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A Qualitative Analysis of Administrative Transparency Requirements in Government Construction Contracts with Emphasis on the Jurisprudence of the Administrative Court of Justice and Data-Driven Governance

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ABSTRACT

This article examines the requirements of administrative transparency in government construction contracts by integrating administrative law, public procurement theory, judicial review, accountability, and data-driven governance. Government construction contracts are among the most sensitive areas of public administration because they involve extensive public expenditure, technical complexity, administrative discretion, long-term execution, and high risks of opacity, inefficiency, and corruption. The study adopts a qualitative analytical approach to explain how transparency should operate across the contractual lifecycle, including project justification, procurement, contractor selection, contract formation, execution monitoring, modification, payment, dispute management, and post-completion evaluation. The findings indicate that administrative transparency is not limited to disclosure of information; rather, it includes legal clarity, procedural fairness, reasoned decision-making, financial traceability, evidentiary preservation, data usability, and accountability mechanisms. The jurisprudence of the Administrative Court of Justice is significant because it can transform transparency from an administrative recommendation into a legally enforceable obligation by requiring public authorities to justify decisions, preserve records, respect procedural equality, and limit arbitrary discretion. The article further argues that data-driven governance can strengthen transparency through digital procurement platforms, integrated contract databases, real-time monitoring, open data systems, audit trails, and predictive risk analysis. However, digitalization must remain subject to legality, explainability, human oversight, data quality, cybersecurity, and judicial review. The article concludes that an effective transparency framework for government construction contracts requires the integration of legal standards, institutional accountability, digital infrastructure, and public oversight. Such a framework can reduce corruption risks, improve project performance, strengthen contractor confidence, support judicial supervision, and enhance public trust in the administration of public construction projects.

Keywords: *Administrative Transparency; Government Construction Contracts; Administrative Court of Justice; Public Procurement; Data-Driven Governance; Administrative Law; Accountability.*

Introduction

Government construction contracts occupy a central position in the legal, administrative, economic, and institutional architecture of the modern state. They are not ordinary commercial transactions through which one party purchases goods or services from another; rather, they are legal-administrative instruments through which



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public authorities transform budgetary allocations into roads, hospitals, schools, public buildings, water systems, transport networks, and other infrastructures that shape collective life. Because these contracts combine public funds, administrative discretion, technical complexity, long execution periods, multiple subcontracting layers, and significant social consequences, they are especially vulnerable to opacity, information asymmetry, administrative abuse, collusion, inefficiency, and corruption. Public procurement scholarship has long emphasized that governmental purchasing and contracting require specialized legal and institutional controls because procurement procedures are not merely market-based mechanisms but also instruments for protecting competition, equality, legality, and public value (1). In the specific field of construction contracts, this need becomes even more serious because infrastructure projects often involve large budgets, changing technical conditions, price adjustments, delays, extensions, claims, and renegotiations, all of which may create opportunities for discretionary and non-transparent administrative decisions. Flyvbjerg's analysis of megaprojects shows that large public projects frequently suffer from cost overruns, underestimated risks, and distorted decision-making, which demonstrates why transparency must be treated as a structural requirement rather than a merely ethical aspiration (2). Earlier empirical work on public works projects similarly highlighted systematic underestimation of costs, suggesting that lack of transparency at the planning and approval stages may produce long-term fiscal and administrative consequences (3). Therefore, a qualitative analysis of administrative transparency in government construction contracts must begin from the premise that transparency is not a decorative principle of good administration but a necessary condition for lawful, rational, accountable, and publicly defensible contractual governance.

The concept of administrative transparency is closely connected with the broader evolution of administrative law and public governance. Traditional administrative law focused primarily on legality, jurisdiction, procedural regularity, and judicial review of administrative action; however, contemporary administrative governance increasingly emphasizes openness, reason-giving, accountability, participation, data availability, and institutional learning. Craig's account of administrative law shows that modern administrative legality is not limited to formal compliance with statutory authority, but also concerns the control of discretion, procedural fairness, proportionality, legitimate expectations, and reasoned administrative conduct (4). Cane similarly presents administrative law as a mechanism for structuring public power, ensuring that administrative authorities remain legally accountable when they affect private rights, public resources, and collective interests (5). From this perspective, transparency becomes one of the key operational forms of legality: it allows affected parties, supervisory institutions, courts, citizens, auditors, and competing contractors to understand how decisions are made, what information was considered, why one contractor was selected over another, why a contract was modified, why payment was delayed, or why a project was terminated. Theories of accountability also confirm this connection, because public accountability requires information, explanation, answerability, and the possibility of sanction or correction; without transparency, accountability becomes an empty institutional slogan rather than a functioning governance mechanism (6). In government construction contracts, this means that administrative transparency must be embedded across the entire contractual lifecycle, from needs assessment and budgeting to tendering, award, execution, monitoring, modification, payment, dispute resolution, and post-completion evaluation.

The importance of transparency is also reinforced by anti-corruption theory. Construction contracts are frequently considered high-risk areas because they involve large financial flows, technical evaluation criteria that may be difficult for the public to understand, and administrative decisions that can be disguised as professional judgment. Rose-Ackerman and Palifka explain that corruption often flourishes where discretionary power, weak oversight,

information asymmetry, and private benefits converge (7). This pattern is highly relevant to public construction contracting, where the selection of contractors, approval of design changes, certification of progress, acceptance of delivered work, and settlement of claims may all become channels for rent-seeking when transparency is weak. Schuck's analysis of governmental failure also indicates that institutional underperformance is not only the result of individual misconduct but may emerge from structural complexity, fragmented responsibility, poor information systems, and weak feedback mechanisms (8). Therefore, administrative transparency in government construction contracts must be understood as both a preventive and corrective mechanism. It is preventive because it reduces opportunities for hidden favoritism and arbitrary action before harm occurs; it is corrective because it creates records, evidence, and justifications that enable later review by judicial, administrative, audit, and public oversight bodies. This dual function is especially important for the jurisprudence of the Administrative Court of Justice, because judicial review becomes meaningful only when administrative decisions are documented, reasoned, accessible, and capable of being evaluated against legal standards.

The role of the Administrative Court of Justice in this research is not limited to resolving disputes after administrative conflict has already occurred. Its jurisprudence can be read as a source for identifying the legal meaning of transparency in the conduct of public authorities. Administrative courts, by reviewing decisions related to procurement, administrative discretion, contractual authority, payment obligations, procedural rights, and public-sector decision-making, gradually articulate the standards by which administrative conduct becomes lawful or unlawful. Harlow and Rawlings show that law and administration are deeply interconnected, because administrative justice is shaped not only by formal rules but also by institutional relationships, decision-making practices, and the mechanisms through which administrative bodies are made answerable (9). Mashaw's emphasis on reasoned administration is especially relevant here, because the legitimacy of administrative decision-making depends on the capacity of public authorities to justify their actions through reasons that are intelligible, consistent, and publicly defensible (10). In government construction contracts, this reason-giving function becomes crucial when an administrative body excludes a bidder, approves an exceptional procurement method, changes contractual terms, refuses payment, imposes penalties, terminates a contract, or interprets ambiguous contractual clauses. A qualitative analysis of the Administrative Court of Justice's approach may therefore reveal that transparency is not only a managerial virtue but a legal requirement rooted in fairness, legality, non-arbitrariness, and accountability.

