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# Factors Influencing Digital Technology Effectiveness in Combating Corruption within Malaysian Public Sector

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**Abstract**

The adoption of digital technology is considered as one of the best initiatives undertaken by the government to deter instances of corruption that are well-perceived by the public to plaguing public sector, especially within developing and third world countries. The move is expected to improve the level of security in all public transactions while enhancing coordination to boost anti-corruption initiatives. Nevertheless, despite embracing digitalisation extensively, many corruption cases still take place within public sector in Malaysia, which require further investigation. By referring to Institutional Theory, the scope of this study looks from the perspective of public sector's organisational culture to determine its influence on corruption deterrence using digital technology. This study investigates whether the following factors (digitalization policy; organizational vision and mission; beliefs and behaviours of public servants) influence digital technology effectiveness in deterring corruption within public sector. This study employs sample comprising of 140 auditors from 774 public officials of National Audit Department headquarter, using simple random sampling. Questionnaires were distributed and responses were analysed using descriptive, correlation and multiple regression analysis. The results revealed all three factors (digitalization policy; organizational vision and mission; beliefs and behaviours of public servants) significantly influence digital technology effectiveness in deterring potential corruption within public sector. The findings of this study recommends further strategic approach to be undertaken by public sector involving extensive digital policies formulation, synchronizing organisational vision and mission statement with integrity-based actions, and cultivating supportive individual beliefs and behaviours to effectively leverage technology in curbing corruption.

**Keywords:** Corruption, Digital Technology, Digitalisation Policy, Organisational Vision and Vision, Beliefs and Behaviours of Public Servants, Institutional Theory.

## Introduction

Digitalisation of government services is expected to not just enhance delivery efficiency of public sector, but also in reducing potential corruption cases by interacting with community via online platform. This happens as it allows decision making and processes to be automated, reducing opportunity for officials to engage in corruption (Ibrahimy et al., 2023). Furthermore the chances for corrupt practices is minimised due to improved monitoring of government financial activities with the introduction of e-government system (Cárdenas & González, 2022). Such system will ensure corruption deterrence, as well as promoting efficiency and transparency (Martins, Vega & Fernandes, 2023). In Malaysia for instance, the government have made significant investment in transforming public services to embrace digitalisation (Naswir et al., 2019). It initiated Public Sector ICT Strategic Plan (2016-2020) which comprises five (5) strategic cores: 1. to integrate digital services by broadening the scope of digital services that are of good quality, comprehensive, and inclusive; 2. to have a government that drives based on data so it can manage and realize valuable data efficiently and holistically; 3. to provide optimum services through the reinforcement of cyber security; 4. to establish leadership and governance planning and the coordination of digital initiatives; 5. to strengthen personnel capabilities to utilize technology. Several studies also suggested that the implementation of e-procurement systems and the use of internet data could potentially reduce corruption in the public sector (Adebisi & Guermat, 2022). Nevertheless, despite all major efforts undertaken in digitalising government services, corruptions still persist. In Malaysia alone, 5652 people have been arrested between 2015 to 2020 for committing corruption practices with almost half of them being public servants involved in procurement-based corruption (Ahmad, Johari, Razali, Rashid & Musyaffi, 2023). Furthermore, 1000 arrests were made in 2020 by Malaysia Anti-Corruption Commission (MACC) relating to corruption cases (Suruhanjaya Pencegah Rasuah Malaysia, 2021). This can be attributed to the fact that digital technologies have the potential to create new opportunities for committing and concealing corruption (Cappelli et al., 2023). Such abuse of digital technologies may create new avenues for corrupt practices particularly in public sector, where weak governance structures and low accountability can exacerbate corruption (Khvedelidze, 2022; Deliversky, 2016). Several findings by the Auditor General via its annual report also revealed significant losses of public funds and irregular payments made by the public sector, despite having adopted digital technology in its services (National Audit Department Malaysia, 2021). For instance, in the year 2020 and 2021, it was reported that the loss of public funds amounted to RM11.45 million and RM26.03 million respectively with non-compliance on financial management being the possible cause. Thus the effectiveness or efficiency of digitalisation adopted is not up to mark to prevent and detect certain types of corruption (Mutungi et al. 2021). The direct impact of open government initiatives, such as open data portals, on reducing corruption is also not significant (Park & Kim, 2019). In the context of Malaysia, where corruption issues, accountability, transparency, and integrity are prevalent in the procurement system, the effectiveness of digital technologies in combating corruption may be limited (Rosnidah et al., 2020). The lack of legal awareness, ineffective control mechanisms, and the absence of anti-corruption policy implementation create further opportunities for corrupt activities to thrive (Mahmud et al., 2021). Hence, due to persistence occurrence of corruption scandals despite all efforts already undertaken to digitalise public sector, further study is required. The scope of this study focuses on the organisational culture within public sector and its influence on corruption deterrence, using digital technology, with reference to Institutional theory. Based on the theory, organizations are constrained by the

