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Capabilities of Data Quality Assurance Section and Performance of Unit in the Directorate General of Taxes: The Moderating Role of Data Quality

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ABSTRACT

Identifying data quality drivers is increasingly crucial for DGT because it helps achieve goals, maintain taxpayer compliance, increase efficiency, and improve business process accuracy. This study aims to identify whether strategic resources within an organisation influence its ability to achieve sustainable performance. Using the resource-based view theory, this study tests a moderated mediation model to examine the role of data quality on the relationship between the capabilities of the PKD Section at the tax office and the performance of that office at various locations in Indonesia. The proposed research model was validated using online surveys and structural equation modeling. The results indicate that the capabilities of the PKD Section significantly contribute to performance improvement through a path other than data. However, there is still a need to improve data quality within an organisation. Most notably, the findings demonstrate that the PKD Section's capabilities correlate with improving data quality management; however, users have not utilized the data produced by the PKD Section, nor have they supported analysis to enhance performance. Our findings confirmed that achieving data quality requires more than a technical standpoint. Instead, it must be viewed within a broader organisational framework encompassing management, resources, and culture. This research expanded the theoretical scope of capabilities and performance by introducing the concept of data quality management, which includes aspects such as planning, monitoring, assurance, and improvement. Additionally, we incorporated data quality aspects, such as data accuracy, timeliness, completeness, consistency, uniqueness, and validity, that meet the requirements of data users.

Keywords: data quality, performance, capabilities, data quality management, resource-based view

1. INTRODUCTION

Most tax administrations worl dwide, including the Directorate General of Taxes (DGT), have been granted extensive authority to collect data and information from taxpayers and government agencies, institutions, associations, and other parties related to taxation (General Provisions and Tax Procedures Law article 34A). These data are intended to minimize taxpayers' compliance risk, control administrative costs, and drive effective and efficient organisational decisions. However, the explosion in the amount of data makes it challenging to determine the data required. Data can be a double-edged sword because it can be useful and painful if mismanaged.

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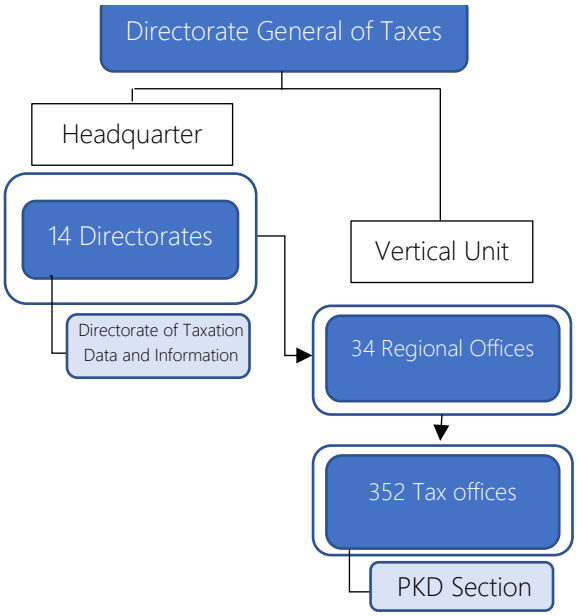
Figure 1
Illustration of Organisational Structure in DGT



Jorge et al. (2016) asserted that vast data have no value if not used. The value of data is what is sought, and the creation of value from data depends on how data quality management starts from raw data, processed, stored, managed, processed, and analyzed. In data analysis, the GIGO (garbage in, garbage out) principle also applies; analysis with any sophisticated method or technology only produces low or even no value if the data are of low quality. Of necessity, the DGT had to address data quality issues.

Kwon et al. (2014) provided empirical evidence that the organisation's ability to manage data quality offers benefits and convenience to data users. Nevertheless, whether these advantages and ease positively influence organisational performance remains uncertain.

The DGT implements a strategy to provide high-quality data that enables tax officials to manage taxpayer compliance effectively. In 2019, the Directorate of Taxation Data and Information, a specialized unit at headquarters, was formed to oversee data quality assurance with a nationwide reach. In 2020, the Data Quality Assurance Section (PKD Section) was designed to perform this responsibility within the established vertical units (see Figure 1).

This research focuses on analyzing the capabilities of the PKD Section to fulfill its mandated tasks and function, producing quality data that supports the performance of the tax office. As a leading player in the vertical unit responsible for the data quality management process, it is crucial to assess whether the PKD Section has a significant role in achieving the strategic goal of producing quality data and information for users at the tax office.

The resource-based view theory suggests that strategic resources within an organisation influence its ability to achieve sustainable performance (Barney, 1991). We tested a moderated mediation model to examine the role of data quality in the relationship between the capabilities of the PKD Section at the tax office and the performance of that office at various locations in Indonesia.

We used several indicators to reflect the capabilities of the PKD Section, including supervisor support (Ambrosini & Altintas, 2019; Ramdani et al., 2009), the ability to learn, whether facilitated by the organisation or not, and the expertise to transform inputs into more valuable outputs (Day, 1994; Ramdani et al., 2009; Peltier et al., 2013). These indicators are set out in survey questions that will be answered according to the perceptions of chiefs or administrator officials at the PKD Section based on the conditions in their respective units.

While variable DQM uses the perceptions of the PKD Section, who execute the DQM business process, which asks questions reflecting the activities of data requirements planning, data collection, data processing and presentation, and potential validation (Pierce, 2015), variable data quality is measured by data users' perception in the Supervision Section, including questions about the six dimensions of data quality produced by the PKD Section.

This research uses the achievement of revenue targets from material compliance supervision (PKM) as a proxy to measure tax office performance. The success of PKM illustrates the quality of the data used and effectively reflects the performance and innovation of the tax office in monitoring taxpayer compliance. The real effort of DGT's performance is reflected in the revenue derived from this PKM activity.

