailed to the respondents before the interview session to allow the respondents to thoroughly understand the issues to be discussed during the interview. Apart from the background information of the respondents, the interview guide comprises questions on current practices and challenges faced by the respondents in accounting for infrastructure assets. The data from interviews were analysed descriptively to gain insights into the current practices and issues or challenges. All responses were included in the discussion of findings with several quotes included to strengthen arguments.

The interview respondents were selected through purposive sampling and snowballing techniques. The target respondents were accountants, finance personnel, and technical staff related to the management of infrastructure assets in the relevant federal and state governments. Interviews were conducted with 52 personnel representing 10 ministries, three state governments, and three local governments within three months, namely from June to August 2023. A total of 16 organisations, including ministries, state governments, and local governments, were involved. Table 1 depicts respondent details.

Table 1: Organisations and Respondents

No.	Organisation	No. of Respondents
1.	Accountant General's Department of Malaysia (AGD)	9
2.	Valuation & Property Service Department (JPPH), Ministry of Finance (MOF)	4
3.	Ministry of Natural Resources, Environment, and Climate Change (NRECC)	2
4.	Ministry of Economy	1
5.	Ministry of Works (KKR)	3
6.	Ministry of Defence (MOD)	1
7.	Ministry of Education (MOE)	2
8.	Ministry of Local Government Development (KPKT)	3
9.	Ministry of Transport (MOT)	4
10.	Kedah State Treasury	3
11.	Kelantan State Treasury	2
12.	Selangor State Treasury	4
13.	Subang Jaya City Council (MBSJ)	2
14.	Shah Alam City Council (MBSA)	2
15.	Public Works Department (JKR) Selangor	2
16.	Kuala Lumpur City Hall (DBKL)	8
	Total	**52**

The initial plan was to involve multiple ministries and a few state governments for triangulations. Local governments were included in the discussion with Selangor State Treasury teams. The DBKL was recommended after being referred to by other local governments. The KPKT was also included to obtain further information, which led to a total of 52 respondents with nine from the AGD office. Table 2 shows respondents' organisational positions. While the majority were accounting and finance staff, technical staff were also involved to obtain corresponding insights into the recognition, valuation, and measurement of the infrastructure assets.

Technical staff's perspectives were crucial due to their involvement in valuation of the infrastructure assets. Several organisations formed a team to identify, recognise and measure assets including infrastructures. The team would include accounting and finance staff, engineers and technical staffs as well as valuers and the staff that manage the assets. In view of the composition of respondents, it can be concluded that their insights are valid and useful to answer the objectives of this study.

Table 2: Profile of Respondents

No.	Organisation	No. of Respondents
1.	State Treasurer	2
2.	Senior Deputy Treasurer	1
3.	Chief Assistant State Treasurer	1
4.	Deputy Director	5
5.	Chief Assistant Director	1
6.	Senior Assistant Director	4
7.	Assistant Director	3
8.	Chief Accountant	3
9.	Deputy Chief Accountant	3
10.	Accountant	21
11.	Assistant Accountant	3
12.	Finance Director	1
13.	Senior Assistant Valuation Officer	1
14.	Project Engineer	1
15.	GIS Executive (Engineering)	1
16.	Engineer	1
	Total	**52**
No.	**Years of Tenure in Current Position**	**No. of Respondent**
1.	0 to 5 years	27
2.	6 to 10 years	11
3.	11 to 15 years	9
4.	16 years and more	5
	Total	**52**
No.	**Education in Accounting**	**No. of Respondents**
1.	Yes	42
2.	No	10
	Total	**52**
No.	**Involvement in Accrual Accounting**	**No. of Respondents**
1.	0 to 5 years	26
2.	6 to 10 years	7
3.	11 to 15 years	4
4.	16 years and above	3
5.	Not related	12
	Total	**52**

With respect to the respondents' tenure in their position and background in accounting, the table shows that although majority of the respondents have been less than 10 years in their current position, they were in accounting related position in the previous organisations. More than 80% of the respondents, 42 out of 52, have accounting education, while the rest includes the technical team which comprises engineers, and several with finance education, which further enhances the validity of responses for this study.

Table 2 also shows the respondents' involvement in governmental accrual accounting implementation. Most respondents were involved in the government's accrual accounting implementation except for very few who did not hold accounting position although they supported the valuation and maintenance of governments' assets.