At the same time, transparency should not be reduced to the mere publication of documents or the formal disclosure of procurement notices. Hood and Heald's work demonstrates that transparency is a complex and sometimes ambiguous concept, because information may be visible without being understandable, available without being usable, and disclosed without producing accountability (11). Meijer also argues that transparency has complex dynamics and cannot be assessed only by the quantity of information made public; rather, its effects depend on institutional context, interpretive capacity, and the relationship between information providers and information users (12). In construction contracting, this distinction is decisive. Publishing a tender announcement without clear evaluation criteria does not guarantee procedural transparency. Uploading contract documents without progress data, payment records, variation orders, audit findings, and performance indicators does not create meaningful financial transparency. Providing technical reports in inaccessible formats does not empower citizens, competitors, auditors, or courts to evaluate administrative conduct. Grimmelikhuijsen's study of transparency and citizen trust also suggests that transparency affects trust through knowledge and perception, meaning that transparency mechanisms must be designed in a way that actually improves understanding (13). Therefore, the

present article approaches administrative transparency as a multidimensional requirement involving disclosure, intelligibility, traceability, verifiability, procedural regularity, and institutional accountability.

The rise of data-driven governance adds a new layer to this analysis. Digital transformation has changed the practical possibilities of administrative transparency by making it possible to collect, integrate, analyze, publish, and audit administrative data across institutions and contractual stages. Mergel, Edelmann, and Haug define digital transformation in the public sector as a process that goes beyond the adoption of technology and involves organizational change, service redesign, and new forms of public value creation (14). Criado and Gil-Garcia similarly connect smart technologies with the creation of public value, indicating that digital tools can improve government performance when they are integrated with institutional goals and governance strategies (15). In the context of government construction contracts, data-driven governance may support transparent procurement platforms, integrated contractor databases, real-time progress monitoring, algorithmic risk detection, automated reporting dashboards, and open access to project information. However, digital systems do not automatically create transparency. Janssen and Kuk warn that big data algorithms in technocratic governance may create new limits and risks, including opacity, bias, lack of accountability, and excessive reliance on technical systems (16). Wirtz, Weyerer, and Geyer similarly show that artificial intelligence in the public sector offers significant applications but also raises challenges related to ethics, control, reliability, and administrative responsibility (17). Thus, data-driven governance should be considered a new institutional capacity for transparency, but only when it remains governed by legal principles, judicial review, human accountability, data quality standards, and public oversight.

The present study aims to qualitatively analyze the requirements of administrative transparency in government construction contracts with an emphasis on the jurisprudence of the Administrative Court of Justice and data-driven governance. This objective requires combining administrative law, public procurement theory, accountability studies, anti-corruption analysis, and digital governance literature into one interpretive framework. The article proceeds from the assumption that transparency in government construction contracts must be understood simultaneously as a legal principle, an administrative procedure, a public accountability mechanism, and a data governance requirement. It therefore examines how transparency should be conceptualized, how it can be extracted from judicial reasoning, how it applies to different stages of construction contracts, and how data-driven governance can strengthen or complicate its implementation.

Conceptual and Theoretical Foundations of Administrative Transparency in Government Construction Contracts

Administrative transparency is a multidimensional concept that operates at the intersection of law, governance, ethics, management, information policy, and public accountability. In its narrowest sense, transparency refers to the availability of information about governmental decisions, procedures, and outcomes; however, in its more developed sense, it includes the clarity, accessibility, reliability, timeliness, intelligibility, and usability of information. Hood and Heald explain that transparency may be directed upward, downward, inward, or outward, which means that it can serve different audiences such as superior authorities, citizens, internal managers, courts, auditors, contractors, and civil society (11). This distinction is particularly useful for government construction contracts, because transparency in this field cannot be designed for one audience only. Contractors require transparent tender documents and evaluation standards. Administrative managers require accurate progress and payment data. Courts require records that show the reasons and legality of administrative action. Citizens require accessible

information about how public money is spent and whether infrastructure promises have been fulfilled. Auditors require verifiable financial and technical documentation. Therefore, transparency must be treated as a layered institutional structure, not merely as public disclosure. Meijer's analysis of transparency as a complex dynamic phenomenon supports this view, because the meaning and consequences of transparency depend on how information is produced, interpreted, and connected to mechanisms of response (12). In government construction contracts, transparency is effective only when information can be transformed into scrutiny, explanation, correction, and institutional learning.

The legal dimension of administrative transparency is rooted in the principles of legality, non-arbitrariness, procedural fairness, and reasoned decision-making. Administrative authorities do not act as private parties when they conclude and manage public construction contracts; they act as custodians of public resources and as institutions bound by public law values. Craig's theory of administrative law shows that public authorities must exercise discretion within legal boundaries and must remain subject to review when they act unlawfully, irrationally, unfairly, or disproportionately (4). Cane similarly emphasizes that administrative law provides the framework through which governmental power is structured, limited, and made answerable (5). In the contractual context, this means that transparency must accompany the exercise of administrative power at every significant decision point. The decision to initiate a project should be supported by transparent needs assessment and budgetary justification. The decision to choose a procurement method should be legally and administratively explained. The decision to award a contract should be based on announced criteria. The decision to approve changes, extensions, or additional payments should be recorded and justified. The decision to terminate a contract or impose penalties should be reasoned and proportionate. Mashaw's theory of reasoned administration is central here, because reasons are the bridge between administrative discretion and democratic legitimacy (10). When a public authority provides reasons, it does not merely communicate a decision; it subjects itself to legal, technical, and ethical evaluation.

The procurement dimension of transparency is equally important. Public procurement is one of the main institutional gateways through which private actors gain access to public funds. Thai's international handbook of public procurement indicates that procurement systems must balance efficiency, competition, accountability, fairness, and value for money (18). Arrowsmith's work on public procurement law further demonstrates that procurement regulation is designed to prevent favoritism, ensure equal treatment, promote competition, and discipline public purchasing decisions (1). In government construction contracts, these principles require transparent publication of opportunities, clear qualification standards, objective evaluation criteria, traceable scoring methods, documented committee decisions, conflict-of-interest controls, and meaningful complaint mechanisms. A procurement process may be formally competitive but substantively opaque if the evaluation criteria are vague, if technical scoring is not documented, if administrative bodies apply hidden preferences, or if unsuccessful bidders cannot understand why they lost. De Fine Licht's analysis of transparency effects shows that the impact of transparency may vary by policy area, which suggests that construction contracts require sector-specific transparency mechanisms because technical complexity and financial magnitude make ordinary disclosure insufficient (19). Accordingly, transparency in construction procurement should be operationalized through procedures that make both administrative reasoning and technical evaluation visible.

