

Original Article

Organizational Transparency as a Predictor of Internal Control Effectiveness in DPWH Project Implementation in Nueva Ecija

Adrian Angelo G. Reyes , Renato M. Samonte Jr. 

Author Information:

¹Doctor of Philosophy in Business Administration, Wesleyan University Philippines 3100
Orcid No. 0009-0005-8910-6606
adriangloriareyes@gmail.com

²Faculty, Graduate School, Wesleyan University Philippines, Cabanatuan City 3100
Orcid No. 0009-0006-2505-9713
renatojrsmonte8@gmail.com

Corresponding Author:

Adrian Angelo G. Reyes
adriangloriareyes@gmail.com

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Abstract. Limited empirical evidence is available regarding the predictive contribution of organizational transparency to internal control effectiveness in the implementation of Department of Public Works and Highways (DPWH) projects in Nueva Ecija. This study assessed the perceived levels of organizational transparency and internal control effectiveness and examined whether the dimensions of organizational transparency significantly predicted internal control effectiveness. The study employed a quantitative, cross-sectional, descriptive-correlational design with a predictive approach. The participants were 150 DPWH employees selected through criterion-purposive sampling. Data were gathered using a researcher-developed structured questionnaire and analyzed using descriptive statistics and multiple linear regression. The findings showed high perceived levels of organizational transparency (dimension means ranging from 3.32 to 3.50) and internal control effectiveness ($M = 3.35$, $SD = 0.36$). The regression model was statistically significant, $F(4, 145) = 128.925$, $p < .001$, and explained 78.1% of the variance in internal control effectiveness ($R^2 = .781$; adjusted $R^2 = .774$). Verifiability of data was the strongest significant predictor ($\beta = .640$, $p < .001$), followed by timeliness of disclosure ($\beta = .251$, $p = .001$). Information transparency ($\beta = .173$, $p = .139$) and information symmetry ($\beta = -.145$, $p = .075$) did not make statistically significant unique contributions to the model. The findings indicate that timely disclosure and verifiable project information are important predictive factors associated with internal control effectiveness among the participating DPWH employees. Accordingly, DPWH offices may strengthen disclosure schedules, documentation standards, data-verification procedures, and monitoring mechanisms to support internal control and accountability in project implementation.

Keywords: *Organizational transparency; Internal control effectiveness.*

Public infrastructure projects involve substantial government expenditures, complex procurement processes, multiple implementing units, and strict requirements concerning documentation, monitoring, and accountability. In the Philippines, the Department of Public Works and Highways (DPWH) plans, constructs, and maintains national infrastructure facilities. Because these projects involve public funds,

implementation requires reliable information, transparent procedures, and effective internal controls to ensure resources are properly managed and projects are implemented in accordance with applicable laws, policies, and contractual requirements.

Government audit findings reinforce the importance of these governance mechanisms. The Commission on Audit reported delays and noncompletion in numerous DPWH infrastructure projects, identifying inadequate planning, supervision, monitoring, and project execution as contributing factors (Commission on Audit [COA], 2024). These findings do not necessarily indicate weaknesses in every DPWH office or project. However, they demonstrate the continuing need for reliable documentation, timely reporting, systematic monitoring, and clear accountability throughout project implementation. These concerns make organizational transparency and internal control especially relevant to managing public infrastructure projects.

Organizational transparency refers to the availability, accessibility, clarity, timeliness, and verifiability of information regarding organizational decisions, transactions, activities, and performance. In the public sector, transparency enables employees, oversight bodies, and other stakeholders to understand how decisions are made and how government resources are utilized. It also supports accountability by making organizational actions subject to examination and verification. Gabriel (2020) found that transparency and accountability practices are important elements of governance among Philippine local government units. Similarly, Sofyani et al. (2020) emphasized that information systems and governance mechanisms can support transparency, accountability, and public-service quality. Transparency, however, should not be understood merely as disclosing large amounts of information. Disclosed information must also be understandable, relevant, timely, and useful to those responsible for decision-making and oversight (Liston-Heyes & Juillet, 2020).