We found that the capabilities of the PKD section did not have a significant correlation in producing quality data. However, they have positively contributed to the implementation of data quality management. Further, the results of the relationship between data quality and performance indicate that the outcome is also insignificant. We demonstrate that although the capabilities of the PKD section have not significantly contributed through the providing of quality data, they have contributed to reaching the office performance target through other means.

This study contributes to the literature in the following ways. To the best of our knowledge, this study is the first to address the capabilities of resources in DGT to produce data quality and provide empirical evidence of their effect on performance. These findings should be of particular interest to the DGT given the strong demand for data quality in the context of the need to optimise resources. Following Wang & Strong (1996), we used the definition of data quality as "fitness for use" by measuring data quality using the "technical term" of six data quality dimensions derived by DAMA International (2017) to gather the perception of the data users rather than data producers.

Second, this study builds upon the theoretical model linking capabilities and performance by identifying additional predictors of capabilities in implementing data quality management to improve data quality. Based on Kwon et al. (2014), the company's ability to manage data quality provides advantages and ease for data consumers; nevertheless, it remains uncertain whether these advantages and ease positively influence corporate performance. This study fills this gap by using the percentage of revenue from PKM as a proxy for assessing performance. The DGT conducts taxpayer supervision through data analysis in PKM. These data are considered of high quality if they successfully assist tax officers in detecting tax non-compliance. Tax officials will await confirmation from taxpayers on these data. Valid data are expected to enhance taxpayer compliance among those previously non-compliant or less compliant, motivating them to pay taxes or correct their tax returns.

Third, this study provides empirical evidence using Technology, Organisation, and Environment (TOE) framework to identify the factors that promote and influence the innovation process from private-sector research to the public sector to improve organisation performance (Kweh et al., 2024). This research uses the PKM approach, which reflects the innovation implemented by the Tax Office in overseeing taxpayer compliance. Finally, the success of PKM will enhance the public value generated by DGT (Hartley et al., 2024).

2. THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

2.1 Data Quality Management

Data quality management (DQM) aims to maximize the value of data. DQM is a business process that utilizes practices, methods, and systems to analyze, improve, and maintain data quality across all aspects of data management (Ofner et al., 2012). DQM encompasses planning, implementation, and monitoring activities designed to ensure that data are in good condition and meet the needs of its users (DAMA Internasional, 2017).

Adopting a technology will help the data quality management process realize quality data. Many factors influence the adoption of this technology. Scientific studies categorize these factors into technology, organisation, and environment (TOE Framework) (Tornatzky & Fleisher, 1990). These three categories are the most widely used and superior in research, especially those related to information systems. The TOE can be used to obtain a comprehensive picture of intrinsic and extrinsic factors (Awa et al., 2010) and is accessible from the limitations of large or small organisations (Jere & Ngidi, 2020).

2.2 Data Quality

Quality data are defined as data that satisfy the needs of the users (Wang & Strong, 1996). Ballou et al. (2004) divided data quality into accuracy, timeliness, completeness, and consistency. Wang and Strong (1996) classified data quality based on four categories: intrinsic, contextual,

representational, and accessibility. In DGT regulations, data quality dimensions refer to DAMA International (2017), which consists of six dimensions: accuracy, timeliness, completeness, consistency, uniqueness, and validity.

Accuracy means that the data accurately represents the actual situation and is confirmed by verifiable sources. Data accuracy ensures that the data can be used reliably. For example, an accurate taxpayer phone number allows a taxpayer always to be contacted.

Timeliness refers to the estimated time for data accessibility and can be measured as the interval between when data are expected and when they become available.

Timeliness refers to the estimated time for data accessibility and can be measured as the interval between when data are expected and when they become available.

Completeness means the data includes all the information required for its intended use. For instance, a taxpayer's address must have complete attributes so that correspondence can reliably reach the intended destination.

Consistency means that the data match when stored or used in multiple locations. For example, a taxpayer's name, TIN, or address should be the same whether accessed through the portal, approved, or other DGT applications.

Uniqueness is crucial for ensuring that duplication or overlap is avoided. Data uniqueness is assessed across all records in the dataset or the entire dataset. A high uniqueness score minimizes duplicates or overlaps, thus fostering confidence in the data and analyses.

Validity refers to data conforming to specific formats or established business rules. For instance, the date of birth must follow a particular format in the DGT sets. Otherwise, it is considered invalid. Similarly, address information must adhere to established rules to be valid.

2.3 Organisational Learning Theory

Organisational Learning Theory (OLT) emphasizes the process of gathering, processing, and distributing data to generate new knowledge or insights. This knowledge can then support better decision-making in an organisation that continually seeks to improve its processes through learning (Huber, 1991). The process carried out by the PKD department in collecting data and transforming it into valuable new insights can be explained by applying OLT.

The resource-based view (RBV) explains that an organisation's ability to achieve a sustainable competitive advantage is influenced by its strategic resources. Strategic resources are defined as the ability to develop or implement strategies to increase the company's efficiency and effectiveness (Barney, 1991). In the context of DGT, its competitive advantage is to be an unrivaled state financial collection institution in Indonesia.

Given that OLT and RBV aim to create and sustain growth performance, it seems logical that organisational learning, in this case, the PKD section's ability to continuously learn and change is identified as a strategic resource in RBV (Smith et al., 1996).

2.4 Previous Study

The relationship between capabilities and organisational performance is still debated and central to research (Baía & Ferreira, 2024). While some researchers agree that capabilities contribute positively to organisational performance and competitive advantage (Crook et al., 2008), empirical evidence yields mixed conclusions. Drnevich and Kriauciunas (2011) found a positive relationship between capabilities and performance, while (Schilke, 2014; Wilden et al. 2013) revealed that the relationship can be insignificant or even negative. Previous research has used a variety of indicators to measure capabilities and performance using different statistical methods (Pezeshkan et al., 2016).

