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THE IMPACT OF IT INVESTMENT ON EARNINGS MANAGEMENT: THE MODERATING ROLE OF IT GOVERNANCE STRUCTURE

*A Case Study of an Algerian Consulting and Research Firm Specialised in Organisation and
Management*

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ABSTRACT

This dissertation examines how IT investment affects earnings management in an Algerian consulting and research firm, and whether that effect is shaped by how authority over IT decisions is distributed internally. Using a single-case qualitative design, data were collected through semi-structured interviews with six staff members across the Accounting, Finance, and IT functions, and analysed through narrative coding. Grounded in agency theory and the resource-based view, the findings show that IT investment improves the accuracy and traceability of financial reporting only when it is supported by a governance structure that distributes IT decision authority and embeds finance considerations into technology choices; without such a structure, adoption produces limited gains and leaves space for both accrual-based and real earnings management.

Keywords: IT investment, IT governance structure, earnings management, financial reporting quality, Algeria, consulting and research firm.

الملخص

هذه الأطروحة تدرس كيف يؤثر الاستثمار في تكنولوجيا المعلومات على إدارة الأرباح في شركة جزائرية متخصصة في الاستشارات والبحث، وما إذا كان هذا التأثير يتشكل وفقاً لطريقة توزيع صلاحيات اتخاذ القرار المتعلقة بتكنولوجيا المعلومات داخل المؤسسة. اعتمدت الدراسة على تصميم نوعي لحالة واحدة، إذ جُمعت البيانات من خلال مقابلات شبه موجهة مع ستة موظفين من وظائف المحاسبة والمالية وتكنولوجيا المعلومات، وُحُللت باستخدام الترميز السردية. استناداً إلى نظرية الوكالة والنظرة القائمة على الموارد، تُظهر النتائج أن الاستثمار في تكنولوجيا المعلومات لا يُحسّن دقة التقارير المالية وقابليتها للتنبؤ إلا حين يكون مدعوماً بهيكل حوكمة يوزّع صلاحيات القرار ويُدمج الاعتبارات المالية في الخيارات التكنولوجية؛ وفي غياب هذا الهيكل، يُفضي اعتماد التكنولوجيا إلى مكاسب محدودة ويُبقى مجالاً لإدارة الأرباح القائمة على الاستحقاقات والأنشطة الفعلية

الكلمات المفتاحية الاستثمار في تكنولوجيا المعلومات، هيكل حوكمة تكنولوجيا المعلومات، إدارة الأرباح، جودة التقارير المالية، الجزائر، شركة استشارات وبحث

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LIST OF ABBREVIATIONS

CFI	Corporate Finance Institute
CIO	Chief Information Officer
CNAS	Caisse Nationale des Assurances Sociales
COBIT	Control Objectives for Information and Related Technologies
DA	Algerian Dinar
ERP	Enterprise Resource Planning
GL	General Ledger
IFRS	International Financial Reporting Standards
IT	Information Technology
ITIL	Information Technology Infrastructure Library
HR	Human Resources
SCF	Système Comptable Financier (Algerian Financial Accounting System)
REM	Real Earnings Management
AEM	Accrual-based Earnings Management
RBV	Resource-Based View
WIP	Work in Progress

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Information technology has moved, over the past two decades, from a back-office support function into the core infrastructure through which organisations record, process, and communicate financial information. The accounting and finance functions in particular have been deeply reshaped by integrated software platforms, automated controls, and real-time reporting tools. This shift has direct implications for the credibility of financial statements: the same systems that improve operational efficiency also alter the conditions under which managerial discretion is exercised over reported numbers.

The financial reporting environment of the early twenty-first century differs in important ways from the environment that produced classical accounting research. Earlier work assumed a relatively static technological background in which transactions were recorded by clerks, posted into a manual or semi-manual ledger, and aggregated into financial statements through human intervention at every stage. In that environment, the principal levers through which financial statements could be shaped were the choice of accounting policies, the exercise of estimation judgments, and, in extreme cases, fraudulent misstatement. The introduction of integrated enterprise systems, however, has changed the texture of the reporting process at a fundamental level. Transactions are captured automatically at their point of origin, validated against pre-configured rules, posted to the general ledger without manual intervention, and aggregated into reports that can be produced in real time. The discretionary space that managers and accountants once enjoyed has been narrowed, redistributed, and in some respects replaced by a different kind

of discretion exercised at the level of system configuration rather than at the level of individual entries.