Internal control effectiveness refers to the extent to which organizational policies, procedures, responsibilities, and monitoring mechanisms provide reasonable assurance that operational, reporting, and compliance objectives will be achieved. The Committee of Sponsoring Organizations of the Treadway Commission (COSO, 2013) identifies five interrelated components of internal control: control environment, risk assessment, control activities, information and communication, and monitoring activities. In public-sector organizations, effective internal control helps manage risks, protect public resources, promote compliance, improve report reliability, and support the achievement of organizational objectives. The OECD (2020) likewise emphasized that internal control, audit, and risk-management systems are essential to public integrity, responsible resource use, and protection against fraud, corruption, waste, and abuse.

Organizational transparency and internal control are conceptually connected through the production, communication, and verification of information. Transparent information helps employees identify implementation risks, check compliance with project requirements, document transactions, and monitor project performance. Information symmetry may reduce differences in the project information available to employees and offices, thereby supporting more consistent application of control procedures. Timely disclosure enables responsible personnel to respond to delays, discrepancies, and emerging risks, while verifiable data provide reliable evidence for evaluation, reporting, and corrective action. Transparency may therefore support the operation of internal-control mechanisms, although a correlational study cannot establish that transparency directly causes internal control effectiveness.

Previous studies provide support for examining this relationship. Jatmiko et al. (2022) reported that public financial accountability and internal control were associated with value-for-money performance in local government organizations. Nadirsyah et al. (2024) highlighted the roles of internal audit and internal control in fraud prevention and public-sector governance. Dao (2024) found that internal-control components were associated with the reliability and quality of financial reporting in public-service organizations. Pérez-Morote et al. (2024), meanwhile, identified risk and conditioning factors affecting public internal control in government procurement. Collectively, these studies show that reliable information, accountability mechanisms, risk management, and control procedures are closely connected in public-sector operations. However, most previous studies examined transparency, accountability, internal audit, financial reporting, or internal control in separate organizational settings.

Limited empirical research has directly examined whether the specific dimensions of organizational transparency—information transparency, information symmetry, timeliness of disclosure, and verifiability of data—predict internal control effectiveness in government infrastructure project implementation. Evidence remains limited among DPWH employees in provincial and district engineering offices in Nueva Ecija. Addressing this gap matters because the effectiveness of project controls may depend not only on the existence of formal procedures but also on the quality, accessibility, timing, and reliability of the information used to apply those procedures.

Accordingly, this study assessed the perceived levels of organizational transparency and internal control effectiveness in DPWH project implementation in Nueva Ecija. It also examined whether information transparency, information symmetry, timeliness of disclosure, and data verifiability significantly predicted internal control effectiveness. The study did not seek to establish a causal relationship; rather, it examined the predictive contributions of the transparency dimensions within the participating employees and study setting. The findings may provide an empirical basis for strengthening project-information procedures, disclosure schedules, documentation and verification practices, monitoring mechanisms, accountability, and internal control within the DPWH.

Methodology

Research Design

The study employed a quantitative, cross-sectional, descriptive-correlational research design with a predictive approach. The descriptive component presented respondents' demographic and employment-related characteristics and assessed their perceptions of organizational transparency and the effectiveness of internal controls in DPWH project implementation. The predictive component used multiple linear regression to determine whether information transparency, information symmetry, timeliness of disclosure, and data verifiability significantly predicted internal control effectiveness. This design was appropriate because the study examined the variables as they naturally occurred without manipulating the participants or their work environment. Since the data were collected at one point in time using a nonexperimental survey, the findings were interpreted as perceived levels and predictive relationships rather than evidence of direct causal effects.

Participants and Sampling Technique

The participants were 150 employees of the Department of Public Works and Highways in Nueva Ecija, including personnel from the Provincial Engineering Office and District Engineering Offices. The study used criterion-purposive sampling because it required participants with direct knowledge of and experience in DPWH project implementation, organizational transparency practices, and internal control procedures. Employees were eligible to participate if they were permanent or contractual personnel who had rendered at least one year of service and were directly involved in project planning, implementation, supervision, engineering, procurement, finance, auditing, monitoring, or administrative support. The study excluded employees with less than one year of service, those not directly involved in project implementation or related functions, personnel unavailable during the data-collection period, and individuals who did not provide informed consent.