The financial dimension of transparency is especially sensitive because construction contracts involve public expenditure over time. Payments are often made according to progress certificates, technical approvals, interim statements, price adjustment formulas, claims, variation orders, and final settlement procedures. Each of these

stages can become opaque if records are fragmented, if financial decisions are not linked to physical progress, or if payment approvals are controlled by discretionary administrative behavior. Rose-Ackerman and Palifka's analysis of corruption shows that financial opacity enables bribery, favoritism, embezzlement, and rent extraction, particularly where public officials control access to valuable administrative decisions (7). Flyvbjerg's work on cost underestimation in public works shows that financial misrepresentation at early stages can distort democratic and administrative decision-making long before the contract is executed (3). Later work on megaprojects further emphasizes that infrastructure projects frequently involve optimism bias, strategic misrepresentation, and weak accountability for cost and benefit forecasts (2). These insights justify treating financial transparency as a lifecycle requirement. It should begin before tendering through realistic cost estimation and continue through budget allocation, contract pricing, payment certification, change management, and post-project audit. Without financial transparency, the public cannot know whether the project reflects value for money, whether the contractor has been paid according to lawful criteria, or whether cost increases are technically justified.

The informational dimension of transparency concerns the quality and governance of data. Government construction contracts generate large volumes of information: tender documents, bids, evaluation reports, technical drawings, bills of quantities, project schedules, progress reports, inspection records, financial statements, correspondence, claims, dispute documents, and completion certificates. If these data are scattered across paper archives, disconnected agencies, non-standardized formats, and closed administrative systems, transparency remains weak even if some documents are technically available. Janssen, Charalabidis, and Zuiderwijk identify benefits, barriers, and myths of open data and open government, showing that the mere release of data does not guarantee value unless data are usable, reliable, understandable, and connected to institutional processes (20). Zuiderwijk and Janssen similarly argue that open data policies require careful implementation and evaluation because policy adoption alone does not ensure impact (21). This is directly relevant to construction contracts because project transparency depends not only on publication but also on data architecture. Data must be standardized, updated, searchable, linked to project identifiers, and capable of being compared across agencies, contractors, regions, and time periods. Kitchin's discussion of real-time urban data also shows that contemporary governance increasingly relies on continuous flows of data, which may support more responsive and evidence-based management when institutional safeguards exist (22). Therefore, administrative transparency in construction contracts must include information governance requirements such as data quality, interoperability, metadata standards, audit trails, and digital preservation.

The accountability dimension gives transparency its normative force. Transparency without accountability may produce visibility without consequence. Bovens, Goodin, and Schillemans conceptualize public accountability as a relationship in which actors are obliged to explain and justify conduct to a forum that can question, judge, and impose consequences (6). In government construction contracts, such forums may include courts, audit institutions, parliament, internal supervisory bodies, procurement review boards, civil society, media, and affected communities. Transparency becomes meaningful when these forums can use disclosed information to evaluate administrative conduct. Grimmelikhuijsen's work on transparency and citizen trust suggests that transparency can improve trust when it enhances knowledge and reduces uncertainty about governmental behavior (13). However, if transparency reveals disorder, inconsistency, or manipulation without producing corrective action, it may also reduce trust. This means that administrative transparency should not be designed as passive visibility; it must be connected to complaint rights, judicial review, audit powers, disciplinary responsibility, contractor sanctions, and administrative

reform. Bertot, Jaeger, and Grimes argue that ICTs can help create a culture of transparency and anti-corruption when they support openness and public interaction (23). Yet technology alone cannot substitute for accountability. A digital portal that publishes incomplete data or hides decision-making logic may create an appearance of openness while preserving substantive opacity.

The theoretical foundation of transparency in government construction contracts can therefore be summarized as the integration of five interrelated requirements: legal clarity, procedural openness, financial traceability, informational usability, and accountability linkage. Legal clarity means that rules governing procurement, contract management, modifications, payments, sanctions, and dispute resolution must be clear enough to guide conduct and support review. Procedural openness means that decisions must be made according to announced, documented, and equal procedures. Financial traceability means that public money must be traceable from allocation to final expenditure. Informational usability means that data must be accessible, structured, accurate, and intelligible. Accountability linkage means that information must be usable by institutions capable of questioning and correcting administrative behavior. This integrated view is consistent with OECD governance indicators, which connect public-sector performance with openness, integrity, budgeting, procurement, and digital government capacities (24). It is also consistent with Schuck's argument that government failure often emerges from institutional fragmentation and weak feedback rather than from isolated errors alone (8). In the context of this article, administrative transparency is therefore understood as a legal-governance framework that enables public construction contracts to be planned, awarded, executed, modified, supervised, and reviewed in a manner that is visible, reasoned, data-supported, and accountable.

Administrative Transparency in the Jurisprudence of the Administrative Court of Justice

The jurisprudence of the Administrative Court of Justice provides a crucial lens through which the requirements of transparency in government construction contracts can be identified and systematized. Administrative courts are not project managers and do not replace technical agencies in the administration of public works; nevertheless, they define the legal boundaries within which administrative authorities must act. The significance of judicial review lies in its capacity to translate abstract principles such as legality, fairness, equality, accountability, and non-arbitrariness into enforceable standards. Craig's discussion of administrative law shows that courts supervise public power by examining whether administrative authorities have acted within their powers, followed fair procedures, respected relevant considerations, and avoided irrational or disproportionate decisions (4). Cane's account of administrative law similarly emphasizes the role of legal institutions in structuring the relationship between individuals and public authorities (5). When these principles are applied to government construction contracts, the jurisprudence of the Administrative Court of Justice can be understood as an institutional source for extracting transparency requirements from disputes involving tendering, contractor qualification, public payments, administrative discretion, contractual modification, termination, sanctions, and public-sector responsibility. The court's function is therefore not only reactive but also normative, because repeated judicial reasoning can shape expectations about how transparent administration should operate in contractual settings.

A qualitative reading of judicial practice in this field should begin with the requirement of reasoned administrative decision-making. When an administrative body excludes a bidder, cancels a tender, rejects a contractor's claim, refuses to make payment, imposes penalties, terminates a contract, or adopts a restrictive interpretation of contractual clauses, it must be able to provide reasons that are legally relevant and factually supported. Mashaw's

theory of reasoned administration explains that administrative legitimacy depends on the giving of reasons because reasons allow affected parties and reviewing institutions to understand the relationship between facts, rules, discretion, and outcomes (10). In construction contracts, the absence of reasons is not merely a procedural defect; it may conceal favoritism, technical manipulation, selective enforcement, or financial abuse. Harlow and Rawlings show that administrative law is deeply concerned with the mechanisms that make public administration answerable, and reason-giving is one of the most important of these mechanisms (9). The Administrative Court of Justice's emphasis on reasoned conduct can therefore be interpreted as a transparency requirement: administrative decisions must be documented in a way that permits review, challenge, and correction. A decision that cannot be explained cannot be meaningfully reviewed, and a decision that cannot be reviewed undermines the rule of law in public contracting.