rules, norms, and beliefs found within their environment (David, Tolbert and Boghossian, 2019), which shapes organisational values and culture within public sector that in turn influences digital technology effectiveness in corruption prevention (Bodó & Janssen, 2022).As such the study main aims is to examine the influence of digital policy, organisation's vision and mission, and beliefs and behaviours of public servants on the effectiveness of digital technology in deterring corruptions within public sector. Prior studies revealed inconclusive results for 'digitalisation policies' and 'individual beliefs and behaviours' influence on corruption within public sector, including limited studies of 'Vision and Mission statement' and 'individual beliefs and behaviours' within public sector scope. The study also utilised questionnaires distributed to public officials of National Audit Department via simple random sampling and data analysed using multiple regression analysis. Results of this study reveals digitalization policy; organizational vision and mission; beliefs and behaviours of public servants significantly influence digital technology effectiveness in deterring corruption. Future study should consider scope expansion to cover other government agencies and organisations.

**Literature Review**

Public sector is often associated with corruption since there is high probability of abuse of power for private gain, leading to significant problem that stifles economic, social, and environmental development worldwide. This consequently predominates when there is a lack of transparency, inadequate record-keeping, and low public accountability. Such revelation contradicts the expected positive outcome from digitalisation efforts already undertaken by the Malaysian government to combat leakages, fraud, and corruption within the public sector (Kana, 2021). The digitalisation initiative is supposedly expected to reducing direct contact points between citizens and public officials, thus minimizing the opportunity for the occurrence of corruption. Nevertheless, despite its effort to implementing digital technology that focuses on combating corruption, the issue of corruption still remains rampant. In another words, digital technologies also have the potential to create new opportunities for committing and concealing corruption. Therefore, the objective of this literature review is to identify gaps in the existing research on the topic by critically examining prior studies.

A sound and robust digitalization policy embedded with the aim of preventing corruption, that is clear and known by all staffs, may lead to effectiveness of digital technology in reducing corruption (Park & Kim, 2019). Digitalisation policy comprises of framework designed as reference for integration of digital technologies within organisation such as public sector (OECD, 2020). It promotes effective adoption of digital technologies capable of combating corruption (Addo & Senyo, 2020). They involve strategic technology investments that enhance anti-corruption approaches to overcome corrupt activities significantly (Addo & Senyo, 2020). Similarly, Mackey & Nayyar (2017); Sarker et al., (2021); Mackey & Cuomo (2020); Poufinas et al. (2023); and Do & Kasper (2022) have stressed positive outcome of adopting digitalisation policies in eradicating corruptions within public sector since they allow transparent and secure transactions via utilisation of digital technology. Nevertheless, digitalisation policies may also be viewed from negative perspective of creating new corruption opportunities within public service by using technology, including for concealment of audit trail (Cappelli et al., 2023). This stance is also supported by Addo & Senyo (2020); Boța-Avram (2024) and Kouladoum (2022) who argue that digitalisation policy alone is insufficient to effectively overcome corruption. Thus, there are mixed views (positive and

negative) in prior studies relating to digitalisation policies' influence on public sector's corruption.

The Vision and Mission statement, if crafted to include matters on prevention of corruption and ethical awareness while embracing digital technology and communicated to employees clearly, may assist in boosting the effectiveness of digital tool adoption to curb corruption (Majid et al., 2022). This is supported by Ngich & Cho (2020) that a concise vision statement with clarity is essential to effectively leverage digital technology to prevent corruption. Kini (2022) concurs with Ngich & Cho (2020) that clear vision and mission in digital technology is vital for organizations to stay competitive and achieve their goals. Furthermore Merhi (2022) concurs that connection exists between organizational vision and mission with effectiveness of digital technology adoption to reduce corruption within public sector. This notion is also supported by Tajudeen et al., (2021) that a proper vision and mission statement drives towards innovation and effectiveness in managing digitalisation strategies. In addition, clear vision promotes better strategies in digitalisation transformation which enhance overall performance, including corruption prevention (Rawashdeh & Rawashdeh, 2023; Lei et al., 2021; Chen et al., 2023). Despite positive views given in prior studies regarding the influence of Vision and Mission statement on effectiveness of digital technology in preventing corruption, the scope was mainly focused on private sector organisations. Furthermore, not many studies were made from the point of Vision and Mission influence.