Kwon et al. (2014) demonstrated that a company's ability to control data quality provides data users with benefits and makes their lives easier. It is unknown whether these benefits and ease of use improve the company's performance. The 2016 studies by Jorge et al. (2016) stated that even "big data" is useless if not used. People are interested in the value of big data, and how much value is made from data depends on how the

company handles raw data, stores it, manages it, processes it, and analyzes it. GIGO (garbage in, garbage out) is also true in data analysis. No matter how advanced the method or technology is, it will only be of little or no use if the analyzed data are not high quality. Baesens et al. (2016) stated that companies must set reasonable limits on data quality, even though data will never be perfect.

Collecting, storing, recovering, and preparing for analysis must still be considered, even though most companies lament the high investment necessary to maintain quality data and disregard its impact on company performance (Baesens et al., 2016). The value contained in the data will not be able to be used by companies with insufficient data quality. This can diminish the quality of decisions made, affecting the low level of company performance.

As mentioned above and synthesized by Baía & Ferreira (2024), previous studies have extensively discussed the relationship between capabilities and firm performance using various mediators related to organisational structure and environmental roles. To date, few studies have investigated the interaction between data quality management processes and data quality as one of the factors affecting organisational performance using the organisational learning theory framework.

In addition, to the best of our knowledge, no empirical research has addressed this relationship within the scope of a single organisation. Thus, the contribution of our study is to explain the relationship between capabilities and organisational performance using the mediators of data quality management processes and data quality within the scope of one large public institution, which is spread across multiple regions and whose tasks and functions depend on data.

2.5 Hypotheses Development

This research used a model built by combining the organisation learning theory (OLT) grounded from a resource-based view (RBV) of the technology, organisation, and environmental frameworks. In organisational learning theory, organisations need to integrate data (knowledge acquisition), interpret, and transform the data into value that supports increased profits (Huber, 1991).

We use the technology, organisation, and environment (TOE) framework proposed by Tornatzky and Fleisher (1990) to test the subsequent hypotheses. The TOE framework describes the adoption and implementation of innovative technology-related decisions in organisations influenced by three elements: the technological context, the organisational context, and the environmental context.

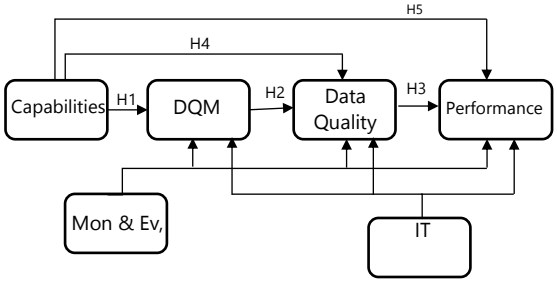
The technological context can be in the form of technology that has been used or is available in the market but has not yet been used. Technology affects the decision to innovate because it can limit the scope and rate of change the company can make (Collins et al., 1988).

The organisational context relates to the characteristics and resources of the company, which can be tangible or intangible, as well as the human resources within it, such as numbers, capabilities, organisational structure, and communication patterns. The organisational context influences the decision to innovate because the actor promotes and influences the innovation process.

The environmental context can include restrictive regulations, infrastructure conditions, and conditions of other companies. The environment affects the adoption of innovation both directly and indirectly. Various empirical studies have used the TOE Framework by using factors or indicators that can measure technological, organisational, and environmental contexts (Baker, 2012).

This research uses the capabilities of the PKD section as an indicator that represents the organisational context (Day, 1994; Wilden et al., 2013; Ortega, 2010; Ramdani et al., 2009), monitoring and evaluation conducted by the head of office and internal compliance unit (UKI), which represents the environmental context (Kamau & Mohamed, 2015; Barrick et al., 2007), and information technology that represents the technological context (Ravichandran & Lertwongsatien, 2014). Capabilities are treated as the independent variable that is the focus of the research, whereas information technology and

Figure 2
Research model.



monitoring and evaluation are the control variables.

The PKD section is treated as a strategic resource in the DGT. It is characterized by its capabilities to continuously learn and change to develop better strategies or implement them to increase efficiency and effectiveness in data quality management. Thus,

H1. *Capabilities are positively related to DQM processes.*

Data quality management (DQM) processes are expected to resolve data quality problems and provide quality assurance oversight of the data flows and stores (Pierce, 2015). DQM encompasses planning, implementation, and monitoring activities designed to ensure that data are in good condition and meet the needs of its users (DAMA Internasional, 2017). Thus,

H2. *DQM is positively related to data quality.*

Low data quality (e.g., inaccurate, outdated information) is useless for analysis and can have a direct influence on decreasing the quality of decisions (Haug et al., 2011; Redman, 1998). The less accurate the ARs' analysis, the less they can achieve PKM performance. Thus,

H3. *Data quality is positively related to PKM's performance.*

The PKD section's ability to develop strategies or implement them to increase their job's efficiency and effectiveness enhances the data quality (Barney, 1991). Thus,

H4. *Capabilities are positively related to data quality.*

The capabilities of the PKD section to continuously learn and change to improve strategies or implement them to increase efficiency will enhance their office performance (Huber, 1991). Thus,

H5. *Capabilities are positively related to performance.*

3. RESEARCH METHODOLOGY

3.1 Research design and measurement

This research attempts to analyze the correlation between the capabilities of the PKD section and the performance of the office through 2 (two) paths, through data mediators (H1, H2, H3, H4) and without going through data mediators (H5). Figure 2 illustrates our research model.