The second transparency requirement derived from judicial practice concerns procedural regularity in public procurement. Procurement disputes often arise where bidders allege unequal treatment, vague criteria, inconsistent evaluation, hidden preferences, improper disqualification, or unlawful cancellation. Public procurement theory emphasizes that procurement rules must protect competition and equal access to public opportunities (1). Thai's comparative procurement analysis also shows that public procurement systems require fairness, transparency, and accountability because procurement decisions distribute public economic opportunities among private actors (18). In the jurisprudential context, the Administrative Court of Justice can use these principles to assess whether administrative authorities have complied with announced procedures and whether bidders have been treated according to objective standards. Procedural transparency requires that qualification conditions be known before submission, that evaluation criteria be applied consistently, that evaluation committees document their reasoning, and that unsuccessful bidders have access to enough information to understand the decision. De Fine Licht's work on transparency effects supports the need for policy-area sensitivity, because the transparency required in a technically complex construction tender must be more detailed than the transparency required in simpler administrative decisions (19). Thus, judicial review of procurement procedures can gradually transform transparency from a general value into a concrete administrative obligation.

The third requirement concerns the control of administrative discretion during contract execution. Government construction contracts are dynamic. They are often affected by design changes, inflation, technical obstacles, land acquisition problems, regulatory approvals, environmental conditions, funding delays, and force majeure claims. Because of this complexity, administrative authorities usually possess significant discretion in approving extensions, changing quantities, modifying designs, certifying progress, adjusting prices, and resolving technical disagreements. However, discretion without transparency can easily become arbitrariness. Craig's analysis of administrative discretion shows that public authorities must exercise discretionary powers within legal limits and according to rational, relevant, and fair considerations (4). Schuck's account of government failure further indicates that weak institutional design and poor feedback mechanisms may allow administrative errors to persist and expand (8). In judicial practice, transparency requires that discretionary decisions during contract execution be supported by records, expert reports, technical justifications, financial calculations, and consistent standards. If an authority grants extensions to one contractor but denies comparable requests by another without explanation, transparency and equality are both compromised. If variation orders are approved without documentation, financial accountability is weakened. If progress certification is delayed without reasons, contractual balance and legitimate expectations

are disrupted. Therefore, the jurisprudence of the Administrative Court of Justice can play a crucial role in limiting hidden discretion and requiring administrative bodies to convert discretionary judgments into reviewable reasons.

The fourth requirement relates to financial transparency and the protection of lawful expectations. Contractors who enter government construction contracts often rely on administrative commitments regarding payment schedules, price adjustment mechanisms, progress certification, and final settlement. Conversely, the public relies on administrative bodies to ensure that payments are lawful, justified, and tied to real performance. Rose-Ackerman and Palifka's anti-corruption framework shows that corruption is likely where officials control valuable financial decisions without adequate monitoring and transparency (7). Flyvbjerg's research on cost underestimation and megaproject risk indicates that public construction finance is especially vulnerable to distorted projections and weak accountability (3). In judicial disputes, the Administrative Court of Justice may encounter claims involving delayed payments, rejected invoices, improper deductions, penalties, termination costs, or administrative refusal to implement contractual obligations. Financial transparency in such cases requires that the public authority explain the legal and factual basis of its financial decisions. It must show how the amount was calculated, which contractual clause was applied, what technical performance was verified, why a deduction was imposed, or why a payment was withheld. Bovens's concept of accountability as answerability is directly relevant here, because financial decisions in public contracts must be answerable both to the contractor and to the public (6). The jurisprudence of the court can therefore help establish that financial opacity is not merely an administrative inconvenience but a potential violation of legality, fairness, and accountability.

The fifth transparency requirement concerns access to administrative information and evidentiary records. Judicial review depends on evidence, and evidence depends on documentation. If administrative agencies do not preserve tender records, committee minutes, technical evaluations, correspondence, payment certificates, inspection reports, and decision rationales, courts cannot effectively evaluate legality. Hood and Heald's discussion of transparency highlights that visibility must be structured and directed toward institutions capable of using information (11). Meijer's dynamic understanding of transparency further suggests that information only becomes meaningful when it is embedded in interpretive and accountability processes (12). The Administrative Court of Justice's role makes this point especially concrete. A court cannot assess whether a procurement decision was discriminatory if the evaluation records are missing. It cannot determine whether a contract modification was lawful if technical justifications were not documented. It cannot review a payment dispute if progress data and financial records are incomplete. Therefore, administrative transparency requires an evidentiary infrastructure. This infrastructure must include recordkeeping duties, digital archiving, traceable approvals, written reasons, standardized forms, and access rights for affected parties. Without such infrastructure, transparency remains dependent on the goodwill of administrative bodies, which is incompatible with legal accountability.

The sixth requirement is consistency and predictability in administrative conduct. Transparency is not only about knowing what happened in one case; it is also about being able to anticipate how administrative rules and standards will be applied across similar cases. Grimmelikhuisen's work on transparency and trust indicates that knowledge about governmental behavior can influence trust, especially when transparency reduces uncertainty (13). In construction contracts, uncertainty is costly. Contractors price risks according to expected administrative behavior, and public authorities depend on credible procurement markets to obtain competitive bids. If administrative decisions are unpredictable, selective, or insufficiently explained, bidders may increase prices, avoid participation, or rely on informal channels to reduce uncertainty. Harlow and Rawlings emphasize that administrative law develops

through the interaction of legal norms and administrative practices (9). The jurisprudence of the Administrative Court of Justice can therefore help build predictability by identifying recurring standards for lawful administrative action. If the court consistently requires reasons, documentation, equal treatment, lawful procedure, and evidence-based decision-making, administrative bodies receive clearer signals about expected conduct. This jurisprudential function is especially important where written legislation does not fully regulate every technical aspect of construction contract management.

The seventh requirement concerns the relationship between transparency and public interest. Government construction contracts are not only bilateral relationships between a public employer and a contractor; they affect citizens, communities, taxpayers, service users, and future generations. OECD governance analysis connects public-sector transparency with broader concerns of public trust, integrity, budgeting, and service performance (24). Criado and Gil-Garcia's work on smart technologies and public value also indicates that governance mechanisms should be evaluated according to their capacity to create public value, not merely administrative efficiency (15). In the jurisprudence of the Administrative Court of Justice, this public-interest dimension means that transparency should not be limited to protecting the procedural rights of contractors. It should also protect the integrity of public spending, the quality of public works, and the legitimacy of administrative choices. For example, a dispute over tender cancellation may involve not only the disappointed bidder's interest but also the public's interest in lawful competition and efficient use of funds. A dispute over project modification may involve not only contractual balance but also the public's interest in preventing hidden cost escalation. A dispute over delayed payment may involve not only contractor rights but also the public interest in maintaining credible and lawful government contracting. Transparency therefore mediates between private contractual claims and public administrative responsibility.