Individual beliefs and behaviors, when properly trained and educated to uphold strong ethical values within an organizational culture that promotes good ethical conduct, can significantly reduce the tendency for corruption within the public sector (Hoa, 2023). These beliefs and behaviors, when aligned with positive shared values and norms, foster compliance with organizational digital policies and encourage effective adoption of digital technology to prevent corruption (Ouedraogo & Sy, 2020). Research highlights that factors such as perceived organizational support (Rhoades & Eisenberger, 2002), organizational culture (Ferina et al., 2021), integrity (Ramadhan, 2022), self-efficacy (Rathnasekara et al., 2023), and ethical leadership (Nawaz et al., 2022) play critical roles in shaping individual beliefs and behaviors. These elements influence whether individuals adopt positive practices that leverage digital tools for corruption prevention or develop negative perceptions that hinder their effectiveness. Positive organizational factors, such as empowering employees with relevant competencies and fostering a supportive environment, enhance individuals' capacity to utilize digital technology as a corruption deterrent (Rathnasekara et al., 2023). Ethical leadership also strengthens rejection of corruption by fostering a culture that values integrity and digital compliance (Nawaz et al., 2022). However, negative individual beliefs and behaviors, such as perceiving digital technologies as barriers, can limit their adoption and effectiveness in corruption prevention (Lekhawipat et al., 2018; Coldwell, 2019). Furthermore, individuals with such negative perceptions may avoid seeking support from colleagues, thereby exacerbating the challenges in implementing digital solutions effectively (Thompson & Bolino, 2018). While most studies on this subject focus on private sector organizations, Ferina et al. (2021) emphasize the role of employee beliefs and behaviors in influencing corruption within the public sector. Their findings indicate mixed outcomes, with both positive and negative individual attitudes toward digital technology adoption. Therefore, fostering a positive environment, supported by organizational culture and leadership, is

essential to harness the potential of digital technology for combating corruption in public sector organizations.

These gaps in the literature highlight the need for further research to address these limitations. Accordingly, the following hypotheses were proposed:
It can be concluded that there were mixed views (positive and negative) in prior studies relating to both factors of 'digitalisation policies' and 'individual beliefs and behaviours' influence on public sector's corruption. In addition, prior studies regarding the influence of Vision and Mission statement on effectiveness of digital technology in preventing corruption were focusing more on private sector organisations and very limited to public sector. They were also very scarce. Similarly, most of the studies relating to employees beliefs and behaviours were limited to private sector organisations. Hence further study need to be done to address these gap and the following hypotheses were posited:

**$H_1$:** Digitalization policy influence the effectiveness of digital technology in deterring corruption within public sector

H2: Organizational vision and mission influence the effectiveness of digital technology in deterring corruption within public sector

H3: Individual beliefs and behaviours influence the effectiveness of digital technology in deterring corruption within the public sector

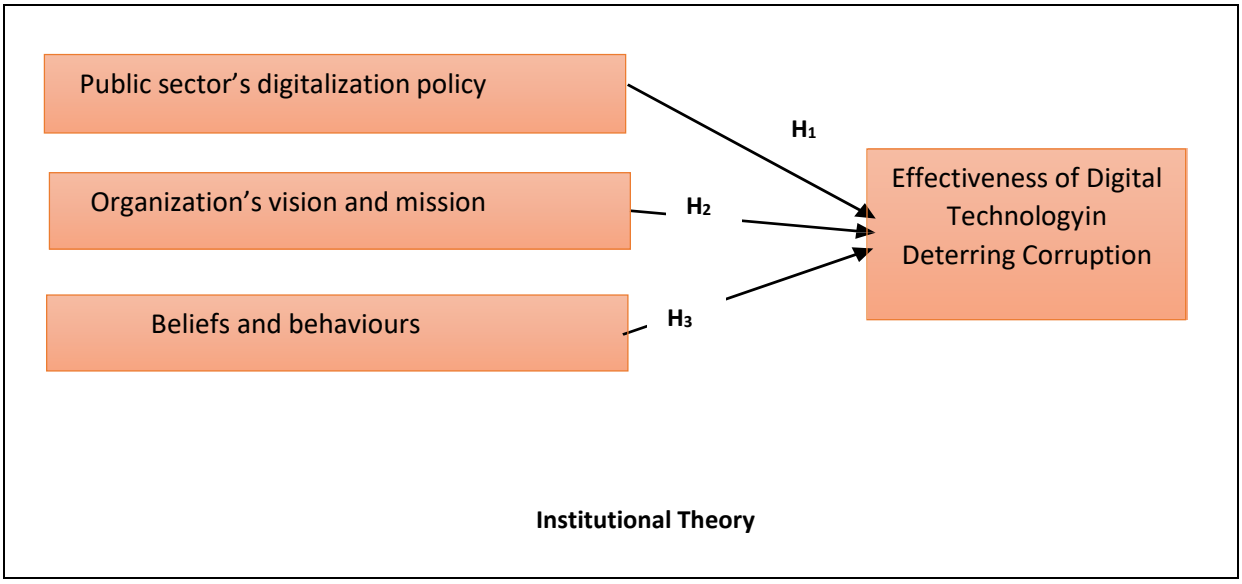



Diagram 1: Conceptual Framework utilising Institutional Theory

## Materials and Methods

This study focuses on the population of public officials (auditors) working at the National Audit Department main office in Putrajaya, Malaysia as its sample. The decision to choose auditors from National Audit Department as sample is due to their critical roles in examining and providing assurance on compliance. Furthermore, they are perceived to be prone to observing, catching and handling corruption cases. The main office in Putrajaya where the auditors serve is selected for this study compared to branches as it solely collects, interprets

and processes data and information relating to corruptions and fraud. Simple random sampling was used to determine 140 sample of auditors from 774 public officials. The total sample 140 is derived using sample size calculator, provided by Creative Research System's survey software, obtained from the following link (http://www.surveysystem.com/sscalc.htm). Prior to the sending of questionnaire to respondent, it was subjected to pilot test by small group of lecturers in the field. Input received were considered in improving further the questionnaire, to ensure measurement of variables are consistently reliable. Next, questionnaires were sent to selected sample via their respective email as obtained from National Audit Department. The questionnaire consists of five sections. Section A collects respondent demographic details. Section B collects respondent feedback regarding perception on effectiveness of digital technology in corruption within public sector, based on 10 hypothetical case scenarios, using five-point Likert scale. Additionally, Section C, D and E collect feedback regarding public sector's digitalization policy, organizational vision and mission, and individual beliefs and behaviours respectively, also using five-point Likert scale.