The sample size of 150 exceeded the conventional minimum requirement for multiple regression expressed as $(N \geq 50 + 8m)$, where (m) represents the number of predictor variables (Green, 1991). With four predictors, the recommended minimum sample was 82 respondents. Thus, the final sample was considered adequate for the descriptive and predictive analyses performed in the study. However, because the study used criterion-purposive sampling, the findings were interpreted as applicable primarily to the participating employees and DPWH offices in Nueva Ecija and were not automatically generalized to all DPWH offices in the Philippines.

Research Instrument

The researcher developed a structured, self-administered questionnaire based on an extensive review of related literature and studies on organizational transparency and internal control effectiveness. The researcher developed the instrument rather than adopting it directly from a single existing questionnaire. Its items were formulated from concepts, indicators, and empirical findings identified in the reviewed literature and were subsequently modified and contextualized for DPWH project implementation.

The questionnaire consisted of three parts. Part I collected the respondents' demographic and employment-related information. Part II assessed organizational transparency in terms of information transparency, information symmetry, timeliness of disclosure, and data verifiability. Part III measured overall internal control effectiveness through indicators reflecting the control environment, risk assessment, control activities, and monitoring activities.

The COSO framework recognizes information and communication as one of the five interrelated components of internal control, together with the control environment, risk assessment, control activities, and monitoring activities (COSO, 2013). In the present study, information and communication were not measured as a separate internal-control dimension because their information-related functions were operationalized under the organizational-transparency predictors, particularly information transparency, information symmetry, timeliness of disclosure, and data verifiability. This approach reduced direct duplication between the predictor and outcome measures. Consequently, internal control effectiveness in this study referred to the four operational domains included in the instrument and should not be interpreted as a complete assessment of all five COSO components.

Respondents rated the statements in Parts II and III on a four-point Likert scale: 4—Strongly Agree, 3—Agree, 2—Disagree, and 1—Strongly Disagree. The four-point scale encouraged respondents to indicate agreement or disagreement by removing the neutral midpoint. The following ranges were used to interpret the weighted means: 3.26–4.00—Strongly Agree; 2.51–3.25—Agree; 1.76–2.50—Disagree; and 1.00–1.75—Strongly Disagree. These verbal descriptions represented the respondents' perceived levels of the measured practices and were not treated as independent confirmation that the practices occurred in every project or organizational unit.

The questionnaire was submitted to a panel of experts in research, public administration, and project implementation for content validation. The validators examined the items for relevance, clarity, appropriateness, and alignment with the study objectives and operational definitions. The researchers incorporated their comments and recommendations on the wording, organization, and contextual relevance of the statements into the final version of the questionnaire. The validation was qualitative; therefore, no numerical content-validity index was reported.

Before the main data collection, the questionnaire was pilot-tested with 10 individuals who shared characteristics with the intended respondents but were not included in the final sample. Cronbach's alpha was used to evaluate the internal consistency of the instrument. The organizational-transparency scale obtained a Cronbach's alpha coefficient of .934, while the internal-control-effectiveness scale obtained a coefficient of .950. Both coefficients indicated excellent internal consistency.

Data Gathering Procedure

Before collecting the data, the researcher obtained permission from the appropriate DPWH authorities in Nueva Ecija and secured institutional clearance from the Graduate School of Wesleyan University–Philippines. The researcher collected data from June 1 to June 25, 2026, using a hybrid questionnaire administration method consisting of face-to-face distribution and online administration. Prospective participants were informed about the study's purpose, procedures, expected participation, potential risks and benefits, voluntary nature, and confidentiality safeguards. Employees who agreed to participate signed or acknowledged an informed consent form before receiving or completing the questionnaire. We distributed 185 questionnaires, of which 150 were completed and retrieved. The retrieved questionnaires were checked for completeness, and all 150 were considered valid for analysis. This produced a response rate of 81.1%. The completed questionnaires were assigned identification codes to protect the participants' identities. The responses were encoded in a statistical software program and reviewed for completeness and accuracy before analysis. Printed questionnaires were stored in a secure location, while electronic records were kept in password-protected files accessible only to the researcher and research adviser.

Data Analysis Procedure

Frequency and percentage were used to summarize the respondents' demographic and employment-related characteristics. These profile data were presented only to describe the sample composition and were not interpreted as evidence that respondents' characteristics influenced their assessments. Weighted mean and

standard deviation summarized respondents' assessments of organizational transparency and internal control effectiveness. The weighted mean indicated the average level of agreement, while the standard deviation described the variability of the responses around the mean. Multiple linear regression was performed to determine whether information transparency, information symmetry, timeliness of disclosure, and verifiability of data significantly predicted internal control effectiveness.