The qualitative components extracted from this jurisprudential perspective include reason-giving, documentation, procedural equality, financial traceability, evidentiary preservation, consistency, access to information, and reviewability. These components show that transparency is not a single administrative act but an integrated legal condition of public contracting. It requires public authorities to make decisions in a way that can be understood before the contract, monitored during execution, challenged during disputes, and evaluated after completion. It also requires the Administrative Court of Justice to treat opacity not as a neutral administrative weakness but as a factor that may undermine legality, fairness, and accountability. In this sense, judicial practice and administrative transparency mutually reinforce each other. Transparent administration makes judicial review possible, while judicial review gives transparency legal force. This reciprocal relationship forms the legal core of the article's framework and prepares the ground for examining how data-driven governance can strengthen transparency in construction contracting.

Data-Driven Governance and the Digital Transformation of Transparency

Data-driven governance introduces a new paradigm for administrative transparency by shifting public administration from fragmented, paper-based, reactive, and discretionary information practices toward integrated, digital, evidence-based, and potentially real-time systems of decision-making and oversight. In traditional administrative systems, transparency often depends on the publication of documents after decisions have already been made. In data-driven governance, transparency can be embedded into the architecture of administrative action itself. Mergel, Edelmann, and Haug explain that digital transformation in government is not simply the conversion of analog procedures into electronic formats; it involves organizational change, new capabilities, altered workflows,

and redesigned public services (14). This understanding is essential for government construction contracts. If digitalization only means scanning paper documents or creating a static website for tender notices, it does not transform transparency. Genuine data-driven transparency requires integrated procurement platforms, standardized contract data, linked budgeting systems, digital progress monitoring, automated audit trails, public dashboards, interoperable databases, and legally regulated access to information. Criado and Gil-Garcia's analysis of smart technologies shows that digital tools create public value only when they are aligned with governance objectives and institutional strategies (15). Therefore, the value of data-driven governance in construction contracts depends on whether it strengthens legality, accountability, efficiency, fairness, and public trust.

The first contribution of data-driven governance is to improve transparency in the pre-contractual stage. Before a government construction contract is awarded, public authorities must identify needs, estimate costs, allocate budgets, design procurement procedures, publish tender information, evaluate bidders, and justify award decisions. Each of these stages generates data that can be captured, standardized, and made reviewable. Public procurement literature shows that competition and fairness depend on transparent rules, equal access, and objective evaluation (1). Thai's procurement framework also emphasizes that procurement systems must serve multiple objectives, including transparency, economy, accountability, and integrity (18). A data-driven procurement system can support these objectives by publishing tender opportunities in searchable formats, recording all amendments to tender documents, requiring digital submission of bids, preserving bid-opening records, documenting evaluation scores, and allowing authorized review bodies to examine the decision trail. Bertot, Jaeger, and Grimes argue that ICTs can help build a culture of transparency and anti-corruption by increasing openness and reducing opportunities for hidden administrative behavior (23). Applied to construction procurement, this means that digital systems can reduce informal contacts, prevent post-submission manipulation, expose unusual evaluation patterns, and support complaint review. However, this requires careful legal design, because digital systems must not merely automate existing opacity.

The second contribution concerns contract execution monitoring. Construction contracts are not completed at the moment of award; they unfold over months or years and require continuous monitoring of time, cost, quality, safety, environmental compliance, and technical performance. Kitchen's discussion of real-time data and smart urbanism shows that contemporary governance increasingly relies on continuous data streams and digital monitoring capacities (22). In construction contracts, analogous systems may include digital project management platforms, geographic information systems, sensor-based monitoring, photographic evidence, drone inspections, digital progress reports, electronic payment certificates, and integrated dashboards linking physical progress to financial disbursement. Such tools can transform transparency from retrospective reporting into ongoing supervision. If progress data are updated regularly and linked to payment approvals, it becomes harder to approve payments for incomplete work. If delay data are recorded systematically, it becomes easier to distinguish contractor fault from administrative delay. If variation orders are registered in a centralized database, supervisory bodies can identify agencies or contractors with unusual patterns of cost escalation. Flyvbjerg's work on megaprojects demonstrates that large infrastructure projects require serious attention to risk, forecasting, and accountability because poor information practices can produce massive public costs (2). Data-driven monitoring responds to this problem by creating continuous evidence rather than relying only on final reports.

The third contribution is financial traceability. Public construction contracts involve complex financial flows that may include advances, interim payments, retention money, price adjustments, guarantees, claims, damages, and

final settlements. Financial opacity may occur when budget data, contract data, payment data, and physical progress data are stored separately. Data-driven governance can link these layers. OECD public governance indicators emphasize the importance of transparent budgeting, procurement, and public financial management as components of effective government (24). In a data-driven construction contracting system, each payment should be traceable to a contract, each contract to a tender, each tender to a budget line, each payment certificate to verified progress, and each variation order to a documented technical and legal justification. Rose-Ackerman and Palifka's corruption analysis suggests that reducing discretionary control over opaque financial decisions is essential for limiting corruption opportunities (7). Digital traceability can support this goal by creating audit trails and identifying irregular patterns. For example, repeated emergency procurements, unusually high variation orders, frequent contractor substitutions, delayed payment clusters, or payments exceeding progress thresholds may trigger supervisory review. Yet Janssen and Charalabidis and Zuiderwijk warn that open data and digital governance face adoption barriers, including data quality problems, organizational resistance, lack of standards, and unrealistic assumptions about automatic benefits (20). Thus, financial traceability requires not only technology but also institutional commitment, data standards, legal mandates, and audit integration.

The fourth contribution is open data and public accountability. Government construction projects are visible in physical space but often invisible in administrative detail. Citizens may see a road under construction but not know the contract value, deadline, contractor identity, variation history, payment progress, delay reasons, or responsible administrative authority. Zuiderwijk and Janssen show that open data policies can have impact only when implementation mechanisms are designed carefully and when data are actually usable by stakeholders (21). Open construction data can enable journalists, researchers, civil society organizations, local communities, and competing contractors to monitor public works. It can also strengthen market discipline by making contractor performance histories visible. Grimmelikhuijsen's research on transparency and trust suggests that transparency can influence citizen trust when it increases knowledge of governmental action (13). However, transparency should not overwhelm the public with unstructured technical documents. Meijer's complex model of transparency indicates that information must be interpretable and connected to meaningful relationships between government and society (12). Therefore, open data in construction contracts should include user-friendly dashboards, plain-language summaries, downloadable datasets, visual timelines, financial progress indicators, and clear explanations of delays and modifications. Such measures can transform public infrastructure from a closed administrative domain into a field of participatory oversight.