The measurement of both dependent and independent variables was made according to following basis: -

Table 1

*Measurement of Dependent and Independent Variables*

| | |
|---|---|
| **Dependent variable:** Digital Technology Effectiveness in Deterring Corruption | Five-point Likert scale is used to measure respondent's perception on the effectiveness of digital technology in deterring corruption based on 10 hypothetical questions, developed using reference from "(Business at OECD, 2022), policy publication". |
| **Independent Variable 1:** Digitalisation Policy | Five-point Likert scale is used to measure respondent's perception on the following:<br>• The degree of dependency on the public sector's digitalization policy to enhance transparency, accountability, and objectivity in delivering public services (Saldanha et al., 2022) .<br>• Perceptions of how effective public service delivery can be done through the adoption of the right digitalization policy in the public sector (Hyytinen et al., 2022).<br>• Expectations toward the readiness of digitalization policy to assist in deterring corruption in public service delivery (IFAC, 2023). |
| **Independent Variable 2:** Organisational Vision & Mission | Five-point Likert scale is used to measure respondent's perception on the following:<br>• Expectations toward the vision and mission of the organization to include digital technology as an effective method to fight corruption (Adam & Fazekas, 2021).<br>• The degree of the organization's willingness to adopt technology effectively in enhancing their public service delivery performance (Hyytinen et al., 2022). |
| **Independent Variable 3:** Beliefs and Behaviours | Five-point Likert scale is used to measure respondent's perception on the following:<br>• The degree of desire and intention to use the digital technology provided to deliver services (Naranjo-Zolotov, et al., 2019)<br>• The level of agreement and disagreement to transform and adopt digital technology to reduce corruption in public service delivery (IFAC, 2023).<br>• Accepting the effective use of digital technology in accordance with the behaviors of others in the organization to adhere to the transformation. |

All data received from respondents were further subjected to normality and multicollinearity test. Furthermore, they were analysed using descriptive analysis, correlation and multiple regression analysis. In light with multiple regression, prior to the test, several key assumptions were tested to ensure validity of the model. These include linearity, independence of data, homoscedasticity, normality of data, multicollinearity and endogeneity.

**Results**

In the early stage of the data collection process, the researcher distributed 140 questionnaires and received feedback from 124 participants. 16 respondents did not completely answer the questionnaires; hence, they were excluded from this study. Meanwhile, 114 respondents answered them completely. Thus, the response rate of the participants was 88.6% and the percentage of those who answered completely was 81.4%. This proves that the responses given by the participants were very high as shown below.

Table 2
*Research Response Rate*

| Detail | Rate |
|---|---|
| Distributed questionnaires | 140 |
| Returned questionnaires | 124 |
| Incomplete/Useless | 16 |
| Completed questionnaires | 114 |
| Response rate | 88.6% |
| Completeness rate | 81.4% |

Next, reliability analysis was conducted for the actual data of the study and the results were presented below in table 3.

Table 3
*Cronbach's Alpha Results for Actual Data*

| Variable | No. of Items | Cronbach's Alpha |
|---|---|---|
| Public sector's digitalization policy | 5 | 0.883 |
| Organizational vision and mission | 5 | 0.847 |
| Beliefs and behaviors | 5 | 0.799 |
| Effective use of digital technology | 5 | 0.895 |
| Overall | 20 | 0.942 |

The reliability analysis results of overall 20 items revealed Cronbach's alpha value of 0.942; therefore, the reliability of the actual data is very high. Specifically, Cronbach's alpha value for the construct of the public sector's digitalization policy was 0.883, followed by organizational vision and mission with 0.847, beliefs and behaviors with 0.799, and effective use of digital technology with 0.895. Ideally, the value should be above 0.7 because, according to Nunnally (1967), Cronbach's alpha coefficient of a scale can be accepted if the value is above 0.60. This means that the reliability of the measurement for each variable in the study has been achieved since Cronbach's alpha value exceeds 0.70. Thus, further analysis can be continued without excluding any item.

Next, descriptive analysis was performed on each variable using mean score to assess its respective level accordingly (Mean score 3.68 - 5.00 = High; Mean score 2.34 - 3.67 = Moderate; Mean score 1.00 - 2.33 = Low), in line with Hishamuddin (2016). Table 4 below shows that the public sector's digitalization policy had a mean score of 4.52 and a standard deviation of 0.57; thus, the level of digitalization policy implementation in the public sector is high.