Earnings management, the deliberate shaping of financial figures to satisfy targets, expectations, or contractual outcomes, has been a persistent concern in accounting research. While the practice itself is not new, the technological environment in which it occurs has changed dramatically. Whether IT investment makes earnings manipulation harder to execute, easier to detect, or simply pushes it into less visible parts of the reporting process remains an empirical question. The very automation that closes off some channels of manipulation may open others, particularly through the configuration of integration logic, the design of access controls, and the discretion that remains over period-end adjustments and manual reconciliations.

A central insight of the recent literature is that the answer does not depend on the level of IT spending alone. It depends on how IT is governed. The structures, processes, and relational mechanisms that determine who decides what gets invested in, how those decisions are reviewed, how access controls and audit trails are configured, and how IT performance is monitored, in short, the IT governance arrangement of the firm, condition whether technology is used to constrain manipulation or whether it leaves room for it. Peterson (Crafting information technology governance, 2004) provides a particularly useful framework for analysing these arrangements, distinguishing between centralised, decentralised, and federal IT governance archetypes and emphasising that the way authority over IT decisions is distributed inside a firm shapes the practical effects of IT investment on the rest of the organisation, including its financial reporting practices.

Among the dimensions of IT governance that Peterson identifies, this study deliberately concentrates on a single one: IT governance structure, understood as the way decision-making

authority over IT investment, infrastructure, and applications is distributed across the organisation, and operationalised through Peterson's three archetypes, centralised, decentralised, and federal. The decision to focus on structure, rather than on processes or relational mechanisms, reflects three considerations. First, structure is the dimension of IT governance most directly implicated in the earnings management literature: the most rigorous empirical study of the IT investment and earnings management relationship to date, by Xue, Mithas, and Ray (Two paths to information technology investment: Real earnings management and IT governance, 2014), specifically tests how IT governance structure interacts with earnings management. Second, structure is observable in a single-case qualitative design in a way that more diffuse dimensions are not: the location of authority over IT decisions can be reconstructed from interviews and organisational charts, whereas relational mechanisms are subtle and require longer ethnographic engagement to assess credibly. Third, structure is the dimension on which practical recommendations can most directly act: redesigning the distribution of IT decision rights is feasible for a mid-sized firm, while changing relational culture is much slower work.

This study examines these dynamics inside an Algerian consulting and research firm specialised in organisation and management. The choice of setting is deliberate. Most of the published literature on IT investment and earnings management draws on data from large, publicly listed firms in developed economies. Service-oriented professional firms, and especially consulting and research firms operating in developing-country institutional environments, are under-represented. Yet such firms are themselves heavily dependent on IT for project costing, time recording, billing, and the production of financial information for clients and regulators. Their financial reporting practices are therefore directly exposed to the quality of their IT investment and the way that investment is governed. A consulting and research firm whose revenue is recognised through

project-based percentage-of-completion estimates, whose work-in-progress balances are calculated weekly, and whose project margins are reviewed monthly by partners and project managers offers a setting in which the discretion latent in financial reporting is unusually visible and unusually responsive to the design of the underlying IT systems.

Algeria, as the broader institutional setting, presents its own distinctive configuration of opportunities and challenges. The accounting framework was substantially reformed through the adoption of the *Système Comptable Financier* (SCF) in 2010, which aligned national accounting practice with International Financial Reporting Standards principles. The reform raised the formal bar for disclosure, brought local practice closer to international norms, and strengthened the conceptual coherence of the rules under which firms report. Practical enforcement, however, has lagged behind the formal framework. The local audit market remains thin compared with other middle-income countries, the presence of large international audit firms is limited, and the broader regulatory infrastructure for monitoring financial reporting quality is still maturing. In this environment, technology investment by individual firms is one of the few mechanisms through which financial reporting integrity can be improved from the bottom up, but only if that investment is governed in ways that translate technical capability into reporting discipline.

Beyond the regulatory environment, the Algerian business landscape is characterised by a strong public sector, a growing private sector, and an emerging ecosystem of professional service firms that support both. Mid-sized consulting and research firms occupy a particular place in this landscape: they are sufficiently large to maintain a structured internal organisation and sufficiently small to be agile and to develop close relationships with their clients. Their financial reporting practices, however, have rarely been the subject of academic scrutiny, in part because access to the relevant data is difficult and in part because the dominant research tradition in accounting has

favoured the study of large listed firms whose reports are publicly available. The present study contributes to filling that gap by drawing on the privileged access made possible by the internship arrangement.