The dependent variable was the respondents' composite internal-control-effectiveness score. The predictors were the composite scores for the four dimensions of organizational transparency. The regression model was expressed as:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

where (Y) represented internal control effectiveness; (X1), information transparency; (X2), information symmetry; (X3), timeliness of disclosure; (X4), verifiability of data; β_0 , the intercept; β_1 to β_4 , the regression coefficients; and ε , the error term. We tested all hypotheses at the .05 significance level.

Before interpreting the regression model, we examined linearity, normality of residuals, homoscedasticity, independence of errors, multicollinearity, and influential observations. We used scatterplots of standardized predicted values and standardized residuals to assess linearity and homoscedasticity. A residual histogram and normal probability-probability plot were inspected to assess the approximate normality of residuals. The Durbin-Watson statistic was used to assess error independence. We inspected tolerance and variance inflation factor values for multicollinearity, and standardized residuals and Cook's distance to identify influential observations. The Durbin-Watson value of 0.798 and the variance inflation factor of 8.889 for information transparency raised concerns about residual independence and overlap among predictors. Therefore, the researcher interpreted the individual regression coefficients and significance tests cautiously. The researcher reported these diagnostic concerns as limitations rather than claiming that all regression assumptions were fully satisfied.

Ethical Considerations

The researcher obtained permission from the appropriate DPWH authorities in Nueva Ecija before conducting the study. The researcher also secured institutional clearance from the Graduate School of Wesleyan University-Philippines. Participation was voluntary, and we obtained informed consent before administering the questionnaires. Participants were informed that they could decline participation or withdraw from the study at any time without penalty. The questionnaire included no personal identifiers, and identification codes were used during data processing. All responses were treated confidentially and used exclusively for academic and research purposes. Printed questionnaires were kept in a secure location, while electronic data were stored in password-protected files accessible only to the researcher and research adviser. Data collection, storage, analysis, and reporting were conducted in accordance with the Data Privacy Act of 2012, or Republic Act No. 10173.

Results and Discussion

Profile of the Respondents

Table 1 presents the demographic and employment-related characteristics of the 150 DPWH employees who participated in the study. Most respondents were 31–35 years old (56.0%), male (77.3%), single (58.7%), and bachelor's degree holders (88.7%). Technical personnel made up the largest job-classification group (78.7%), while the Administrative Section had the highest representation by office assignment (32.7%). More than half of the respondents had rendered 16–20 years of service (56.0%).

The profile indicates that the sample was predominantly composed of college-educated technical employees with considerable organizational experience. Respondents from different offices and job classifications were also represented, providing perspectives from several functional areas involved in DPWH operations and project implementation. As the OECD (2021) emphasizes, public-sector governance involves coordinated participation from administrative, technical, financial, and operational units.

These findings primarily describe the sample composition and provide context for the succeeding analyses. They should not be interpreted as evidence that age, sex, civil status, educational attainment, job classification, office assignment, or length of service influenced the respondents' assessments of organizational transparency or internal control effectiveness. Any association involving these characteristics must be established through an appropriate inferential statistical analysis.

Table 1. *Demographic and Employment-Related Characteristics of the Respondents*

Profile Variable	Category	Frequency (f)	Percentage (%)
Age	25–30 years old	16	10.7
	31–35 years old	84	56.0
	36–40 years old	31	20.7
	41–45 years old	13	8.70
	46 years old and above	6	4.00
Sex	Male	116	77.3
	Female	34	22.7
Civil Status	Single	88	58.7
	Married	57	38.0
	Widowed	3	2.00
	Separated	2	1.30
Educational Attainment	College undergraduate	6	4.00
	Bachelor's degree	133	88.7
	Master's degree	6	4.00
	Master's degree with doctoral units	2	1.30
	Doctoral degree	3	2.00
Job Classification	Management/Supervisory personnel	5	3.30
	Technical personnel	118	78.7
	Finance and accounting personnel	6	4.00
	Procurement and supply personnel	7	4.70
	Administrative personnel	3	2.00
	Planning and project development personnel	6	4.00
	Maintenance and operations personnel	5	3.30
Office Assignment	Office of the District Engineer	20	13.3
	Administrative Section	49	32.7
	Finance Section	18	12.0
	Planning and Design Section	25	16.7
	Human Resource Management Unit	10	6.70
	Accounting/Budget/Cashier Unit	14	9.30
	Property and Supply Unit	8	5.30
	ICT Unit	6	4.00
Length of Service	Less than 1 year	2	1.30
	1–5 years	15	10.0
	6–10 years	23	15.3
	11–15 years	22	14.7
	16–20 years	84	56.0
	21–25 years	4	2.70
Total		150	100