Table 4
*Mean Scores and Standard Deviation for Public Sector's Digitalization Policy*

| Variable/Item | Mean | Std. Deviation | Level |
|---|---|---|---|
| **Public sector's digitalization policy** | **4.32** | **0.57** | **High** |
| The public sector must have a clear and concise digitalization policy that enables smooth transformation processes in the digital system to prevent costly errors and boost the system's effectiveness in preventing fraud and corruption. | 4.29 | 0.67 | High |
| Digitalization policy must be supported with significant investment in the ICT system and training simulation for public servants to ensure its realization to effectively fight corruption. | 4.32 | 0.68 | High |
| The digitalization policy made must be monitored continuously in terms of its implementation to ensure that the target for digitalization transformation is fulfilled to assist in fighting corruption. | 4.39 | 0.66 | High |
| Digital technology implementation will not be effective enough to fight corruption without the availability of a clear digitalization policy. | 4.38 | 0.71 | High |
| Digitalization policy creates positive perceptions among stakeholders of the public sector's readiness to embrace digital technology to improve operational effectiveness and prevent corruption. | 4.19 | 0.75 | High |

Similarly, table 5 below shows that the organizational vision and mission relevance in deterring corruption is at a high level, with Mean Score = 4.18 and Standard Deviation = 0.61.

Table 5
*Mean Scores and Standard Deviation for Organizational Vision and Mission*

| Variable/Item | Mean | Std. Deviation | Level |
|---|---|---|---|
| **Organizational vision and mission** | **4.18** | **0.61** | **High** |
| A clear and concise vision and mission set within the public sector to embrace a culture of integrity and professionalism will discourage corruption from taking place. | 4.11 | 0.83 | High |
| A clear and concise vision and mission that promotes the uplifting of digital technology/ICT skills among public servants will boost the effectiveness of using ICT tools to fight corruption. | 4.22 | 0.74 | High |
| Vision and mission within the public sector must set the tone for a rapid transformation of public services from a manual-based system to an ICT-based system to boost public servants' effectiveness in operations and fighting corruption. | 4.13 | 0.80 | High |
| The vision and mission promoting a culture of integrity, professionalism, and transparency among public servants must come with a clear whistleblowing avenue for them to complain about any wrongdoings without fear of retaliation. | 4.32 | 0.70 | High |
| Vision and mission that fails to promote the landscape to embrace ICT culture within the public sector from infrastructure to public servants' competitiveness will result in failure in the effort to fight corruption. | 4.12 | 0.81 | High |

Next, table 6 below shows the mean scores and standard deviation for beliefs and behaviors. Overall, the respondents' beliefs and behaviors toward corruption is high with Mean Score = 4.33, and Standard Deviation = 0.55.

Table 6
*Mean Scores and Standard Deviation for Beliefs and Behaviors*

| Variable/Item | Mean | Std. Deviation | Level |
|---|---|---|---|
| **Beliefs and behaviors** | **4.33** | **0.55** | **High** |
| Public servants with positive attitudes and commendable behaviors will greatly influence the effectiveness of digital technology in running public sector operations and mitigating corruption. | 4.37 | 0.74 | High |
| Positive beliefs and commendable behaviors can be instilled into public servants via motivational and awareness programs to ensure that they can operate digital technology effectively without bad intentions. | 4.21 | 0.75 | High |
| Negative attitudes and bad behaviors of public servants such as having ill intentions will lead to digital technology not being utilized at its potent level, leading to mistakes and corruption being left undetected. | 4.31 | 0.81 | High |
| Public servants' beliefs and behaviors can lead to positivity with job satisfaction, reasonable salary, and empathy leaders, which result in effective performance in fulfilling their responsibilities. | 4.36 | 0.65 | High |
| Digital technology will be useless and ineffective in preventing and detecting fraud if it is managed by unscrupulous public servants with ill intentions. | 4.40 | 0.74 | High |

This is followed by table 7 below which shows that the perceptions on effectiveness of using digital technology in deterring corruption is at a high level, with Mean Score = 4.11 and Standard Deviation = 0.61.

Table 7
*Mean Scores and Standard Deviation for Effective Use of Digital Technology*

| Variable/Item | Mean | Std. Deviation | Level |
|---|---|---|---|
| Effectiveness of digital technology | 4.11 | 0.61 | High |
| The transformation from a manual system to a computerized system via digital technology is vital in mitigating corruption within the public sector. | 4.20 | 0.88 | High |
| The adoption of digital technology in the form of an ICT system within the public sector's overall operations and process domain must happen irrespective of the costs involved as the benefits of mitigating corruption take precedence. | 4.01 | 0.83 | High |
| Corruption will be difficult to take place with the implementation of digital technology within the public sector as it involves more automation processes and reduces human interference. | 4.08 | 0.83 | High |
| The implementation of digital technology within the public sector system will not only enable fast detection of fraud and corruption by the auditor but also strengthen internal control to prevent fraud and corruption from taking place. | 4.21 | 0.76 | High |
| The internal control system within the public sector will benefit most from the implementation of digital technology as the former will effectively block any potential attempt of committing fraud and corruption. | 4.21 | 0.73 | High |
| Public sector staff will benefit the most from the implementation of digital technology with enhanced knowledge and technological know-how in assisting the fight against fraud and corruption. | 4.07 | 0.80 | High |
| Digital technology implementation within the public sector will lead to an increase in integrity and professionalism levels among public servants, which are vital in their fight against corruption. | 4.11 | 0.78 | High |
| The effectiveness of implementing digital technology has a direct effect on deterring corruption. | 3.99 | 0.83 | High |