Capabilities are latent variables that cannot be measured directly due to the absence of secondary data. Several indicators are used that reflect or support the realization of the capabilities of the PKD section, including supervisor support that is exclusively given to the PKD section (Ambrosini & Altintas, 2019; Ramdani et al., 2009), the ability to learn in this section, whether facilitated by the organisation or not and the expertise to transform inputs into more valuable outputs (Day, 1994; Ramdani et al., 2009; Peltier et al., 2013). These indicators are set out in survey questions that will be answered according to the perceptions of implementing chiefs or administrator officials regarding the conditions in their respective units.

There are various ways to measure the performance of an organisation (Wilden et al., 2013; Ortega, 2010; Ravichandran & Lertwongsatien, 2014). Since the DGT is a public institution tasked with collecting state revenues, this research measures the DGT's performance based on revenue achievement. The DGT's revenue is derived from period payment supervision (PPM) and PKM. PKM requires significant effort because it demands in-depth analysis and innovation and must be supported by quality data. If the analysis uses good-quality data, the results will not be biased and valid, positively impacting DGT's image among taxpayers. Invalid analysis results lead to additional compliance costs for taxpayers who must respond to requests for explanations or information on flawed data. This

research uses the achievement of revenue targets from PKM as a proxy for performance because it reflects the quality of the data used and accurately represents the performance and innovation of the Tax Office in supervising taxpayer compliance. The achievement year in which this research was conducted is 2023, which is the most recent year.

The correlation between the PKD section's capabilities and the office's performance through data mediators passes variable DQM and variable data quality. This section examines the role of the capabilities of the data quality assurance unit in performing the data quality management process for data that is authorized to be processed. DQM includes planning, implementation, and monitoring to meet user needs (DAMA Internasional, 2017). The DQM variable is treated as a latent variable and assessed based on indicators that describe the DQM business process. This assessment relies on the perceptions of the unit responsible for executing the DQM business process. Six questions were asked, reflecting the activities of data requirements planning, data collection, data processing and presentation, and potential validation (Pierce, 2015).

Variable data quality is treated as a latent variable, measured by indicators representing the six data quality dimensions (Pipino et al., 2002; DAMA International, 2017). Data users' perceptions in the supervision section of the six dimensions of data quality produced by the data quality assurance unit are variable measures of data quality in that unit. The primary task of the supervision section is to manage taxpayer compliance. In their revenue collection efforts, these data users require data for taxpayer risk analysis. Quality data will support their analytical needs and generate revenue.

As control variables, IT and monitoring and evaluation are treated as latent variables, measured by indicators representing the availability of IT systems, access rights, and facilities and infrastructure available to all employees in respective offices (Ravichandran & Lertwongsatien, 2014) and implementation of monitoring by superiors and evaluation by the internal compliance unit conducted in each office (Kamau & Mohamed, 2015, Barrick et al., 2007).

The Likert scale measures all latent variables as dependent, independent, or control variables. Respondents were asked to indicate their level of intensity on a five-point Likert scale, ranging from 1 (Never) to 5 (Always). Table Appendix B illustrates the operationalization of the variables' indicators.

3.2 Data Collection and Samples

This research uses a mixed methods approach, combining quantitative and qualitative methods to obtain comprehensive, valid, reliable, and objective data (Creswell & Creswell, 2018). The data collection strategy is carried out in stages (sequential mixed methods), as follows:

a. The initial step was to conduct a general interview through a forum group discussion (FGD) involving PKD Section officials in seven tax units in North Sumatra Regional Tax I to obtain details of problems and gaps. Several hypotheses were developed, and a research model was constructed by integrating the FGD results with the existing literature. The FDG was conducted over three days at the end of October 2023.
b. As explained in the previous chapter, quantitative research was carried out to empirically validate the hypotheses using primary data from a structured questionnaire survey. The study respondents were chiefs or experienced staff in the PKD Section and data users in the same unit, namely the Supervision Section. The data collection process took approximately three weeks, from January 2024 to February 2024. The 929 valid questionnaires were collected and averaged per office for statistical analysis. There are 86 offices in the research sample, accounting for 24% of the total number of offices in the DGT. These offices were randomly selected and represented units that achieved their PKM target revenue and those that did not. The detailed sample is illustrated in Appendix A, and the respondents' profiles are described in Appendix C. The questionnaire survey data was analyzed using Partial Least Square-

Structural Equation Modelling (PLS-SEM) with SmartPLS version 4.0.9.6.

The final stage involved in-depth interviews to acquire data from the respondents' perspectives through open-ended questions. This phase is intended to verify quantitative research results and determine the underlying reasons for the observed phenomenon. In-depth interviews were conducted from the end of February to the beginning of March. They involved chiefs and experienced staff in the PKD Section at four tax offices on four large Indonesian islands: Aceh Tax Office, South Makassar Tax Office, Sorong Tax Office, and Palangkaraya Tax Office.

4. RESULTS AND DISCUSSIONS

4.1 Evaluation of Questionnaire Validity

For the PKD section, the questions were limited to data collected, processed, and presented to users at the Tax Office. These questions were then validated with additional questions about the data types. The analysis results indicate no bias in the data referred to, which is in line with the duties and functions of the PKD section at the Tax Office.

Preventing perceptions that vary related to the data under focus for the Supervision section, the initial question asked whether respondents had received processed data from the PKD section. Respondents who answered "never" were excluded from the observation. Furthermore, a validating question ensured that the obtained data were used to perform tasks and functions related to material compliance supervision at the Tax Office. By clarifying the data in question, the supervision section's perception remains focused on data generated by the PKD section to support material compliance activities.

To check for nonresponse bias, the survey was tested on the same sample of respondents who did not participate in the online questionnaire before being sent nationally. In addition, it was ensured that the survey was sent only to the PKD and Supervision sections at the Tax Office, which were randomly selected but still representative of the population. Following (Armstrong and Overton, 1977), questionnaire responses were compared between the early and late quartiles regarding demographic characteristics and research variables. The analyses did not reveal any significant differences between early and late respondents. Therefore, nonresponse bias was not an issue in the data.