4.0 Issues and Challenges in Accounting for Infrastructure Asset

The current section discusses the issues and challenges related to accounting for infrastructure assets in Malaysia. Issues related to the definition and recognition are discussed before the measurement, valuation, and depreciation.

4.1 Definition and Recognition

The Malaysian government started to collect data for assets since 2013, soon after the announcement of accrual accounting implementation. Since then, assets information has been collected and categorised under various classification under PPE. The process of identifying assets and determining the opening balances of PPE took many years because not all data is readily available to determine the book value objectively. In addition, issues such as difficulties in obtaining the original records for title, ownership and control of the assets as well as challenges in verifying the value of the assets have slowed down the process in accounting for some PPEs (Rosli et al., 2019; Ismail et al., 2013; Abu Hasan et al., 2022).

The requirement to specifically account for infrastructure assets in its own category came into effect later with the adoption of MPSAS 17 in 2018. Many ministries were uncertain as to what would be the infrastructure assets. Prior to that requirement, many of the infrastructure assets have been accounted for in various other fixed assets category such as land, buildings or equipment.

Effort to identify and reclassify them separately is another challenge. One of the respondents commented "we are not certain whether some assets can be classified as infrastructure assets because although the main purpose of the assets is to deliver services to the public, but they are not very long-lived assets as we normally see in other infrastructure assets".

Uncertainties with regards to control and ownership also posed another challenge in identifying infrastructure assets in government bodies. In many instances, respondents said that they decided to holdup the recognition of infrastructure assets which ownership or control are not certain. Respondent commented "we only account for assets that we certainly have ownership, while those that we are not certain were put on hold".

According to MPSAS 17, the book value of infrastructure assets is determined based on historical costs. Assets which are recently acquired or built do not typically present any issue

in determining their book value as the historical cost data are available. Comparatively, older assets present additional accounting obstacles owing to the difficulty in establishing the book values. Hence, the valuation department, namely Jabatan Penilaian dan Perkhidmatan Harta (JPPH), assists in determining the book value of the assets.

The JPPH also asserted that the department did not possess adequate expertise to value the assets. One respondent commented, “We do not have the experts to value certain types of infrastructure assets, such as dams, and currently, we can only manage the valuation of land and buildings. For older infrastructure assets, we had no choice but to recognise them as other PPE assets because we do not know their values”.

Responsibility for infrastructure assets management, maintenance and accounting treatment lies upon each government departments or ministries. For example, SPANM 3/ 2022 stated that assets such as roads and buildings are under the purview of the Public Works Department, sewerage under the Sewerage Services Department and water under Irrigation and Drainage Department. Thus, variation in definition and recognition practices are obvious.

Nevertheless, during the initial stage of accrual accounting implementation, the government formed a taskforce comprising representatives from the AGD and the relevant departments, including technical personnel, to come up with plans for assets recognition. The technical personnel were responsible to determine the value of government’s assets, but every government department and ministry will identify their own assets including the infrastructure assets. Thus, standardized identification and recognition would be very useful to ensure only specific infrastructure assets are chosen.

According to SPANM, infrastructure assets are the movable non-financial assets, defined as: “A basic facility construction that forms a network system to provide services to the community, which include roads, water, sewerage and other infrastructure such as airports, ports, jetties, electrical power supply systems, telecommunication systems and power station complexes” (SPANM, 2022, p. 38).

The AGD issued additional guidelines on the implementation of accrual accounting, the Federal Government Accrual Accounting Manual. However, the Accounting Manual for PPE (AGD, 2021), does not provide any reference to infrastructure assets. Another related policy issued by the AGD, Interpretation of Accounting Policies (Revised 2019), also does not specify any policies related to infrastructure assets (AGD, 2019). On the other hand, the *Garis Panduan Pelaksanaan Perakaunan Akruan Bil. 1 Tahun 2013* (AGD, 2013) contains guidelines on useful life of assets for depreciation purposes for various infrastructure assets, although no definition is given.

The data collected from the interview suggests differing level of completion in terms of accounting for infrastructure assets, with some ministries accounted for almost all of their infrastructure assets, although not complete, while others are still at initial stage of identifying the assets. Certain government departments have very specific and clear infrastructure assets, thus, the task to identify and account for infrastructure assets is faster and less complicated. However, many other government departments recorded their infrastructure assets in the iGFMAS by their own interpretation of the general guidelines provided by the MPSAS 17 and SPANM.