In gaining better understanding of the relationship between variables, multiple regression analysis is used to examine the relationship between the independent and dependent variables. However, some assumptions must first be reached before carrying out this analysis. If the assumptions cannot be achieved, then a non-parametric analysis is required. The results used to prove the assumptions before running the multiple regression analysis in this study is described below.

The first assumption to be fulfilled for multiple regression is that the sample size should be big enough based on number of independent variables. Hence, the rule of thumb of Tabachnick and Fiedell (1996) was used as reference, and according to it the present study requires sample size of more than 106 cases. Since the current sample size is 114, the rules have, therefore, been met. Next, further tests were made to assess fulfilment of assumptions on normality, linearity, multicollinearity, and homoscedasticity. This study used skewness and

kurtosis analysis to determine the normality of the data for each variable. Typically, the asymmetry and kurtosis values that have the characteristics of normality should be between -2 and +2 (George & Mallery, 2010).

Table 8
*Skewness and Kurtosis results*

| Variable | Skewness | Kurtosis |
|---|---|---|
| Effective use of digital technology | -0.375 | -0.156 |
| Public sector's digitalization policy | -0.512 | -0.441 |
| Organizational vision and mission | -0.224 | -0.727 |
| Beliefs and behaviors | -0.569 | -0.113 |

Table 8 above shows the skewness and kurtosis results for the variables of the public sector's digitalization policy (Skewness = -0.512, Kurtosis = -0.441), organizational vision and mission (Skewness = -0.224, Kurtosis = -0.727), beliefs and behaviors (Skewness = - 0.569, Kurtosis = -0.113), and effective use of digital technology (Skewness = -0.375, Kurtosis = -0.156). Generally, the results show that the skewness and kurtosis values range from -2 to +2; hence, the normality assumption of the data has been met. Next, in assessing linearity assumption, Pearson correlation analysis was used with significance level for all constructs set at the 0.05 level (2-tailed). The strength of the relationship can be determined via Pearson correlation r value (Cohen, 1988), as shown in table 9 below. If the r value is 0, it indicates no relationship between the two variables; however, if the r value is either 1 or -1, it can be interpreted as either a perfect positive correlation or perfect negative correlation.

Table 9
*Correlation Analysis Results*

| Correlation | | Effective use of digital technology | Public sector's digitalization policy | Organizational vision and mission | Beliefs and behaviors |
|---|---|---|---|---|---|
| Effective use of digital technology | Pearson correlation | 1 | | | |
| | Sig. (2-tailed) | | | | |
| Public sector's digitalization policy | Pearson correlation | 0.616* | 1 | | |
| | Sig. (2-tailed) | 0.000 | | | |
| Organizational vision and mission | Pearson correlation | 0.612* | 0.653* | 1 | |
| | Sig. (2-tailed) | 0.000 | 0.000 | | |
| Beliefs and behaviors | Pearson correlation | 0.630* | 0.673* | 0.681* | 1 |
| | Sig. (2-tailed) | 0.000 | 0.000 | 0.000 | |

Table 9 above shows all the correlations between variables, which were less than 0.05, thus indicating significant relationships. The correlations between variables are positive and strong (r >0.50); hence, all the variables in this study have achieved the aspect of linearity.