4.2 Model Evaluation

4.2.1 Validity Test

Indicators were considered valid with a minimum loading factor value of 0.7 (Hair et al., 2018). However, Hair et al. (2018) mentioned that we should consider whether it has a strong correlation and a value of> 0.3.

The Average Variance Extracted (AVE) value is at least 0.5, which means that one latent variable can explain half the variance of its indicators on average (Hair et al., 2018). All AVEs have values greater than 0.5, which indicates that all latent variables can be validly explained by the indicators used. The loading factor and AVE results are listed in Table 1.

4.2.2 Reliability Test

The reliability test in this research was also performed by examining Cronbach's Alpha value. A research instrument is reliable if the Cronbach's alpha value is> 0.70 (Hair et al., 2018). From the test results, Cronbach's alpha and composite reliability values were obtained, as shown in Table 1. All variables have values > 0.7, so all questions in the questionnaire are reliable.

4.2.3 Classical Assumption Test

4.2.3.1 Multicollinearity Test. The multicollinearity test can be seen from the values of tolerance and variance inflation factor (VIF) (Hair et al., 2018). If the VIF value < 10 or the Tolerance value> 0.01, it is stated that there is no multicollinearity; otherwise, if the VIF value> 10 or the Tolerance value < 0.01, it is stated that there is multicollinearity. From the results of testing, the VIF value of the model in the research is <10, and we conclude that there is no multicollinearity.

Table 1
Loading Factor, Crobach's alpha, Composite Reliability,

Variables	DQM	IT	Capabilities	Data Qlt	Mon & Ev,
pkd_1	0.855				
pkd_2	0.879				
pkd_3	0.755				
pkd_4	0.652				
pkd_5	0.679				
pkd_6	0.684				
it_1		0.865			
it_2		0.931			
it_3		0.911			
da_1			0.606		
da_2			0.498		
da_3			0.719		
da_4			0.674		
pkd_accu			0.916		
pkd_com			0.911		
pkd_con			0.920		
pkd_time			0.930		
pkd_uni			0.905		
pkd_val			0.910		
sdm_2			0.421		
sdm_3			0.372		
was_accu				0.958	
was_com				0.960	
was_con				0.960	
was_time				0.963	
was_uni				0.612	
was_val				0.964	
me_1					0.915
me_2					0.906
Cronbach's alpha	0.847	0.886	0.924	0.964	0.793
Composite reliability (rho_a)	0.859	0.887	0.953	0.955	0.794
Composite reliability (rho_c)	0.888	0.93	0.938	0.967	0.906
Average variance extracted (AVE)	0.571	0.815	0.577	0.832	0.828

4.2.3.2 Linearity Test. Hair et al. (2018) reported that linearity testing in SEM-PLS is performed by running a quadratic effect test. The quadratic effect data results show that the P-values for all variable relationships are> 0.05, indicating no statistically significant nonlinear relationship. This result proves that all variables in the model have a linear relationship.

4.2.3.3 Endogeneity Test. The endogeneity test in SEM-PLS uses the Gaussian Copulas approach (Hair et al., 2018). This approach can explain several endogenous regressors simultaneously or in sequence for each regressor. The results of the Gaussian Copulas test show that the P values are all insignificant (>0.05), indicating that the model does not have an endogeneity problem.

4.2.4 Discriminant Validity Test

Henseler et al. (2009) recommended examining the HTMT value to assess discriminant validity. If the value is less than 0.9, the two latent variables have different constructs. The result shows correlation values between latent variables below 0.9, which indicates that all variables used in the model are different, and none are the same.

4.2.5 Model Fit

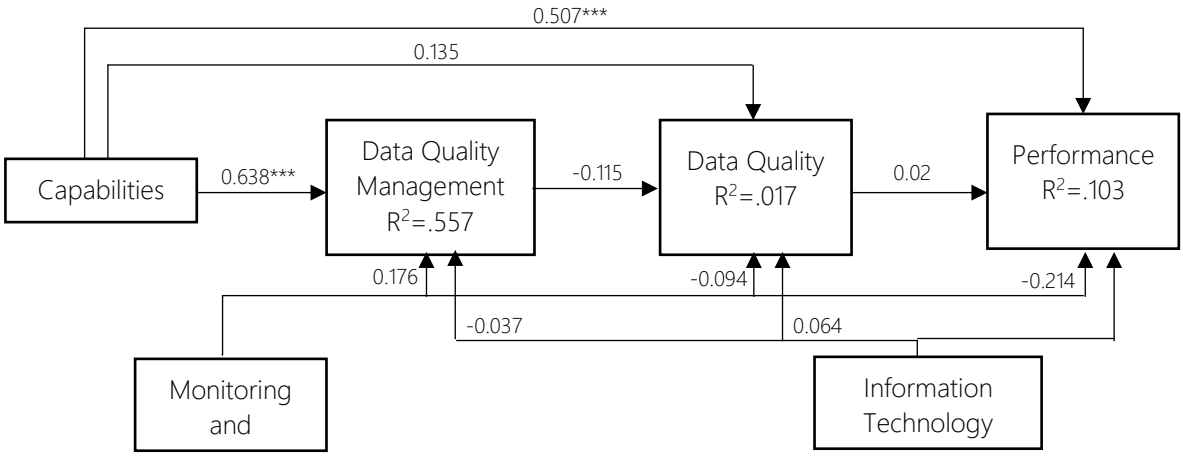
Schermelleh et al. (2003) stated that an SRMR value of 0.08-0.1 is an acceptable fit model. From the model testing results, the SRMR was determined to be 0.098. This value indicates that the research model is suitable.