The fifth contribution is algorithmic and predictive supervision. Artificial intelligence and data analytics can identify risk patterns that may not be visible through ordinary manual review. Wirtz, Weyerer, and Geyer show that AI applications in the public sector can support prediction, automation, decision support, and service improvement, but they also raise challenges of accountability, ethics, and reliability (17). In government construction contracts, algorithmic tools could help detect abnormal bid patterns, collusive pricing, repeated relationships between officials and contractors, unrealistic cost estimates, suspicious variation orders, payment anomalies, and delay risks. Janssen and Kuk warn, however, that big data algorithms in governance can produce technocratic opacity when their assumptions, data sources, and decision logic are not transparent (16). This warning is especially relevant for administrative transparency. If an algorithm flags a contractor as high-risk but the contractor cannot understand or challenge the basis of that classification, the digital system may violate procedural fairness. If an automated procurement platform ranks bids through undisclosed criteria, digital governance may reproduce opacity in a more

sophisticated form. If predictive tools rely on biased historical data, they may reinforce existing inequalities in public procurement markets. Therefore, data-driven governance must include algorithmic transparency, explainability, auditability, human oversight, and judicial review. Digital tools should support administrative reason-giving, not replace it.

The sixth contribution concerns institutional integration. One of the main causes of opacity in public construction contracting is fragmentation among agencies. A project may involve a planning authority, budgeting organization, technical consultant, procurement committee, contracting agency, supervisory engineer, treasury, audit body, court, and dispute resolution institution. If each body maintains separate records, no institution may possess a full picture of the project. Schuck's analysis of governmental failure highlights the role of institutional fragmentation and weak coordination in public-sector underperformance (8). Data-driven governance can address this by creating shared identifiers, interoperable databases, and integrated project records. Mergel's work on digital transformation confirms that technological change requires organizational transformation, not merely the purchase of software (14). For construction contracts, this means that procurement platforms must communicate with budget systems, contract management systems must communicate with payment systems, and judicial or audit review bodies must have lawful access to relevant records. Such integration can also support the Administrative Court of Justice. When disputes arise, the court should not depend solely on selective documents submitted by parties; it should be able to access complete administrative records through legally regulated channels. This would strengthen judicial review and reduce evidentiary asymmetry between contractors and administrative bodies.

Despite these benefits, data-driven governance also creates risks that must be addressed within the transparency framework. First, there is the risk of data overload. Hood and Heald's work reminds us that transparency can become ineffective when information is excessive, poorly organized, or misdirected (11). Construction contracts generate technical and financial data that may be difficult for non-specialists to interpret. Second, there is the risk of digital inequality. If only large contractors can navigate complex digital procurement systems, smaller firms may be disadvantaged. Third, there is the risk of cybersecurity and data manipulation. Digital systems can be attacked, altered, or selectively designed to conceal rather than reveal. Fourth, there is the risk of false objectivity. Janssen and Kuk's critique of algorithmic governance shows that data-driven systems may appear neutral while embedding assumptions and biases (16). Fifth, there is the risk of legal displacement, where administrative authorities rely on automated outputs without providing reasons. Mashaw's theory of reasoned administration remains vital in this context because digital governance must still be capable of producing reasons, explanations, and accountability (10). Therefore, data-driven transparency should be governed by principles of legality, proportionality, explainability, human review, data quality, privacy protection, and public accountability.

The integrated model proposed in this article combines administrative law, judicial standards, procurement transparency, and digital governance. Administrative law supplies the principles of legality, fairness, reason-giving, and reviewability. Public procurement theory supplies the requirements of competition, equal treatment, objective evaluation, and documented award decisions. Accountability theory supplies the relationship between information, answerability, judgment, and correction. Digital governance supplies the infrastructure for data integration, real-time monitoring, open access, predictive analysis, and audit trails. The Administrative Court of Justice supplies the jurisprudential mechanism that can convert transparency requirements into enforceable standards. This integrated model treats data-driven governance not as a technological substitute for law but as a means of operationalizing legal transparency. In this model, every significant decision in a government construction contract should leave a

digital trace, every digital trace should be linked to a legal authority and administrative reason, every reason should be reviewable by oversight bodies, and every oversight process should be capable of producing correction. Only through such integration can data-driven governance strengthen administrative transparency rather than merely modernize administrative opacity.

Qualitative Framework of Transparency Requirements in Government Construction Contracts

A qualitative framework for administrative transparency in government construction contracts must be constructed around the contractual lifecycle. Transparency is often discussed as if it were a single duty of disclosure, but government construction contracts reveal that transparency has different meanings at different stages. At the planning stage, transparency concerns the public justification of need, budget, priority, feasibility, and expected value. At the procurement stage, it concerns competition, access, criteria, evaluation, and award. At the execution stage, it concerns progress, quality, payments, delays, modifications, and supervision. At the dispute stage, it concerns evidence, reasons, administrative records, and access to review. At the post-completion stage, it concerns performance evaluation, audit, lessons learned, and public accountability. Hood and Heald's multidirectional model of transparency supports this lifecycle approach because different stages require different flows of information to different audiences (11). Meijer's argument about the complex dynamics of transparency also suggests that transparency mechanisms must be adapted to institutional context rather than applied mechanically (12). Therefore, the framework proposed here identifies transparency requirements as interconnected dimensions that move across the full life of a public construction contract.

The first requirement is regulatory and normative clarity. Administrative bodies, contractors, courts, auditors, and citizens must be able to identify the rules that govern public construction contracting. Regulatory ambiguity creates space for discretionary manipulation and inconsistent practice. Craig's administrative law analysis demonstrates that legality requires public authorities to act according to legally authorized powers and to respect procedural and substantive constraints (4). Cane's account similarly confirms that administrative law structures public power through legal standards that allow affected persons to challenge unlawful action (5). In construction contracts, normative clarity requires that procurement rules, qualification criteria, contract templates, authority levels, approval procedures, price adjustment rules, variation procedures, dispute mechanisms, and termination standards be sufficiently accessible and understandable. This requirement is especially important because construction contracts combine legal, financial, and technical materials. If rules are fragmented across circulars, contract forms, administrative instructions, and agency-specific practices, transparency is weakened. Regulatory clarity also supports judicial review because the Administrative Court of Justice can more effectively evaluate administrative conduct when applicable standards are identifiable. Schuck's analysis of government failure indicates that unclear, complex, and poorly coordinated governmental systems contribute to administrative dysfunction (8). Therefore, transparency begins before information disclosure; it begins with the intelligibility of the normative environment.