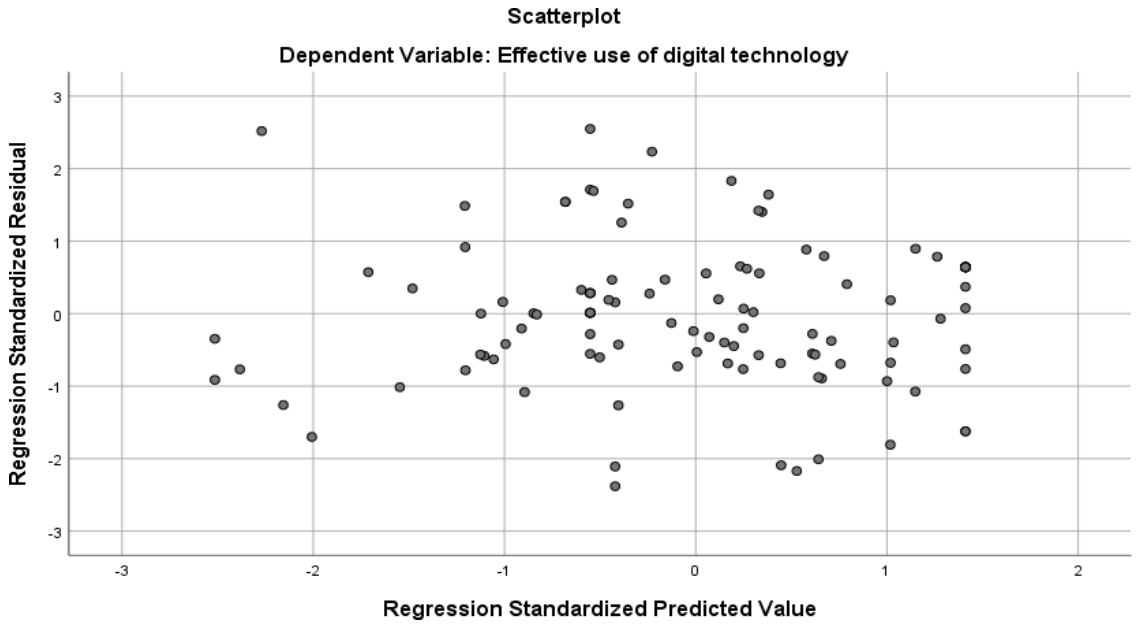
Further test was done to assess multicollinearity assumption based on the variance inflation factor (VIF) for each independent variable. Accordingly, if VIF = 1, there is no correlation between variables. If 1< VIF $\leq$ 5, moderate correlation is expected yet considered acceptable. Nevertheless, if VIF > 5, this indicates high correlation with possible multicollinearity; and VIF > 10, indicates very high correlation and problematic multicollinearity (Kutner, Nachtsheim, Neter & Li, 2004). Table 10 below shows VIF result for each variable.

Table 10
*VIF Results for Variables*

| Variable | VIF |
|---|---|
| Public sector's digitalization policy | 2.098 |
| Organizational vision and mission | 2.143 |
| Beliefs and behaviors | 2.245 |

Accordingly, the VIF values for the independent variables ranged from 2.098 to 2.245 which were below 5, hence such moderate correlation is considered acceptable. Thus, the assumption of multicollinearity has been met. The next assumption to check is homoscedasticity. In this vein, a scatterplot diagram was used to see the residuals, which would appear below the normal plot, as shown in table 11 below.

Table 11
*Scatterplot Between Standardized Residual and Standardized Predicted Value*




Based on the scatter plot in table 11, the data points were equally distributed above and below the zero line. The data points did not form an obvious pattern; hence, the homoscedasticity assumption has been met. Multiple regression analysis was used to achieve

the objectives of the study to determine whether the hypothesis should be accepted or rejected. The results are shown in Table 12 below.

Table 12
*Multiple Regression Analysis Results*

| Relationship | Coefficient (β) | t-test | p-Value | Significant/Not |
|---|---|---|---|---|
| Public sector's digitalization policy | 0.263 | 2.674 | 0.009 | Significant |
| Organizational vision and mission | 0.246 | 2.469 | 0.015 | Significant |
| Beliefs and behaviors | 0.286 | 2.807 | 0.006 | Significant |
| F-Statistics (p-value) | 35.555 (0.000) | | | |
| R-Squared | 0.492 | | | |

Based on the F-statistics in Table 12, the model developed is significant or well-fitted ($F = 35.555$, p-value<0.05). The R-squared of this model is 0.492, which means that the model explained 49.2% of the variance in the effective use of digital technology to deter corruption. Next, the inference of hypotheses was made from the t-test and p-value results.

H1: Public sector's digitalization policy can influence the effectiveness of digital technology in deterring corruption within the public sector

There is a significant positive relationship between the public sector's digitalization policy and the effectiveness of digital technology in deterring corruption within the public sector (t- test = 2.674, p-value<0.05), and this result proves that Hypothesis H1 is accepted. Based on the coefficient value (β) of 0.263, the prediction could be done by estimating that a 1 percent increase in the public sector's digitalization policy implementation would increase the effectiveness of digital technology in deterring corruption by 26.3%.

H2: Organizational vision and mission are related to the effectiveness of digital technology in deterring corruption within the public sector

Based on Table 12, there is a significant positive relationship between organizational vision and mission and the effectiveness of digital technology in deterring corruption (t-test = 2.469, p-value<0.05); therefore, Hypothesis H2 is supported. Besides, the coefficient value (β) of 0.246 further reveals that the prediction could be done by estimating that a 1 percent increase in the organizational vision and mission could increase the effectiveness of digital technology in deterring corruption by 24.6%.

H3: Individual beliefs and behaviors are related to the effectiveness of digital technology in deterring corruption within the public sector

There is a significant positive relationship between individual beliefs and behaviors and the effectiveness of digital technology in deterring corruption within the public sector (t- test = 2.807, p-value<0.05), and the t-test result proves that Hypothesis H3 is accepted. Similarly, based on the coefficient value (β) of 0.286, the prediction could be done by estimating that

an increase in 1 percent in individual beliefs and behaviors could increase the effectiveness of digital technology in deterring corruption by 28.6%.

**Discussions**

Results from this study provided clear evidence on how the identified factors (1. Digitalisation policy; 2. Organisation Vision and Mission; 3. Individual beliefs and behaviours) can significantly influence the effectiveness of digital technology in deterring corruption within public sector.