The choice of an Algerian consulting and research firm as the empirical anchor of the study reflects both a personal trajectory, my undergraduate studies in accounting and finance at the University of Oran 1, and an analytical conviction that the gap between the accounting framework written on paper and the practices observable in the field is, in this institutional environment, particularly informative. Each instance in which the framework operates as intended deserves to be documented, and each instance in which it does not deserves to be analysed. This dissertation contributes one such case study to a literature that is still, in the Algerian context, largely yet to be written.

A final preliminary remark concerns the language of the dissertation. The choice of English over French or Arabic is deliberate. English has become the dominant language of the international research literature on IT investment, IT governance and earnings management; writing in English allows the work to engage with that literature on its own terms, and to be read, in principle, by an international audience. Where specific Algerian or French notions cannot be transposed without loss of meaning, the original term is preserved and a translation is provided. The Arabic abstract included in the front matter ensures that a reader without access to the English text can still grasp the central argument of the work.

1.2 Problem Statement

The credibility of financial reporting is, at its core, an organisational problem rather than a purely technical one. Financial statements can be distorted not only by outright fraud but, more commonly, by the systematic exercise of managerial discretion within the boundaries of accepted accounting practice. The challenge of distinguishing legitimate judgment from deliberate manipulation makes earnings management both persistent and difficult to address through regulation alone. A regulator can prohibit fraud; a regulator cannot easily prohibit a manager from selecting an estimation technique that happens to produce a more favourable result, particularly when that technique is defensible within the standards.

IT investment is often presented as part of the solution. Automation reduces the discretion exercised over individual transactions; standardisation reduces inconsistency in how similar events are recorded; real-time monitoring raises the cost of manipulation by making it more visible. The empirical record, however, is more nuanced. Some studies find a robust association between IT investment and lower earnings management; others find the relationship is conditional on governance quality; still others find that IT spending itself becomes a target of real earnings management when managers face short-term pressure. Xue, Mithas, and Ray (Two paths to information technology investment: Real earnings management and IT governance, 2014) provide the most consequential evidence on this last point, showing that managers under earnings pressure cut IT infrastructure spending precisely because it is large, visible, and discretionary, and that the magnitude of those cuts is moderated by the structure of IT governance inside the firm.

In a consulting and research firm context, the dynamics take on a specific character. Consulting firms organise their work around projects, with revenue recognition, work-in-progress

measurement, and cost allocation that depend heavily on time-tracking systems, project-accounting tools, and the integration of those tools with the general ledger. The discretionary space available to management around revenue recognition, percentage-of-completion estimates, and the capitalisation versus expensing of project costs is significant. Whether IT investment narrows that space or simply automates existing discretion depends on how the systems are configured, and the configuration of the systems is, in turn, a governance question. A firm in which the senior partner alone decides how the project-accounting tool should be configured will produce a different reporting environment from one in which that decision is shared between the IT manager, the head of finance, and the partners as a group.

The Algerian institutional environment adds further layers of complexity. The formal accounting framework has been substantially strengthened through the SCF, but practical enforcement remains uneven. Audit market depth is limited. IT governance frameworks such as COBIT, ITIL, or Peterson's archetypes have not been formally adopted by most Algerian firms, particularly mid-sized professional service firms whose internal management practices are still maturing. Whether and how IT investment improves financial reporting quality in this environment, and what role IT governance structure plays in shaping that effect, has not been empirically examined for service firms in this country.

Three specific tensions sharpen the problem. First, mid-sized Algerian consulting and research firms typically operate with concentrated decision-making structures: a managing partner or a small partner group holds authority over most operational matters, including IT investment. Peterson's framework would classify this as a centralised IT governance archetype, and the empirical literature suggests that centralised structures are associated with greater exposure to real earnings management through IT budget cuts. Second, the project-based nature of the work means

that financial reporting depends on judgments, hours worked, work-in-progress, cost-to-complete, that are recorded in IT systems whose configuration affects how much room those judgments leave for adjustment. Third, the absence of strong external monitoring places the entire burden of reporting integrity on internal arrangements, including the structure through which IT decisions are made. The intersection of these three tensions defines the empirical territory the present study seeks to explore.