Organizational Transparency as Perceived by the Respondents

Table 2 presents the respondents' assessment of organizational transparency in terms of information transparency, information symmetry, timeliness of disclosure, and verifiability of data. All four dimensions were verbally described as *Strongly Agree*, indicating that respondents generally perceived organizational transparency as highly practiced in DPWH project implementation.

Information symmetry obtained the highest grand mean ($M = 3.50$, $SD = 0.32$). This indicates that the respondents generally perceived project-related information as consistently and equitably communicated among concerned

employees. The highest-rated indicator under this dimension was that employees were informed of policy changes at the same time ($M = 3.80$, $SD = 0.53$). In contrast, receiving the same important project information received the lowest rating ($M = 3.17$, $SD = 0.89$), verbally described as *Agree*. Although the assessment remained positive, the result suggests that the uniform distribution of important project information could still be strengthened.

Table 2 Respondents' Assessment of Organizational Transparency

Indicators	M	SD	Interpretation
Information transparency			
1. The DPWH provides complete information regarding project implementation to employees.	3.23	0.93	Agree
2. Project plans and objectives are clearly communicated to employees.	3.33	0.88	Strongly Agree
3. Employees have access to information needed to perform their duties effectively.	3.58	0.71	Strongly Agree
4. Financial information related to projects is communicated transparently within the office.	3.58	0.99	Strongly Agree
5. Policies and procedures governing project implementation are clearly explained.	3.65	0.70	Strongly Agree
6. Project accomplishments and progress reports are regularly shared with employees.	3.62	0.78	Strongly Agree
7. Information released by the organization is accurate and understandable.	3.75	0.58	Strongly Agree
8. The organization promotes openness in sharing project-related information.	3.22	1.06	Agree
Column Mean	3.49	0.32	Strongly Agree
Information Symmetry			
1. All employees receive the same important project-related information.	3.17	0.89	Agree
2. Project updates are communicated equally across offices and divisions.	3.43	0.85	Strongly Agree
3. No employee is given unfair access to important project information.	3.47	0.70	Strongly Agree
4. Information needed for project implementation is readily available to all concerned employees.	3.47	0.76	Strongly Agree
5. Communication among departments ensures equal access to project information.	3.68	0.67	Strongly Agree
6. Management provides consistent information to all employees regarding project implementation.	3.67	0.74	Strongly Agree
7. Employees are informed of policy changes at the same time.	3.80	0.53	Strongly Agree
8. The organization minimizes information gaps among employees.	3.23	1.04	Agree
Column Mean	3.50	0.32	Strongly Agree
Timeliness of Disclosure			
1. Project-related information is communicated without unnecessary delay.	3.31	0.92	Strongly Agree
2. Employees are promptly informed of changes affecting project implementation.	3.27	0.81	Strongly Agree
3. Important announcements are released on time.	3.35	0.87	Strongly Agree
4. Management immediately communicates issues affecting ongoing projects.	3.49	0.97	Strongly Agree
5. Project progress reports are submitted within the required timeframe.	3.47	0.85	Strongly Agree
6. Employees receive updates early enough to perform their responsibilities effectively.	3.56	0.78	Strongly Agree
7. Project schedules and deadlines are communicated promptly.	3.74	0.59	Strongly Agree
8. Information disclosure supports timely decision-making within the organization.	2.94	0.93	Agree
Column Mean	3.39	0.30	Strongly Agree
Verifiability of data			
1. Project records can be verified using official documents.	3.15	0.85	Agree
2. Financial reports are supported by complete and accurate documentation.	3.29	0.83	Strongly Agree
3. Information provided by the organization can be independently validated.	3.45	0.69	Strongly Agree
4. Project accomplishments are supported by reliable records and evidence.	3.43	0.96	Strongly Agree
5. The organization maintains accurate and updated project documentation.	3.34	0.88	Strongly Agree
6. Employees can verify project information whenever necessary.	3.27	0.96	Strongly Agree
7. Reports prepared by the organization are consistent with actual project activities.	3.57	0.60	Strongly Agree
8. The organization ensures the accuracy and credibility of project data before dissemination.	3.06	0.94	Agree
Column Mean	3.32	0.39	Strongly Agree