This resulted in concerning trend because when many infrastructure assets being accounted for as 'other infrastructure assets' in iGFMAS, the default useful life is 100 years. The AGD commented that the asset owners can propose to the AGD for changes or to reclassify these assets, with appropriate justifications. However, majority of the respondents have not had the idea and assumed that the data is finite once entered to the iGFMAS. Table 3 below displays some of the infrastructure assets recognised by the respondents.

Table 3: List of Infrastructure Assets

• Main Roads	• Meteorology radar	• Water tunnel-SMART tunnel
• Secondary Roads	• Bridges	• Water treatment assets
• Agriculture Roads	• Sewage system	• Water pump house
• Flyovers	• Flood barrier	• Water processing plant
• Overpass	• Beach barrier	• Landfills
• Canopied walkway	• Main trench	• River Cleaning Projects
• Airport and runways	• Hydrology Station	• Federal Recreation Parks
	• Water drainage system	• Underground water ponds

The list of infrastructure assets above is not exhaustive as there are many others which are not yet recorded. According to the AGD, the iGFMAS record shows several instances where infrastructure assets are recorded with a value of less than a hundred, which warrants further investigation. This also suggests that many government departments are still unclear about what would be infrastructure assets. The interview findings revealed that ministries with a dedicated team, comprising accountants and technical staff, to identify and recognise infrastructure assets, tend to have a better understanding and more systematic process.

Moreover, ministries without a dedicated team will assign the task of identifying and recording infrastructure assets to the asset custodian, which may result in inaccurate accounting records. It is interesting to note that some respondents mentioned their plan to recognise assets in several phases, starting with the accounting staff accumulating and filtering the assets they own and followed by technical assessments and valuations.

Most respondents indicated that the main references are MPSAS 17 and SPANM. The iGFMAS provides a default or preset useful life for all subcategories of infrastructure assets. However, the subcategories provided in the iGFMAS are also causing confusion and mistakes. For example, when a department categorises an asset as 'Other Infrastructure Assets', it will result in a service life of 100 years which may be inappropriate for the assets. Thus, it is important for the accountants to be mindful of what entails with the account name prior to entering the information.

Most respondents also agreed that majority of their infrastructure assets are accounted for in 'Other Infrastructure Assets' although the 100 years' useful life may not be very appropriate for all assets. A respondent mentioned, "we struggled to include our asset in which category in iGFMAS, as it does not really suit the assets. We tend to record the assets as 'other infrastructure assets' although the useful life is long". Several government departments do propose for change in the useful life for their assets after a thorough discussion with accountants and technical staff.

A local government stated that it developed its own infrastructure asset description and list, and it also endorsed policies for the related accounting treatment where necessary. A respondent from a local government said, “We devise our own treatment for our pre-specified infrastructure assets, and our auditor suggested that we should endorse that as our accounting policies.”

4.2 Measurement, Valuation, and Depreciation

The government departments with a dedicated infrastructure assets team tend to have a more systematic process in the selection and valuation of the assets. In the case of older or existing assets, the inputs from the technical staff and the custodian of the assets provide good guidance in the determination of the value of the asset to be recorded. In cases where the assets value is not readily available, the assistance from the valuation department, JPPH, is sought.

For the new assets, the historical cost values are easily determined as the invoices related to asset acquisition or development are available. The historical costs will be recognised as the opening book values of the assets once the certificate of completion is obtained. Nevertheless, the valuation of older assets with no prior records is very challenging and in most cases these assets are not yet recognised due to lack of expertise to determine the values.

Many respondents also perceived that the default useful life and depreciation might not represent the actual usage of the assets in certain cases, which resulted in inaccurate depreciation costs. Certain respondents opined that the roads maintained by state and local governments yielded high annual depreciation expenses due to the limited useful life, which negatively impacted annual income. A respondent from a local government expressed, “the council members are not happy with the depreciation value of roads, which reflected huge expenses”.

Currently, MPAS 17 requires the use of straight-line method of depreciation for all infrastructure assets. An exception is given to the federal road infrastructure assets whereby a method called condition-based method (CBM) is used by the Ministry of Works. The CBM is based on the Federal Road Accounting Policy (FRAP). Under the CBM method, depreciable values of federal roads assets are allocated on a systematic basis over their best estimates of useful life. The depreciation expenses under the CBM are calculated based on actual condition of the road at the reporting date using road quality report issued by the Ministry of Works. The depreciation rate is measured by calculating the difference between the maximum quality and the actual quality reported based on road quality report (Appendix A of the Interpretation of Accounting Policies, AGD, 2019).