The second requirement is transparent needs assessment and project justification. Many transparency failures in construction contracts begin before procurement. If a project is approved without clear evidence of public need, realistic cost estimation, feasibility analysis, environmental consideration, and budgetary sustainability, later transparency measures may only reveal problems that could have been prevented. Flyvbjerg's research on public works cost underestimation shows that early-stage misrepresentation can profoundly distort public decision-making (3). His later work on megaprojects also emphasizes the risks of optimism bias and strategic misrepresentation in

large infrastructure planning (2). A transparent planning stage should therefore disclose the rationale for the project, expected benefits, estimated costs, funding sources, risk assessments, implementation schedule, and responsible agencies. This does not mean that all technical documents must be publicly simplified beyond recognition, but it does mean that the public and oversight bodies should be able to understand why the project exists, why it has priority, and how its feasibility has been assessed. OECD governance analysis connects effective government with transparent budgeting and performance information (24). In this sense, project justification transparency is a budgetary, legal, and democratic requirement.

The third requirement is transparent contractor selection. The procurement stage is the most visible and legally contested stage of government construction contracts, but visibility alone does not guarantee fairness. Arrowsmith's procurement law analysis emphasizes that public procurement regulation must ensure equal treatment, competition, and transparent procedures (1). Thai's procurement framework similarly treats transparency as a central requirement for legitimate and effective procurement systems (18). In qualitative terms, transparent contractor selection requires open publication of opportunities, clear tender documents, objective qualification conditions, announced evaluation criteria, documented technical and financial scoring, conflict-of-interest declarations, and accessible complaint mechanisms. It also requires that administrative bodies avoid changing criteria after bids are submitted, applying hidden preferences, or using vague concepts that cannot be reviewed. De Fine Licht's work suggests that transparency's effects depend on the policy area, meaning that highly technical construction procurement requires greater explanation and documentation than routine purchasing (19). The Administrative Court of Justice can reinforce this requirement by treating undocumented or unexplained procurement decisions as legally vulnerable. Contractor selection transparency protects both public value and market confidence, because firms are more likely to participate when they believe decisions are based on predictable and reviewable criteria.

The fourth requirement is transparent contract formation and allocation of risk. Once the contractor is selected, transparency requires that the final contract accurately reflect the tender, the bid, the approved conditions, and the legal framework. Hidden alterations between tender award and contract signature can undermine competition because the awarded contract may differ from what other bidders competed for. Public procurement theory warns against practices that distort competition and equal treatment (1). In construction contracts, risk allocation must be transparent because risks relating to design errors, inflation, delays, site conditions, force majeure, payment delays, and regulatory changes can determine the economic balance of the contract. If risk allocation is ambiguous, disputes become more likely and administrative discretion increases. Mashaw's emphasis on reasoned administrative legitimacy is relevant because contract formation should reflect publicly defensible administrative reasoning, not private negotiation outside the procurement record (10). Transparent contract formation requires a complete administrative file showing how the contract terms were finalized, whether changes were approved by competent authorities, and how they relate to the tender documents. This requirement is especially important for judicial review because later disputes often depend on whether the administrative body acted consistently with the original procurement basis.

The fifth requirement is transparent execution monitoring. Contract execution is the longest and most operationally complex stage. It involves inspections, progress reports, technical approvals, delays, payments, correspondence, and ongoing administrative supervision. Kitchin's analysis of real-time data governance suggests that digital systems can support continuous monitoring when data flows are structured and usable (22). In

construction contracts, transparent execution requires the systematic recording of physical progress, quality inspections, delays, contractor requests, administrative responses, safety issues, and technical decisions. It also requires linking execution records with payment decisions. If a contractor is paid for a stage of work, the record should show the technical basis for certification. If payment is withheld, the record should show the contractual and factual basis. Rose-Ackerman and Palifka's anti-corruption framework indicates that opaque administrative control over valuable decisions creates corruption risks (7). Execution monitoring transparency reduces those risks by making it more difficult to manipulate progress, approve unjustified payments, or impose arbitrary penalties. It also protects contractors against unlawful administrative delays and protects the public against poor-quality or incomplete work.

The sixth requirement is transparent modification and change management. Construction contracts frequently require modifications due to technical discoveries, design changes, inflation, unforeseen site conditions, or administrative policy changes. However, modification is also one of the highest-risk areas for opacity because it may be used to bypass procurement competition, increase contract value, or favor a contractor after award. Flyvbjerg's work on megaprojects shows that cost escalation is a persistent problem in large public projects (2). Therefore, every modification should be supported by documented technical necessity, legal authority, financial calculation, approval record, and assessment of its effect on time, cost, and public value. Bovens's accountability model requires that administrative actors explain and justify conduct before a forum capable of questioning and judging it (6). Applying this model to contract modification means that variation orders, extensions, price adjustments, and scope changes should be answerable to internal supervisors, auditors, courts, and the public. Data-driven systems can strengthen this requirement by automatically recording the history of modifications and making cumulative changes visible. Janssen, Charalabidis, and Zuidervijk's discussion of open data barriers reminds us, however, that such systems require reliable data standards and institutional adoption (20). Without standardization, modification data may exist but remain analytically useless.

The seventh requirement is transparent dispute management and judicial review. Disputes in government construction contracts may arise from delayed payment, termination, penalties, interpretation of contractual clauses, contractor disqualification, tender cancellation, or administrative refusal to recognize claims. Administrative justice requires that affected parties have access to the reasons and records necessary to challenge administrative conduct. Harlow and Rawlings emphasize that law and administration are connected through mechanisms that make administrative action answerable (9). The Administrative Court of Justice plays a decisive role in this requirement because it can demand administrative records, examine reasons, and assess whether public authorities acted lawfully. However, judicial transparency also depends on the quality of administrative documentation. If the administrative file is incomplete, review becomes difficult. Hood and Heald's transparency framework shows that transparency must be directed toward institutions capable of using it (11). For judicial review, this means that administrative bodies must preserve tender records, evaluation reports, approvals, correspondence, technical certificates, payment documents, and reasons for major decisions. The court's jurisprudence can then transform recordkeeping into a legal duty rather than a discretionary administrative habit.

The eighth requirement is data governance and digital accountability. Data-driven governance can support every previous transparency requirement, but it also requires its own standards. Mergel's digital transformation research shows that digital government requires organizational change and new capacities (14). Wirtz, Weyerer, and Geyer's work on AI in the public sector demonstrates that digital technologies create both applications and governance

challenges (17). Janssen and Kuk's critique of big data algorithms warns that technocratic governance may create opaque algorithmic authority if decision systems are not explainable and accountable (16). Therefore, data governance requirements include data quality, interoperability, audit trails, cybersecurity, privacy protection, algorithmic explainability, human oversight, and legal access protocols. Open data policies must also be assessed for implementation and impact, as Zuiderwijk and Janssen emphasize (21). In the context of construction contracts, digital accountability means that every significant administrative action should be recorded in a system that identifies the actor, authority, time, data basis, decision reason, and subsequent review status. This type of transparency can support courts, auditors, citizens, and administrative managers simultaneously.