1.3 Research Questions

The central question driving this study concerns the relationship between investment in information technology and the practice of earnings management, and the conditions under which that relationship is shaped by the internal organisational arrangements through which authority over IT decisions is distributed. From this overarching question, two specific research questions are derived:

1. Does IT investment in financial and operational systems improve the accuracy, reliability, and traceability of financial reporting, and does it reduce opportunities for earnings management within a professional service firm?
2. Does the internal distribution of authority over IT decisions moderate the relationship between IT investment and earnings management, and do organisational and institutional challenges reduce the effectiveness of IT governance in improving financial reporting quality?

1.4 Research Objectives

The general objective of this dissertation is to investigate the relationship between IT investment and earnings management, with particular attention to how internal IT governance arrangements moderate that relationship. The general objective is pursued through two specific objectives:

1. To examine how IT investment in financial and operational systems improves financial reporting quality and how system features (automation, integration, audit trails, and access controls) influence opportunities for accrual and real earnings management in professional service firms.
2. To evaluate how the internal distribution of authority over IT decisions moderates the relationship between IT investment and earnings management, and to derive evidence-based recommendations for strengthening IT governance arrangements in mid-sized professional service organisations operating in developing-economy contexts, drawing on the organisational and institutional obstacles identified through the empirical analysis.

1.5 Scope of the Study

This study is organised around a single organisational case: a consulting and research firm specialised in organisation and management consulting, operating in Algeria. The decision to use a case study design reflects the exploratory nature of the research questions and the limited literature on IT investment and earnings management in Algerian professional service firms. A single-case design allows for the depth of analysis, of organisational processes, governance arrangements, system configurations, and individual experiences, that the research questions require.

Within the firm, the study concentrates on staff working in the Accounting and Finance function and the IT function. These individuals have direct, hands on experience with both the IT systems used for financial reporting and the governance arrangements within which those systems operate. The study covers the period 2024 to 2026, corresponding to the active phase of IT modernisation at the firm, and includes a one month internship period during which the researcher observed daily practices and attended internal management meetings.

The findings should be read as specific to the case organisation and its institutional context. They are not automatically generalisable to other Algerian consulting and research firms or to consulting and research firms in other countries. The ambition of the design is analytical rather than statistical generalisation: the aim is to illuminate mechanisms and conditions that are likely to be relevant beyond the specific firm, even where the precise findings cannot be transferred without careful attention to contextual differences in firm size, ownership structure, regulatory environment, and audit market depth.

1.6 Significance of the Study

This study contributes at three levels: organisational, academic, and practical or policy-oriented. Each contribution is meaningful in its own right and carries implications for distinct audiences.

At the organisational level, the findings provide the firm with an evidence-based assessment of how its recent IT investments are affecting financial reporting and where the structure of IT governance may be limiting the effectiveness of those investments. Concrete recommendations, about who should hold authority over IT decisions, how that authority should be distributed across partners, finance, and IT, and what governance forums should be established, are directly actionable at the firm level. For a privately held consulting and research firm whose internal

management practices are still maturing, this kind of independent diagnostic is valuable in itself, irrespective of its academic contribution.

At the academic level, the study addresses a clear gap. The literature on IT investment, earnings management, and IT governance is dominated by studies of large listed firms in advanced economies. Evidence from professional service firms in developing economies is rare, and the systematic application of Peterson's (2004) IT governance framework to the earnings management question, explicitly treating IT governance structure as a moderator rather than an unspecified background condition, contributes a more disciplined analytical approach to the field. The single-dimension focus on structure, rather than the more common but vague references to overall governance quality, allows for a sharper specification of mechanisms and a more testable interpretation of findings.

At the practitioner and policy levels, the study informs how Algerian consulting and research firms, their auditors, and the bodies that regulate professional service firms might think about the conditions under which technology investment can be expected to translate into stronger financial reporting integrity. As Algerian firms continue to modernise their internal systems, the question of how IT investment is governed will become more important, and the specific structural recommendations that flow from this study can serve as a starting point for thinking about how to design IT governance arrangements that support rather than undermine financial reporting quality.

1.7 Definition of Key Terms

To prevent ambiguity in the discussion that follows, the principal terms used throughout this dissertation are briefly defined here. More extensive treatment is provided in Chapter Two, but the core definitions are introduced at this stage so that the reader has a working vocabulary from the outset.

1.7.1 IT Investment

IT investment is understood as the strategic allocation of financial, human, and organisational resources to information technology systems, infrastructure, and capabilities. The purpose of such allocation is to improve the efficiency, accuracy, and reliability of organisational processes, including financial reporting and management accounting. The category covers spending on hardware and software as well as the complementary expenditures on staff training, system support, and process redesign that determine whether the technology is used as intended.