4.3 **Hypotheses Testing Results**

The data processing results using smartPLS4, as shown in Figure 3, display the coefficients and statistical significance of the correlations among the variables in the research model. These results confirm whether the hypothesis established at the beginning of the research was accepted or rejected.

H1. *PKD Section Capabilities are positively related to DQM Business Processes.*

Figure 3
Structural Model



With a coefficient of β=0.638 and statistical significance of p=0.000, PKD Section capabilities is statistically proven to affect DQM business process improvement, supporting H1.

Based on the regression results between the PKD Section's capabilities variables and the implementation of the DQM business process, it was found that the PKD Section's capabilities significantly impact the improvement of the DQM business process at the office. This outcome suggests that the PKD Section has effectively fulfilled most of its duties, functions, and roles according to the six survey parameters: planning data needs, preparing reports, collecting regional ILAP data, processing and presenting data as needed, and timely formal validation of potential data.

H2. *DQM is positively related to data quality.*

With a coefficient of β=-0.115 and statistical significance of p = 0.592, DQM does not significantly affect data quality. Hypothesis 2 cannot be proved.

The result implies that the DQM activities conducted by the PKD Section did not significantly improve the quality of data supporting the PKM activities, even though they were performed, as proved by Hypothesis 1. Data quality management (DQM) processes are expected to resolve data quality problems and provide quality assurance oversight of data flows and stores (Pierce, 2015). However, if users did not use the data that were provided under qualified assurance, the data was not categorised as quality data (Wang & Strong, 1996).

An evaluation of the input and output data of the DQM process at the office is necessary because, in terms of business processes, the PKD Section demonstrates significant capabilities in its implementation. Based on the In-depth interviews, which may provide insights into why the DQM business process does not have a significant effect on improving data quality, the following points were found:

a. The PKD Section has not been actively involved in planning, implementing data requirements, or monitoring data that data users need or potentially use.
   Staff at Tax Office A: "*The PKD Section has never planned the data needed to support the preparation of taxpayers who have a potential high risk to the supervisory process.*"
   When data users do not communicate their data needs to the data quality assurance unit, aligning data needs with data availability becomes very difficult. This indicates that although the output of the PKD Section is used as an input for the Supervision Section, the quantity is limited, and the impact is insignificant.
b. Information System Support and Coordination Patterns with the Regional Office and Enterprise Data Steward (Directorate of Taxation Data and Information – DIP) are still inadequate.

Staff at Tax Office B: "*The PKD Section does not know whether the data has entered the system, the data is complete or not, has been processed or not, has been released or not, because there are no media for monitoring or no channel for coordination with the Regional Office or the Headquarter*."

When the data quality assurance unit is unaware of the status and accuracy of the data used as input and output in the DQM process, monitoring the data quality becomes very difficult. In addition, the lack of a coordination mechanism with the supervising unit can further hinder the quality of the produced data.

c. The PKD Section depends on direct guidance when performing the Data Quality Management Business Process due to the lack of clear SOPs in the DQM business process.
Head of Tax Office C: "*I have asked the PKD Section to use Teams for the quality assurance process of data from mandatory ILAP or our cooperation so that AR quickly uses the data for potential exploration*."

Current regulations related to data governance in the DGT do not address the data quality assurance process conducted by the PKD Section nor establish a coordination framework for data quality assurance within the DGT organisation. Currently, the only guideline for the data quality assurance unit pertains to the business process of field data collection activities, which regulates data quality assurance within the scope of the relevant tax office (SE-12/PJ/2020).

Some actions can be taken so that the DQM process carried out in the PKD section to improve the data quality, including:

a. Develop a data quality assurance standard operating procedure for the PKD Section. The capabilities of the PKD section are significantly correlated with the implementation of the DQM business process. However, the implementation of the data quality assurance process carried out by the PKD Section has yet to be regulated explicitly in the Director General of Taxes' Circular Letter Number SE-12/PJ/2023 concerning DGT Data Governance. It is necessary to develop regulations and business processes so that the implementation can run automatically and does not depend on the presence or absence of superior disposition. Currently, the only guidance for the PKD Section in data quality assurance activities is in the business process of field data collection activities regulated through SE-11/PJ/2020 concerning Procedures for Field Data Collection Activities and Data Quality Assurance in the Context of Database Expansion.
b. Establish a system to monitor the implementation of DQM operations and the performance of the PKD section. Research has provided empirical evidence that information systems can significantly improve the competence of the units they support (Ravichandran & Lertwongsatien, 2014). Information system support is needed to further implement DQM operations and revenue-generating performance and strengthen the PKD section's competence and capabilities. Although the CTAS can facilitate the DQM business process, no system can help monitor the section's performance.

H3. *Data quality is positively related to PKM's performance*.

With coefficient β=0.021 and statistical significance p=0.849, Data quality does not statistically support the achievement of material compliance supervision, rejecting H3.

The regression survey results indicate that the quality of data generated by the PKD section through the DQM process does not significantly support the increase in revenue achievements through material compliance supervision (PKM). As Kwon et al. (2014) argued, the performance of a data-quality management system will increase. Otherwise, it will not. As described in Hypothesis 2 analysis, data produced by the PKD section were used sparingly in the PKM analysis; thus, they do not play a significant role in achieving PKM targets. The data produced by the PKD, including the ILAP and Alket data, have not been used significantly by users, nor do they support material compliance analysis.