With regards to componentisation, many respondents revealed that they are not yet ready to implement it. Currently, much of the efforts are devoted towards data compilation. As many are still in the phase of data collection, the respondents admitted that they have not embarked on componentisation but most of them are aware of the requirements. Many suggested that infrastructure assets are a network or system that must be connected to function, and the components cannot work on its own, thus, componentisation deems unnecessary. In addition, the costs of gathering the information may far outweigh the expected benefits to be derived from the information. The respondents also viewed that some parts replacement could be

charged as expenses. Furthermore, componentisation practices are also uncommon and varied internationally.

4.3 Recommendations

In Malaysia, different ministries tend to own different types of infrastructure assets with unique characteristics, which is not simple for the AGD to apply one rule for all in accounting for infrastructure assets. While certain ministries accounted infrastructure assets by the codes in the chart of accounts provided by the AGD, several ministries requested for amendments to the rule. On the other hand, local governments that have their own source of power endorsed their own policy regarding infrastructure assets.

While challenges and inconsistencies exist in the accounting practices for infrastructure assets, the current findings recommended the following steps to be implemented by the AGD to streamline the accounting practices in government organisations:

i. **Specific Team and Person in Charge**: Every ministry can form a dedicated team comprising technical staff, personnel in charge of the assets, and accountants to collect information on the infrastructure assets and suggest appropriate accounting policies for the assets.

ii. **Standardised Policies:** The proposed infrastructure assets and relevant policies can subsequently be validated at the AGD level, which is the gatekeeper of accounting standards and guidelines. Hence, accurate and standardised practices can be guaranteed to be followed by all ministries and state and local governments. While ministries, states and local governments have varying assets and jurisdictions, several assets are similar across them which should be accounted for similarly. Generally, the accounting staff have good grasp on accounting for infrastructure assets and only few had confusion in identifying the assets.

Table 4 below lists several practical recommendations for the AGD's next course of actions:

Table 4: Practical Recommendations

No.	Recommendations
1.	To develop a specific definition for infrastructure assets limited to assets with long or unlimited useful life, involving huge investments, and comprising larger systems or networks.
2.	To record infrastructure assets through a master account for every network or system of infrastructure assets and subsidiaries for componentisation. The record can also support the planning for asset management when relevant assets are grouped.
3.	To form a team comprising accountants, technical staff, and personnel in charge of the assets in every ministry to identify infrastructure assets and relevant treatments.
4.	To carefully confirm the assets as infrastructure with relevant values and measures for every ministry before recording in the iGFMAS.
5.	To prepare a list of recommended and verified infrastructure assets for every ministry endorsed by the AGD based on the proposals from various ministries.
6.	To propose suitable policies for certain infrastructure assets when necessary and when the guidelines are highly general.

In addition to the practical recommendations above, the following decision flow for infrastructure assets' recognition and accounting is proposed as shown by the Figure 1 below:

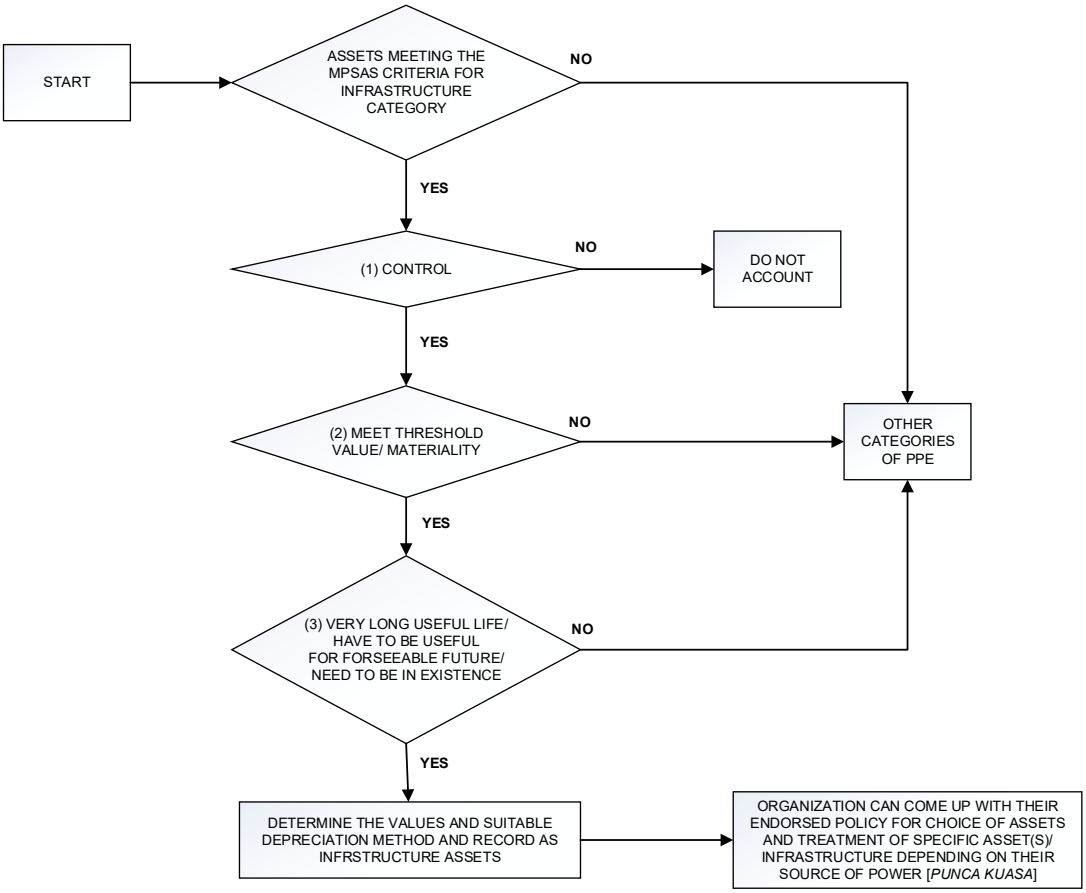

Figure 1: Proposed Decision Flow on Accounting for Infrastructure Assets

The following are the steps of the decision flow:

i. MPSAS 17: The recognition shall begin with the assets meeting MPSAS 17 criteria for infrastructure category followed by whether the government departments have control over those assets.

ii. Threshold value: The next important step will be filtrations for minimum threshold value endorsed by the AGD (recommended to be much higher than the current minimum assets value).

iii. Useful life: The next important step will be filtrations for very long useful life or expected to be useful for a foreseeable future.

iv. Determination of Book Value & Depreciation Methods: After the assets passed the four steps filtration, the determination of book value and suitable depreciation methods can be made.

5.0 Conclusion and the Way Forward

Issues related to accounting for infrastructure assets are not isolated to Malaysia or developing countries only. Developed countries, including Australia, Austria, Canada, France, New Zealand, and the USA, that have started implementing accrual accounting much earlier encounter similar challenges. The current findings from this study indicated issues, such as the limited description provided in the IPSAS where infrastructure assets are accounted for using the same accounting standards for property, plant and equipment.

Recognition and measurement of infrastructure assets were also not specified clearly and were subject to different interpretations, which led to inconsistencies in practices. The standards and other guidelines for infrastructure assets in Malaysia also provided a minimum definition similar to the IPSAS 17. Going forward, IPSAS 17 will be replaced by IPSAS 45, which provides better clarity in the recognition and measurements of infrastructure assets.

The current findings provided several practical recommendations for the AGD understanding of the issues and challenges experienced by the accounting staff to formulate relevant policies and guidelines. The findings and recommendations would also assist governmental departments in infrastructure assets accounting. In addition, a decision flow for infrastructure asset recognition and accounting was proposed to guide the AGD and accounting officers.

This study has several limitations:

i. The data in this study were collected through archival search and semi-structured interviews with selected respondents from both federal and state governments. The conclusions might not be generalisable to other governmental departments.
ii. The data were collected from semi-structured interviews, wherein the findings might not represent other respondents' perspectives.
iii. The interview findings might be subject to respondent bias as the responses to the interview questions could be influenced by the respondents' prior knowledge or experiences. Moreover, the conclusions drawn by the interviewers might be subjected to their personal perceptions and experiences.

Infrastructure assets represent a huge proportion of government's assets, thus appropriate accounting treatments are pivotal in ensuring the assets are recorded and reported accurately. There are still many issues that remain unresolved in accounting for infrastructure assets including definition, control, valuation and measurements, deferred maintenance and depreciation methods.

Future research on accounting for infrastructure assets can explore further the definition, control, valuation and measurements, deferred maintenance and depreciation methods. One area that perhaps requires a more urgent attention is depreciation method for infrastructure assets. In addition, further research can be taken to find solutions to resolving recognition issues for infrastructure assets which ownership or control is uncertain.

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