1.7.2 Earnings Management

Earnings management is the deliberate exercise of managerial discretion in the selection of accounting policies, in the estimation of accounting figures, and in the structuring of transactions. Its objective is to produce a reported financial outcome that differs from what would result from a neutral application of accounting standards to the underlying economic situation. The construct comprises two analytically distinct forms. Accrual based earnings management operates through accounting choices, including the timing of revenue recognition, the estimation of provisions, and the assessment of impairment. Real earnings management operates through actual operating, investing, or financing decisions taken for accounting rather than operational purposes, such as the

cutting of discretionary expenditures, the over production of inventory, or the deferral of necessary maintenance.

1.7.3 IT Governance Structure

IT governance structure refers to the organisational arrangements through which authority over IT decisions is distributed within an organisation. The structure is observable through the location of the IT function within the organisational chart, the existence and composition of formal IT decision making forums such as steering committees, and the reporting lines that connect IT leaders to senior management. Three structural archetypes are commonly identified in the literature. A centralised arrangement concentrates IT decision authority at the corporate centre, typically with the chief executive or a chief information officer. A decentralised arrangement distributes authority to business units or functional groups, allowing those closest to operations to shape system choices. A federal arrangement combines central authority over infrastructure and standards with business unit authority over applications and use, and is generally regarded as the most balanced form for organisations of moderate complexity.

1.7.4 Financial Reporting Quality

Financial reporting quality, as used in this dissertation, denotes the extent to which the financial statements faithfully represent the underlying economic situation of the organisation. The construct is approached through three observable attributes: accuracy, defined as the absence of material error in recorded transactions; reliability, defined as the consistency of accounting treatments across similar transactions and across time; and traceability, defined as the ability to follow each reported figure back to the underlying source documents through a complete audit trail.

1.8 Structure of the Dissertation

The remainder of this dissertation is organised in four chapters that build cumulatively toward the answers to the research questions formulated in Section 1.3.

Chapter Two reviews the literature on the three central constructs of the study (IT investment, earnings management, and IT governance structure) and develops the theoretical framework underpinning the empirical work. Particular attention is paid to the structural archetypes proposed by Peterson (Crafting information technology governance, 2004) and to the empirical evidence on the moderating role of these structures in the relationship between IT investment and earnings management. The chapter concludes with the conceptual model and the two formal hypotheses tested in the empirical phase.

Chapter Three sets out the methodological foundations of the study. It justifies the choice of a qualitative single-case design, defines the operationalisation of the variables, presents the case organisation, the sampling strategy and the six informants, and describes the data collection instrument and the analytical technique. The chapter also addresses the questions of validity, reliability and ethical considerations.

Chapter Four presents and discusses the empirical findings. The two research questions are addressed in turn through the responses of the six informants and through the triangulation of those responses with observation notes and internal documents. The chapter tests the two hypotheses, compares the findings with the existing literature, and presents the triangulation matrix that consolidates the empirical evidence.

Chapter Five draws the practical, theoretical and policy implications of the findings, identifies the limitations of the study, suggests directions for future research, and proposes a twelve-month

implementation roadmap for the four recommendations developed in Section 5.3. A final reflection on the research journey closes the chapter and the dissertation.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The relationship between IT investment and earnings management is theoretically compelling and empirically contested. A substantial body of scholarship, spanning accounting, information systems, and corporate governance, has examined the question, and the conclusions reached by different researchers using different methods in different contexts are far from uniform. A consistent thread across this literature is that IT investment, on its own, is a poor predictor of financial reporting outcomes; what matters is whether the investment is governed in ways that align technology with the firm's reporting and control objectives.

Within the broader concept of IT governance, this study concentrates on a single dimension: IT governance structure as defined by Peterson (Crafting information technology governance, 2004). The reasons for this scoping decision were set out in Chapter One; the chapter that follows develops the conceptual basis for it in greater depth. The literature reviewed below is organised so that it builds toward the conceptual model presented in Section 2.8: definitions of the central constructs, an overview of the IT investment and earnings management relationship, an empirical review of IT investment, an empirical review of earnings management, a focused treatment of IT governance structure as the moderator, the theoretical frameworks underpinning the study, the conceptual model itself, and the formal hypotheses.