Note. Scores were interpreted as follows: 3.26–4.00 = Strongly Agree; 2.51–3.25 = Agree; 1.76–2.50 = Disagree; 1.00–1.75 = Strongly Disagree.

Information transparency ranked second ($M = 3.49$, $SD = 0.32$), also verbally described as *Strongly Agree*. The highest-rated indicator was that the organization's information was accurate and understandable ($M = 3.75$, $SD = 0.58$). Meanwhile, promoting openness in sharing project-related information obtained the lowest mean ($M = 3.22$, $SD = 1.06$), verbally described as *Agree*. This finding suggests that although information was generally considered accurate and understandable, greater openness in sharing project-related information may still be encouraged. Transparency is most useful when organizational information is not only accurate but also accessible and relevant to employees who implement and monitor public projects (Sofyani et al., 2020; Pozen, 2020).

Timeliness of disclosure ranked third ($M = 3.39$, $SD = 0.30$), verbally described as *Strongly Agree*. Prompt communication of project schedules and deadlines received the highest rating ($M = 3.74$, $SD = 0.59$). However, the

use of information disclosure to support timely organizational decision-making obtained the lowest rating ($M = 2.94$, $SD = 0.93$), although it was still verbally described as *Agree*. This result indicates that project schedules were generally communicated promptly, but the organization could improve how it uses disclosed information to support timely decisions.

Verifiability of data obtained the lowest grand mean among the four dimensions ($M = 3.32$, $SD = 0.39$), but respondents still verbally described it as *Strongly Agree*. The highest-rated indicator was the consistency of organizational reports with actual project activities ($M = 3.57$, $SD = 0.60$). In contrast, ensuring the accuracy and credibility of project data before dissemination obtained the lowest mean ($M = 3.06$, $SD = 0.94$), verbally described as *Agree*. The result suggests a need to strengthen data review and verification procedures before releasing project information. Reliable and verifiable information supports accountability, monitoring, and sound public-sector decision-making (OECD, 2021; Henk, 2020). The relatively close grand means show that all four dimensions were positively assessed. Without an appropriate statistical comparison, these differences should not be treated as substantial. Nevertheless, the lowest-rated indicators identify practical areas for improvement, particularly uniform access to important information, openness in information sharing, use of disclosure in decision-making, and data verification before dissemination.

Level of Effective Internal Control in DPWH Project Implementation

Table 3 Respondents' Assessment of Internal Control Effectiveness in DPWH Project Implementation

Indicators	M	SD	Interpretation
Effective Internal Control			
1. Management demonstrates commitment to integrity and ethical values in project implementation.	3.16	0.86	Agree
2. Employees clearly understand their roles and responsibilities in implementing DPWH projects.	3.30	0.77	Strongly Agree
3. Management promotes accountability at all levels of project implementation.	3.44	0.81	Strongly Agree
4. Employees receive adequate guidance and supervision in performing their duties.	3.46	0.89	Strongly Agree
5. The organization maintains a culture that supports compliance with policies and regulations.	3.48	0.65	Strongly Agree
6. Qualified personnel are assigned to positions based on their competencies.	3.32	0.95	Strongly Agree
7. Management encourages employees to adhere to established internal control policies.	3.60	0.60	Strongly Agree
8. Leadership demonstrates commitment to effective governance and responsible project management.	3.05	1.09	Agree
Column Mean Mean	3.35	0.36	Strongly Agree

Note. Scores were interpreted as follows: 3.26–4.00 = Strongly Agree; 2.51–3.25 = Agree; 1.76–2.50 = Disagree; 1.00–1.75 = Strongly Disagree.