The ninth requirement is organizational culture and institutional capacity. Transparency cannot be implemented only through rules, portals, or court judgments. It requires administrative personnel who understand documentation duties, reason-giving obligations, data standards, procurement ethics, and accountability mechanisms. Bertot, Jaeger, and Grimes argue that ICTs can help create a culture of transparency, but the phrase itself indicates that technology must be accompanied by cultural change (23). Grimmelikhuijsen's work on transparency and trust also suggests that the public effect of transparency depends on how information is perceived and understood (13). If public officials treat transparency as a threat rather than a legal duty, they may resist disclosure, manipulate data, or produce formalistic records without substantive value. If contractors perceive transparency systems as symbolic or selective, market trust will not improve. If citizens cannot interpret published information, public accountability remains limited. Therefore, the qualitative framework must include training, professional ethics, leadership commitment, institutional incentives, whistleblower protection, and sanctions for concealment or falsification. Transparency is both a legal structure and an administrative habit.

The final requirement is integration between judicial standards and data-driven systems. The Administrative Court of Justice can identify what must be transparent, while data-driven governance can provide the tools through which transparency becomes operational. Administrative law supplies standards such as legality, reason-giving, procedural fairness, and reviewability (4). Digital governance supplies systems such as procurement portals, project dashboards, open data platforms, and algorithmic risk analysis (15). Accountability theory supplies the institutional logic that connects information to answerability and correction (6). Public procurement theory supplies the competitive and procedural standards that structure contractor selection (18). Anti-corruption theory supplies the preventive rationale for reducing hidden discretion (7). The proposed qualitative framework therefore requires a convergence of law, administration, technology, and oversight. In this framework, transparency is achieved when construction contracts are governed by clear rules, open procedures, traceable finances, reliable data, reasoned decisions, accessible records, judicial review, and institutional accountability. This integrated approach is capable of addressing the distinctive risks of government construction contracts while adapting administrative law to the realities of data-driven governance.

Conclusion

Administrative transparency in government construction contracts is a comprehensive legal and governance requirement that cannot be reduced to the publication of tender notices or the formal availability of documents. Government construction contracts involve public funds, administrative discretion, technical complexity, long implementation periods, and significant public consequences. For this reason, transparency must accompany the entire contractual lifecycle, beginning with project justification and continuing through procurement, contract

formation, execution, modification, payment, dispute resolution, and post-completion evaluation. The qualitative analysis developed in this article shows that transparency must be understood as a multidimensional structure composed of legal clarity, procedural openness, financial traceability, information usability, evidentiary preservation, reasoned decision-making, and accountability linkage. Each of these dimensions responds to a specific risk in public construction contracting. Legal clarity reduces uncertainty and arbitrary interpretation. Procedural openness protects equality and competition. Financial traceability protects public resources. Information usability enables oversight. Evidentiary preservation supports judicial review. Reasoned decision-making disciplines administrative discretion. Accountability linkage ensures that visibility can produce correction.

The jurisprudence of the Administrative Court of Justice is central to this framework because it can transform transparency from a managerial recommendation into an enforceable administrative obligation. Judicial review depends on transparent administration, but it also strengthens transparency by requiring public authorities to justify their decisions, preserve records, follow procedures, and act within legal boundaries. In government construction contracts, the court's role is particularly important because many transparency failures arise from discretionary decisions that occur after the formal procurement stage. These include contract modifications, extensions, payment decisions, technical approvals, penalties, termination decisions, and administrative refusal to recognize contractor claims. When such decisions are undocumented or insufficiently reasoned, judicial review becomes difficult and public accountability is weakened. Therefore, the relationship between transparency and judicial review is reciprocal. Transparent administrative systems make review possible, while judicial review gives transparency legal consequence.

Data-driven governance provides new opportunities for strengthening transparency, but it also creates new risks. Digital procurement platforms, integrated contract databases, real-time monitoring systems, open data dashboards, automated audit trails, and predictive risk tools can significantly improve the visibility and reviewability of government construction contracts. These tools can reduce information fragmentation, expose irregular patterns, link physical progress with financial payments, and provide courts and auditors with more reliable evidence. However, digital systems do not automatically guarantee transparency. They may reproduce opacity if data are incomplete, inaccessible, poorly structured, manipulated, or controlled by unexplained algorithms. For this reason, data-driven governance must be subordinated to legal principles. Digital systems must be explainable, auditable, interoperable, secure, and subject to human and judicial oversight. Technology should not replace administrative reasoning; it should make administrative reasoning more visible, consistent, and reviewable.

The final qualitative framework of the article consists of five interconnected categories of transparency requirements. The first category includes legal and regulatory requirements, such as clear rules, defined authority, accessible contract standards, and predictable procedures. The second category includes procedural and institutional requirements, such as open procurement, equal treatment of bidders, documented evaluation, reasoned decisions, and complaint mechanisms. The third category includes financial and evidentiary requirements, such as traceable payments, documented progress certification, transparent variation orders, preserved administrative records, and audit-ready files. The fourth category includes technological and data requirements, such as integrated databases, open data systems, real-time monitoring, data quality standards, algorithmic explainability, and cybersecurity safeguards. The fifth category includes accountability and cultural requirements, such as judicial review, audit capacity, administrative ethics, professional training, institutional responsibility, and sanctions for concealment or manipulation.

The practical implication of this framework is that transparency in government construction contracts should be designed as an integrated system rather than a fragmented set of isolated reforms. A procurement portal without financial traceability is insufficient. Open data without understandable formats is insufficient. Judicial review without complete administrative records is insufficient. Digital monitoring without legal accountability is insufficient. Anti-corruption rules without data infrastructure are insufficient. Effective transparency requires coordination among contracting agencies, procurement authorities, budget institutions, audit bodies, courts, digital governance institutions, contractors, and the public. Each institution must have access to the information it needs, and each decision must leave a trace that can be connected to legal authority, factual evidence, and administrative responsibility.

The article ultimately argues that the future of transparency in government construction contracts depends on combining the normative force of administrative law with the operational capacity of data-driven governance. Administrative law defines what public authorities must justify. Judicial review determines whether those justifications are lawful. Data-driven governance supplies the infrastructure through which decisions, payments, modifications, and performance can be recorded and examined. Public accountability gives transparency its social and institutional meaning. When these elements are integrated, transparency becomes more than visibility; it becomes a system of lawful, reasoned, evidence-based, and accountable public contracting. Such a system can reduce corruption risks, improve project performance, strengthen contractor confidence, support judicial oversight, protect public resources, and enhance public trust in the administration of government construction projects.

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Authors' Contributions

All authors equally contributed to this study.

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The authors of this article declared no conflict of interest.

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Transparency of Data

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