2.2 Definition of Key Terms

2.2.1 IT Investment

IT investment refers to the allocation of organisational resources, financial, human, and temporal, to technology-based assets and capabilities. The category includes hardware, software, telecommunications, and the human capital components (training, support) that determine whether the technology is used as intended (Mwiinga, n.d.). For the purposes of this study, IT investment is defined functionally: spending directed at systems that support the collection, processing, analysis, and reporting of financial and operational data within the firm. This functional emphasis is appropriate given the study's focus on financial reporting quality and earnings management. What matters for those outcomes is not IT investment in the abstract, a broad category that could include investments in customer relationship management systems, logistics optimisation software, or robotics that have no direct connection to financial reporting, but investment in the specific systems through which financial data is captured, processed, and communicated.

From a legal and regulatory standpoint, the Law Insider platform defines IT investment as an expenditure of information technology resources to address mission delivery and management support, emphasising purposiveness: an IT investment is not simply any spending on technology, but spending explicitly directed toward defined organisational objectives. From a management perspective, ResearchGate defines IT investment as the allocation of financial resources to purchase, develop, or upgrade technology and information systems within an organisation, encompassing expenditures on computer hardware, software, telecommunications, and other IT infrastructure, along with training and support services, aimed at improving efficiency, productivity, and competitiveness (Mwiinga, n.d.). The value of this definition lies in its

inclusiveness: it recognises that IT investment extends beyond the acquisition of hardware and software to encompass the human capital components that determine whether the technology is actually used as intended.

2.2.2 Earnings Management

Earnings management is the deliberate exercise of managerial discretion, in the selection of accounting policies, the estimation of accounting figures, and the structuring of transactions, with the intent of producing a reported financial outcome that differs from what would result from a neutral application of accounting standards (Corporate Finance Institute, n.d.). The construct includes accrual-based earnings management, which operates through accounting choices and estimates, and real earnings management, which operates through actual operating, investing, or financing decisions made for accounting rather than operational purposes (Roychowdhury, 2006).

research defines earnings management as the act of intentionally influencing the process of financial reporting to obtain some private gain, distinguishing between opportunistic manipulation for personal benefit and contractual manipulation driven by the terms of agreements with lenders, shareholders, or employees. Investopedia adds that earnings management exploits the latitude inherent in accounting standards: many accounting rules require management to make estimates and exercise discretion, and earnings management takes advantage of that latitude to shape reported figures in desired directions (Tuovila, 2023). The Corporate Finance Institute offers a technically precise definition that explicitly includes the structuring of transactions, not just the reporting of completed ones, as a vehicle for earnings management, bringing real earnings management within scope (Corporate Finance Institute, n.d.).

2.2.3 IT Governance Structure

IT governance is the system of structures, processes, and relational mechanisms that enable both business and IT actors to execute their responsibilities in support of business/IT alignment and the creation of value from IT-enabled investments (Van Grembergen & De Haes, 2009). Within this broader concept, IT governance structure refers specifically to the organisational arrangements through which authority over IT decisions is distributed within the firm. Peterson (Crafting information technology governance, 2004) identifies three archetypes, centralised, decentralised, and federal, that describe how this authority can be configured. The structure is observable through the location of the IT function, the existence of formal IT decision-making forums (such as IT steering committees), the composition of those forums, and the formal reporting lines between IT leaders and senior management.

2.3 The Relationship between IT Investment and Earnings Management

The theoretical prediction that IT investment reduces earnings management rests on a relatively straightforward logic: if manipulation requires the exercise of individual discretion over financial data, and if IT systems constrain that discretion through automation and consistent enforcement of accounting rules, then greater IT investment should translate into less manipulation. Three positive mechanisms are most commonly proposed in the literature, and they form the conceptual backbone of the optimistic view of the relationship.

The first mechanism is automation and standardisation. When financial data is captured and processed through a system that enforces a consistent chart of accounts, requires documentary support for entries, and flags unusual transactions, opportunities for discretionary manipulation are structurally reduced. Recording fictitious revenues, accelerating the recognition of income, or

delaying the recognition of expenses becomes significantly harder when the system is designed to detect and block entries that violate established rules. The effectiveness of this mechanism depends on the comprehensiveness of system configuration: systems that leave significant manual override capabilities in place may provide less constraint on manipulation than those that enforce strict automated controls.

The second mechanism is monitoring and transparency. Enterprise systems generate transaction-level data that internal auditors, audit committees, and external regulators can examine in real time or near-real time. When managers know their accounting decisions are visible and auditable at the individual transaction level, the expected cost of manipulation rises substantially. This effect is strongest where the IT system is integrated with external reporting platforms, since integration closes off the possibility of making adjustments at the reporting stage that are not reflected in the underlying transaction records.