We suggest some steps that could be taken to increase the contribution of the PKD

section through data channels, including the following:

a. Support from superiors to proactively coordinate between the PKD and Supervision sections regarding data needs for PKM activities sourced from Alket, ILAP PMK, Non-PMK, or other regional data that cannot be obtained from the Directorate of DIP.
b. Develop policies related to coordination and communication patterns between the PKD Section at the Tax Office, the Tax Potential Data and Monitoring Division at the Regional Office, and the DIP Directorate to ensure data quality.
c. Develop a Data Quality Service Level Agreement (DQSLA) for data managed by the PKD Section, including quality data criteria and dimensions for each data element. Existing data governance regulations at the DGT have yet to provide a specific arrangement for the PKD Section to provide quality data presentation services to support the achievement of revenue targets at the tax office. DQSLA between the PKD section and data users at the Tax Office can be a trigger for what the PKD section must provide data services, what the data quality standards are, and what goals will be achieved. With the DQSLA, the PKD section competes to increase its capacity through a repetitive learning process until it reaches the agreed goal.
d. Develop KPIs that measure data collection and use levels that generate revenue. Performance in the DGT is measured based on the achievement of key performance indicators (KPIs). Suppose the PKD section has KPIs that measure the data collection and utilisation level, which results in revenue. In this case, the PKD section will likely compete to produce data whose purpose can be used to generate revenue. This can trigger an increase in the correlation between the capabilities of the PKD section and the improvement of PKM performance outcomes through the mediator of quality data. One option is involvement in sighting activity (*kegiatan pengamatan*). From the poll conducted through an online questionnaire, out of 201 employees who filled out the survey, 138 employees (69%) perceived that the quality of data from sighting activities would increase if the PKD section were conducted. Currently, the supervision section conducts sighting activities, which is part of the intelligence business process. This activity can be included in the data collection section triggered by outcomes from the Directorate of Intelligence; if this activity can produce a taxpayer potential analysis report and be used as one of the data that supports PKM, then this can trigger an increase in the correlation between the PKD section's capabilities and an increase in PKM performance achievements through the mediator of quality data.

H4. *Capabilities are positively related to data quality*.

With a coefficient of β=0.135 and statistical significance of p=0.552, PKD Section Capabilities is not statistically proven to affect data quality, rejecting H4.

This hypothesis confirms the evidence, as shown in hypothesis 2, that even though the PKD section has already carried out the DQM process, the data quality output from the process does not produce the data quality required by data users. This implies that their capabilities do not contribute to improving data quality.

The DGT could consider recommendations to strengthen the PKD Section's capabilities to plan, implement, and monitor data management, such as ALKET and ILAP data, to generate significant revenue potential. The ability of the PKD section is significantly correlated with the implementation of the DQM business process. However, the results did not substantially improve data quality and PKM performance. Strengthening is required, including:

a. Building a culture of maintaining data quality and increasing knowledge about data quality management in the PKD section must be done. Based on the in-depth interview, knowledge related to data quality management was not evenly distributed throughout the Tax Offices. Leidner and Kayworth (2012) empirically proved that culture affects data quality. The culture of competing to produce quality data that contributes to increasing revenue needs to be disseminated intensely and evenly so that

DGT's vision of becoming a data-driven organisation does not stop in the dream but is also realised in the daily lives of employees throughout Indonesia.

b. Increase remuneration and improve career paths if the PKD Section has significantly contributed to increased revenue. The disparity in allowances between the PKD and other departments within the same office unit has been a persistent topic of discussion. According to an opinion poll conducted via an online questionnaire, out of 201 employees surveyed, 143 employees (71%) perceived that the PKD section's lower rank compared to other sections served as a demotivating factor for improving the quality of data processed by the PKD section. The lack of motivation to enhance data quality in the PKD section will hinder the organisation from becoming data-driven. Empirical research has demonstrated that even salary differences in non-profit organisation impact employee motivation, particularly in organisations that must perform optimally for success (Leete, 2000). Increasing remuneration and career advancement opportunities in the PKD department will motivate employees to improve their performance in producing high-quality data, thereby impacting PKM achievement.

H5. *Capabilities are positively related to performance*.

With coefficient β=0.507 and statistical significance p = 0.003, PKD Section Capabilities are statistically proven to positively affect achieving material compliance supervision performance, supporting H5.

The result indicates that the capabilities of the PKD section play a significant role in increasing the achievement of PKM revenue without going through the path of assuring the quality of data required by AR to support PKM activities. This finding might be factual because, based on the questionnaire and in-depth analysis, the PKD section received many dispositions from superiors to become the secretary of the compliance committee, prepare revenue prognosis, prepare exposure materials related to PKM performance every month, manage AR performance dashboard, and the office's performance dashboard. In addition, human resources in the PKD Section also assist with the technical needs related to PKM implementation (e.g., network repair, WP assignment), become officers with access to revenue planning or monitoring applications, and others.

Control Variable.

The regression results indicate that information technology, monitoring, and evaluation do not substantially correlate with any of the dependent variables, which are DQM business processes, data quality, and PKM revenue performance achievements. This outcome suggests that IT, monitoring, and evaluation require further enhancement to substantially assist in developing optimal added value to support the realisation of DGT's objectives.

5. CONCLUSION

This study offers empirical evidence of the relationship between capabilities and performance through two distinct pathways: through and without data mediators. The results indicate that capabilities are a significant factor in enhancing performance through paths other than data. However, these capabilities do not improve the quality of data users require within an organisation. Several measures can be implemented to enhance the capabilities, enabling the model to make an optimal contribution to producing high-quality data to achieve performance objectives. The unit's capabilities should be bolstered by enhancements in data governance policy, coordination between data producers and consumers, data culture, intrinsic and extrinsic motivation, business processes, KPIs, and high-end IT, which facilitate the production of high-quality data.

6. IMPLICATIONS AND LIMITATIONS

6.1 Implications

This research provides a solid empirical foundation for implementing organisational changes, particularly for DGT (Directorate General of Taxes), aimed at improving data quality in its units and

enhancing revenue generation through public compliance.