Table 3 presents the respondents' assessment of internal control effectiveness in DPWH project implementation. The variable obtained an overall mean of 3.35 ($SD = 0.36$), verbally described as Strongly Agree. This indicates that the respondents generally perceived internal control practices as effectively implemented in the organization. The highest-rated indicator was management's encouragement of employees to comply with established internal control policies ($M = 3.60$, $SD = 0.60$). This finding indicates that management strongly emphasized compliance with internal control policies. Maintaining an organizational culture that supported compliance with policies and regulations also received a high rating ($M = 3.48$, $SD = 0.65$), followed by the provision of adequate guidance and supervision ($M = 3.46$, $SD = 0.89$) and the promotion of accountability at all levels of project implementation ($M = 3.44$, $SD = 0.81$).

Conversely, leadership's commitment to effective governance and responsible project management obtained the lowest rating ($M = 3.05$, $SD = 1.09$), verbally described as Agree. Management's commitment to integrity and ethical values also received a comparatively lower assessment ($M = 3.16$, $SD = 0.86$). These results do not indicate an absence of leadership or ethical commitment. Rather, they suggest that these aspects received less favorable assessments than the other indicators and may therefore require greater attention.

The findings suggest that internal control effectiveness was most evident in policy compliance, accountability, and organizational support for established procedures. However, leadership visibility and the consistent demonstration of integrity and responsible governance could be strengthened. Effective internal control requires not only formal policies but also sustained leadership commitment, clear accountability, competent personnel, reliable communication, and continuous monitoring (Henk, 2020; Muhamad & Ramly, 2024).

Organizational Transparency as a Predictor of Internal Control Effectiveness

Table 4 presents the multiple linear regression analysis conducted to determine which dimensions of

organizational transparency significantly predicted internal control effectiveness in DPWH project implementation. The overall regression model was statistically significant, $F(145) = 128.925, p < .001$. The model obtained an R^2 of .781 and an adjusted R^2 of .774, indicating that the four dimensions of organizational transparency collectively explained 78.1% of the variance in internal control effectiveness. The remaining 21.9% may be associated with other organizational factors and random variation not included in the model.

Table 4. Multiple Regression Analysis Predicting Internal Control Effectiveness

Predictor	B	SE	β	t	p	Tolerance	VIF
Constant	0.318	0.179	—	1.780	.077	—	—
Information Transparency	0.193	0.130	.173	1.488	.139	.112	8.889
Information Symmetry	-0.175	0.098	-.145	-1.792	.075	.230	4.340
Timeliness of Disclosure	0.300	0.091	.251	3.318	.001	.264	3.786
Verifiability of Data	0.587	0.053	.640	11.144	< .001	.458	2.182

Note. $R = .883$, $R^2 = .781$, adjusted $R^2 = .774$, $F(4, 145) = 128.925$, $p < .001$, and Durbin-Watson = 0.798. Dependent variable: Internal control effectiveness; $\alpha = .05$. B = unstandardized coefficient; SE = standard error; β = standardized coefficient; VIF = variance inflation factor.

Verifiability of data emerged as the strongest significant predictor of internal control effectiveness ($B = .587$, $SE = .053$, $\beta = .640$, $t = 11.144$, $p < .001$). This result indicates that higher perceived accuracy, reliability, consistency, and confirmability of project information were associated with greater internal control effectiveness. Specifically, a one-unit increase in perceived verifiability of data corresponded to a .587-unit increase in predicted internal control effectiveness, holding the other predictors constant. Verifiable records may support internal control by providing reliable evidence to monitor project accomplishments, review financial transactions, detect discrepancies, and ensure compliance with government requirements. This interpretation is consistent with Dao (2024), who found that internal control components were associated with the quality and reliability of financial reporting in public organizations. Henk (2020) similarly emphasized the importance of reliable information and documentation in operating internal control systems.

Timeliness of disclosure was also a significant positive predictor ($B = .300$, $SE = .091$, $\beta = .251$, $t = 3.318$, $p = .001$). Holding the other predictors constant, a one-unit increase in perceived timeliness of disclosure corresponded to a .300-unit increase in predicted internal control effectiveness. This finding suggests that promptly communicating project updates, implementation issues, reports, schedules, and deadlines was associated with stronger internal control practices. Timely information may allow responsible personnel to identify risks, address irregularities, and implement corrective measures before project problems worsen. In public-sector organizations, relevant and timely information supports monitoring, accountability, and informed decision-making (Arumitha et al., 2020; Jatmiko et al., 2022).