The third mechanism operates at the level of organisational signalling. Firms that invest seriously in IT infrastructure often do so as part of a broader organisational commitment to process discipline, data quality, and operational transparency. This commitment sends signals to employees, external auditors, and other stakeholders about how the organisation intends to conduct itself. These signals can reinforce norms of financial accuracy even where the monitoring infrastructure is not yet fully mature, by creating an organisational culture in which accuracy is expected and manipulation is treated as a violation of shared norms rather than merely a rule to be avoided when detection is likely.

Against these positive mechanisms, the literature documents a fourth, problematic mechanism: the strategic distortion effect. Where managers face earnings pressure they cannot meet through normal operations, cutting IT spending is one available response. This is a real business decision,

not an accounting manipulation, it improves short-term reported figures by reducing discretionary expenditure. The implication is uncomfortable but important: IT investment may reduce some forms of earnings management while simultaneously being a target of another form. A complete understanding of the relationship must account for this possibility, rather than treating IT spending and earnings management as simply opposing forces.

Xue, Mithas, and Ray (Two paths to information technology investment: Real earnings management and IT governance, 2014) produced the most rigorous empirical examination of these dynamics. Working with a large sample of publicly listed US firms over an extended period, they found that the relationship between IT investment and earnings management runs in both directions and that IT governance structure plays a critical moderating role. Their finding that decentralised IT governance is associated with lower levels of real earnings management is the empirical anchor for the present study's focus on structure as the primary moderator of interest.

2.4 Empirical Studies on IT Investment

2.4.1 IT Investment and Firm Performance: General Evidence

The empirical literature on IT investment and firm performance has evolved substantially over the past three decades. The productivity paradox, the observation, made famous by Brynjolfsson in the early 1990s, that massive IT investment had not produced measurable economy-wide productivity gains, shaped the field's research agenda for more than a decade. Subsequent work, with better data, more appropriate methods, and more attention to industry heterogeneity and time lags, largely resolved the paradox in favour of a positive relationship: properly measured and accounting for appropriate time lags, IT investment does increase firm productivity and overall performance.

Recent research consistently reports positive and significant effects of IT investment on organisational performance and productivity. These effects appear to operate through two primary channels: reduced information processing costs, which improve coordination and reduce waste; and the enabling of new organisational forms and business processes that are not feasible without the underlying technology infrastructure. The second channel is widely considered more important in explaining the long-term performance effects of IT investment, since it accounts for the complementarity between technology and organisational redesign that is necessary for IT investment to generate sustained competitive advantage.

Evidence from the Turkish business context reinforces and nuances this picture. Zehir (The impact of information technology investments on firm performance in national and multinational companies, 2010) found that firms which manage IT investments successfully achieve enhanced performance, but that the performance benefits are conditional on broader organisational capabilities. Firms that treat IT investment as a strategic priority, align it with organisational goals, and invest in developing the management capabilities needed to use technology effectively realise substantially greater performance benefits from equivalent levels of IT spending than firms that treat technology as merely a technical matter to be delegated to IT departments. This finding, that the returns to IT investment are mediated by organisational and managerial capability, has direct implications for the present study: the same conditionality that applies to performance effects is likely to apply, and perhaps with even greater force, to financial reporting effects.

Huang et al. (An empirical study of relationship between IT investment and firm performance: A resource-based perspective, 2006) develop this argument further, showing through a resource-based view analysis that the IT investment and performance relationship is significantly mediated by firm resources and capabilities. Organisations with stronger managerial competencies, better-

designed processes, and a culture of data-driven decision-making extract greater performance benefits from equivalent levels of IT investment. Novotna et al. (Quality versus quantity of IT investment: Evidence from European firms, 2020) add important cross-country evidence from European firms, finding that the quality of IT investment, whether it is strategically integrated, technically current, and organisationally supported, matters as much as the total quantity of spending.

2.4.2 Time Lags and Complementary Investments

IT investment effects take time to materialise. Bui (Information technology investments and firm growth: Time-lagged effects, 2023) found that collaboration-related IT investments can actually reduce organisational growth in the short term, while data-centre investments begin generating positive returns only after approximately two years. This lag reflects the disruption costs of implementation: staff must learn new systems and workflows, established processes must be redesigned to take advantage of the new technology's capabilities, and the organisation must absorb transitional uncertainty and inefficiency before the benefits begin to show. For financial reporting specifically, the lag may be even longer: the cultural and behavioural changes needed for IT systems to improve financial integrity can take years to fully embed.