This study employs the PKM (Performance and Knowledge Management) approach as an indicator of unit performance, reflecting the innovations introduced by the Tax Office to oversee taxpayer compliance, ultimately fostering public value.

The existing literature, has a specific theoretical focus on data quality as it relates to the organisation's learning process. We expand the theoretical framework of capabilities and performance by incorporating data quality management concepts and data quality itself.

6.2 Limitations

Limitations exist in all investigations. A limitation of this study is that we focus our investigation on the public sector, which relies on data to achieve the target performance. More research is needed in other sectors and industries. The second limitation is that our study sample is 86, or approximately 24% of the total number of offices. This makes it challenging to compare offices that have achieved or have not achieved their targets. More samples need to be included in future research to obtain a complete picture of the significance of data quality and more robust results. Lastly, data quality may be responded to differently by different perspectives. More work should be done on the other conceptual boundaries of data users and their relevance to multiple contexts.

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APPENDICES

Appendix A
Sample Statistics

No	Respondents	Population	Target	Number of offices in the district	Target Offices	Responded	Excluded	Proceed	Response Rate (%)	Proceed Rate (%)	% Office	Response Rate Office (%)
1	Chief of the PKD Section	345	84	352	86	78	1	77	92.86%	91.67%	24.4 %	100%
2	Staff of the PKD Section	1208	166			123	0	123	74.10%	74.10%		
3	Chief Supervisory	1999	458	352	86	285	10	275	62.23%	60.04%	24.4 %	100%
4	Account Representativ	10845	953			496	42	454	52.05%	47.64%		
Total		14397	1661	352	86	982	53	929	59.12%	55.93%	24.4 %	100%

Appendix B
Question Wording and Source

Dimension	Item	Source
PKD Section Capabilities	(da_1) The Chief of the office helps to coordinate with other sections in the office or external ILAP so that the work of the PKD Section in planning data needs, gathering data, processing data, and presenting data goes smoothly. (da_2) The Chief of the office actively reminds the other sections in the office or the external ILAP if they do not provide the support that should be given to the PKD Section. (da_3) The Chief of the office analysed and reviewed the results of the work of the PKD so that it was in accordance with the provisions in force. (da_4) The Chief of the office supports the PKD Section in obtaining adequate education and training. (pkd_accu) The PKD Section performs quality assurance on the processed and presented data to meet the accuracy dimension of data quality. (pkd_com) The PKD Section performs quality assurance on the processed and presented data to meet the dimension of completeness of data quality. (pkd_con) The PKD Section performs quality assurance on the processed and presented data to meet the consistency dimension regarding data quality. (pkd_time) The PKD Section performs quality assurance on the processed and presented data to meet the timeliness dimension of data quality. (pkd_val) The PKD Section performs quality assurance on the processed and presented data to ensure that the data quality meets the validity dimension. (pkd_uni) The PKD Section performs quality assurance on the processed and presented data to meet the uniqueness dimension of data quality. (sdm_2) I process and present data in the office according to my expertise and ability. (sdm_3) I am learning me in case the DJP does not provide adequate training.	(Day, 1994), (Wilden et al., 2013), (Ortega, 2010), (Ramdani et al., 2009)
Data Quality Management	(pkd_1) The PKD section prepares the data collection plan. (pkd_2) The PKD section coordinates with the other sections when planning the data needs of the office where I work. (pkd_3) The PKD section prepares a report or a note of the data needs of the office where I work and is approved by the chief of the office. (pkd_4) The PKD section gathers regional data from the ILAP in accordance with the established plan. (pkd_5) The PKD Section processes and presents data and information as required by the office. (pkd_6) PKD Section completed potential data validation on time.	(Pierce, 2015), (DAMA Internasional, 2017)

Dimension	Item	Source
Data Quality	(was_accu) I receive and utilise data from the PKD Section according to my needs in performing my duties and functions at my office (Accuracy) (was_com) I receive and utilise complete data from the PKD Section so that it meets my needs in performing my duties and functions at my office (Completeness) (was_con) I receive and utilise data from the PKD Section with consistent formats and values in conducting tasks and functions at my office (Consistency) (was_time) I receive and utilise the latest (up-to-date) data from the PKD Section when I need it in performing my duties and functions at my office (timeliness) (was_val) I receive and utilise data from the PKD Section that is by reality in the field so that it helps my duties and functions effectively and efficiently (validity) (was_uni) I do not receive and utilise the same data from the PKD Section repeatedly so that my work is productive (uniqueness)	(Pipino et al., 2002), (DAMA Internasional, 2017)
Monitoring and Evaluation	(me_1) My superiors supervise my work in planning, processing, or presenting data to the office. (me_2) UKI at the office evaluates my work in planning data needs, aggregating data, processing data, or presenting data in the office.	(Kamau & Mohamed, 2015), (Barrick et al., 2007)
Information Technology	(dt_1) I obtained adequate tools and facilities for collecting, processing, and presenting data in the office (dt_2) The DJP's Information System supports my work in collecting, processing, and presenting data at the office. (dt_3) I obtained sufficient data access to support my work in collecting, processing, and presenting data at the office.	(Ravichandran & Lertwongsatien, 2014)
Performance	- Percentage achievement in material compliance supervision (PKM) in each office	(Wilden et al., 2013) (Ravichandran & Lertwongsatien, 2014), (Ortega, 2010)

Appendix C
Respondents' profiles

Characteristics	Category	Percentage (%)
Gender	Men	74.8%
	Women	25.2%
Education	College Diploma	32.4%
	Bachelor's degree	39.5%
	Master's degree	28.1%
Respondent Position	Chief	37.9%
	Account Representative	48.9%
	Experienced Staff	13.2%
Professional Experience in the last position	<1 Tahun	15.6%
	1-3 Tahun	36.9%
	> 3 Tahun	47.5%