Information transparency did not demonstrate a statistically significant unique predictive relationship with internal control effectiveness ($B = .193$, $SE = .130$, $\beta = .173$, $t = 1.488$, $p = .139$). Similarly, information symmetry was not a statistically significant predictor ($B = -.175$, $SE = .098$, $\beta = -.145$, $t = -1.792$, $p = .075$). Therefore, we did not reject the null hypotheses for information transparency and information symmetry. These results do not mean that openness and equitable access to information are unimportant. Rather, after timeliness of disclosure, verifiability of data, and the other transparency dimensions were considered simultaneously, information transparency and information symmetry did not explain statistically significant additional variance in internal control effectiveness within the study sample.

The negative coefficient for information symmetry should not be interpreted as evidence that equitable access to information weakens internal control. Its zero-order correlation with internal control effectiveness was positive, but its coefficient turned negative after the other predictors entered the model. This change may reflect substantial overlap among the organizational transparency dimensions. Liston-Heyes and Juillet (2020) noted that transparency practices may not operate uniformly and that disclosure alone does not automatically produce more effective control. The usefulness of information may depend on whether it is timely, verifiable, relevant, and operationally applicable.

The collinearity statistics further support a cautious interpretation of the individual coefficients. The VIF values ranged from 2.182 to 8.889, while tolerance values ranged from .112 to .458. Information transparency had the highest VIF (8.889) and the lowest tolerance (.112). Although these values remained within the conventional

thresholds of VIF below 10 and tolerance above .10, the VIF exceeded the more conservative criterion of 5. This indicates substantial overlap between information transparency and the other predictors, which may have increased its standard error and reduced its apparent unique contribution.

The Durbin–Watson statistic was 0.798, which was below the commonly referenced range of approximately 1.5 to 2.5. This result raises concerns about the independence of residuals. Consequently, interpret the regression coefficients and their significance cautiously, and further examine the residual structure for possible clustering, duplicated cases, or ordering effects.

Overall, data verifiability and disclosure timeliness significantly predicted internal control effectiveness, with data verifiability making the strongest unique contribution. The findings indicate predictive associations rather than causal effects because the study employed a descriptive-correlational design. Thus, the results suggest that reliable and promptly disclosed project information is associated with stronger internal control practices, but they do not establish that these transparency practices directly caused improvements in internal control effectiveness.

Conclusions

The respondents perceived a high level of organizational transparency in DPWH project implementation. Information symmetry received the highest assessment, followed closely by information transparency, while timeliness of disclosure and data verifiability were likewise rated favorably. Nevertheless, the relatively lower ratings for equal access to important information, the use of disclosed information in decision-making, and data verification before dissemination indicate areas for further improvement. Respondents also rated internal control effectiveness highly. Compliance with established internal control policies was the most evident practice, whereas leadership's visible commitment to effective governance and responsible project management received the lowest assessment. This finding suggests that formal control and compliance practices were generally evident, although stronger leadership demonstration of integrity, accountability, and responsible governance may further support internal control implementation. The dimensions of organizational transparency collectively and significantly predicted internal control effectiveness, explaining 78.1% of its variance. Data verifiability was the strongest significant predictor, followed by timeliness of disclosure. In contrast, information transparency and information symmetry did not show statistically significant unique predictive contributions after accounting for the other dimensions. These nonsignificant results do not indicate that openness and equal access to information are unimportant; rather, their contributions may overlap with those of timeliness and verifiability. Based on the combined findings, reliable and promptly disclosed project information was associated with stronger internal control effectiveness in DPWH project implementation. However, because the study employed a descriptive-correlational design with a predictive approach, the findings establish predictive relationships rather than direct causal effects. The individual regression coefficients should also be interpreted cautiously because some organizational transparency dimensions substantially overlap.

Contributions of Authors

Author 1: conceptualization, developed the research methodology and instrument, conducted the data collection, analyzed and interpreted the findings, prepared and revised the manuscript.
Author 2: supervised the study from proposal development to final completion.

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Conflict of Interests

No conflict of interest.

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