The result supporting H1 signifies that digital technology effectiveness in deterring corruption within public sector is subjected to the robustness of its digitalisation policy. For instance, the deterrence of corrupt practices by digital technology tend to increase by 26.3% for the enhancement of digitalisation policy by 1% (β = 0.263). This result is also in line with the findings by Park & Kim (2019), Saker et al., (2021) and Adam & Fazekas (2021). Hence, prioritization of government initiatives towards enhancing digital transformation agenda becomes very critical. This is attained by forming up comprehensive digital frameworks within public sector that promote accountability and transparency for effective corruption deterrence.

The following result that supported H2 also indicates that a clear organisational vision and mission significantly influence digital technology effectiveness in corruption deterrence within public sector. It provides revelation where the deterrence of corrupt practices by digital technology tend to increase by 24.6% for the clarity enhancement of vision and mission statement by 1% (β = 0.246). This also supports the findings by Merhi & Ahluwalia (2018), Chen et al. (2023) and Tajudeen et al. (2021). Such findings put organisational vision and mission statement as a critical focal point that aligns organisational objectives and desired culture with digital strategies and activities employed in corruption deterrence.

Next, the findings which supported H3 revealed corruption deterrence success is subjected to the crucial function played by individual beliefs and behaviours. As evidenced, the effectiveness of digital tool in deterring corruption increases by 28.6% in tandem with an increase of 1% in individual beliefs and behaviours. This is also in line with Hoa (2023), Quedraogo & Sy (2020) and Ferina et al. (2021). Hence, the potential of digital technologies for curbing corruption can be maximized by inculcating the right sets of ethical culture and integrity into staffs within public sector.

Generally, digitalisation initiatives within public sector require strategic means to ensure effective outcome in corruption deterrence. The strategic approach must involve extensive digital policies formulation, synchronizing organisational vision and mission statement with integrity-based actions, and cultivating supportive individual beliefs and behaviours to effectively leverage technology in curbing corruption. Consequently, policy makers and public administrators, while pursuing a transparent and accountable governance must first embark on strategic approach that intertwine technology adaptation with cultural and behaviour change.

**Conclusions**

The main objective of this study is to examine the influence of "digitalization policy", "organizational vision & mission", and "individual beliefs and behaviours" on digital technology effectiveness in deterring corruption within public sector. This study revealed that the effectiveness of digital technology in deterring corruption within Malaysian public sector is significantly influenced by its digitalization policy, organizational vision and mission, and individual staff beliefs and behaviours. It also confirmed Institutional Theory argument that rules, norms and beliefs generated within an organization's environment set constraints on organization, which can impact behaviours towards corruption. Furthermore, all three hypotheses generated were supported, which confirmed the significant influence brought by digitalization policy, organizational vision and mission, and individual staff beliefs and behaviours.

The implication of this study supports the urgency of improving further the existing organizational environment of public sector in Malaysia by embedding a more robust and transparent digitalization policy, vision and mission, as well as the right integrity culture and leadership that give wisdom for individual staff to behave accordingly, in deterring corruption. Furthermore, the core objective of corruption prevention via adoption of digital technology in public sector service must be emphasized to everyone. For instance, every organization in the public sector must revise and review its vision and mission to ensure that it includes the use of digital technology in its overall processes. This includes showing a clear map and direction of how every employee must be able to use digital technology effectively with an aim to reduce corruption occurrences. It is also crucial for the government to enhance the governance structure to focus on digital technology, such as by providing support for employees and increasing their readiness toward digital technology. Robust infrastructure and the availability of IT support allow employees to be well-adapted to digital changes and eventually become more digital savvy in the long run. This, in turn, makes the use of digital technology more reliable and further reduces the occurrence of corruption in the public sector. Hence, this will ensure resilient response by civil servants in deterring and resisting corruption opportunity from taking place.

Several limitations have been identified for this study. One of it involving limitation in scope of sample respondents which only covers public officers from National Audit Department (NAD), that may not represent the whole population of Malaysian public sector. The findings will be more accurate and robust should the whole public sector population is taken into consideration. Nevertheless, National Audit Department officers tend to be very experienced on matters relating to corruption investigation and prevention via digital technology, which made them very relevant as effective respondents. Furthermore, those officers were selected using simple random sampling to represent the population in NAD, Putrajaya headquarters. The findings may be more robust should bigger sample be selected of NAD officers throughout Malaysia, instead of just Putrajaya. Nevertheless, due to time and financial constraints on the researcher part, the adopted sampling approach was considered the most viable move, since NAD Putrajaya maintains the most senior, and experienced officers compared to other branches.

For the way forward, several recommendations are made for the directions of future study. One of it is to consider expanding the research scope to include other government agencies

and organizations within public sector which may enhance further the study findings. In addition, other relevant factors on top of digitalization policy, vision and mission statement, and individual beliefs and behaviours may be considered in future study. For instance, key elements of institutional theory may be adopted to assess their influence on digital technology effectiveness in deterring corruption within public sector. This includes 3 elements such as (1) Institutional Isomorphism; (2) Legitimacy; and (3) Institutionalization.

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