Brynjolfsson and Hitt's complementary investment argument provides the theoretical foundation for understanding these implementation lags. The returns to IT investment, they argue, depend critically on co-investment in organisational capital, management practices, business processes, and human capabilities, that allow the technology to be used effectively. When technology is deployed without these complementary investments, it is systematically under-used, and the expected performance and financial reporting gains do not materialise. This argument has direct

and important implications for mid-sized professional service firms in developing economies, where the technology may in some respects outpace the organisational readiness to use it fully.

2.4.3 IT Investment in Service Firms and Developing-Country Contexts

The applicability of findings from the mainstream IT investment literature, which draws overwhelmingly on data from privately held firms in developed economies, to professional service firms and developing-country contexts is far from automatic. Service firms differ from manufacturing or distribution firms in important ways. Their value is produced through projects and professional time, recorded through time-tracking and project-accounting tools rather than through inventory and production systems. Their financial reporting depends on judgments, hours worked, work-in-progress, cost-to-complete, that are recorded in IT systems whose configuration affects how much room those judgments leave for adjustment.

Supratiwi et al. (IT investment, organisational capability and performance in Indonesian public organisations, 2023), examining the Indonesian context, found that organisational capability partially mediates the relationship between IT investment and organisational performance. Organisations with stronger capabilities, better management practices, more skilled staff, more supportive organisational cultures, extract greater performance benefits from IT investment than those with weaker capabilities. The Indonesian case is worth examining because it shares important structural features with the Algerian context: both countries have substantial transitions toward digital modernisation, both face challenges related to bureaucratic resistance to change, and both have variable levels of institutional capacity. The finding that organisational capability mediates the IT-performance relationship suggests that deploying new technology will not, by itself, produce the expected improvements without parallel investment in the surrounding organisational arrangements, including, for the present study, IT governance structure.

2.4.4 IT Investment and Financial Reporting Quality

The most directly relevant subset of the IT investment literature examines the specific relationship between IT systems and financial reporting quality. This body of work has grown considerably since the mid-2000s, driven by increasing data availability, regulatory concern about financial reporting reliability, and the widespread adoption of ERP systems that created natural experimental variation in IT investment levels across firms. The theoretical prediction is clear: systems that automate financial data capture, enforce policy consistency, and generate real-time audit trails should reduce the discretionary space available to managers and thereby improve financial reporting quality.

Several empirical studies confirm elements of this prediction. Firms that have implemented ERP systems tend to show lower levels of abnormal accruals, one of the standard accounting research proxies for earnings management, in the years following implementation compared to both their pre-implementation baseline and to matched control firms without ERP systems. The effect is most pronounced for firms with comprehensive, fully integrated implementations and for firms operating in governance environments where external monitoring of financial reporting is relatively strong.

The evidence is not, however, uniformly positive. Some research documents temporary increases in earnings management during ERP implementation periods, attributable to the disruption caused by the transition to new systems and the opportunities created by the confusion of the implementation process. Others find that the financial reporting benefits of IT investment depend critically on implementation quality and the extent to which the system is integrated across the firm's operations. Partial or poorly integrated implementations, systems that cover some financial

processes but not others, or that require significant manual intervention to produce final financial reports, may produce the appearance of better controls without the substance.

2.4.5 IT Investment and the Audit Function

A more recent strand of the literature examines the interaction between IT investment within the firm and the audit function that scrutinises the firm's reports from outside. The argument is that the value of investment in financial systems is fully realised only when the auditor is equipped to exploit the richer data that those systems generate. Auditors who continue to rely on traditional sampling techniques, even when the auditee's systems can produce full population data on demand, leave a substantial part of the assurance gain on the table. Conversely, when the auditor has the analytical tools to extract, transform and test transaction-level data, the deterrent effect on opportunistic reporting choices is significantly amplified.

In the Algerian setting, this argument is particularly relevant. The local audit market is dominated by small and mid-sized firms whose investment in data analytics tools is often limited by the size of their client portfolios and by the cost of imported software. The financial reporting benefits that the case organisation can realise from its IT investment are therefore conditioned not only by its own internal arrangements but also by the analytical capabilities of its statutory auditor. This double conditionality reinforces the central argument of the dissertation that technology, on its own, is not enough: the institutional ecosystem within which the technology is deployed must also be ready to exploit it.

2.4.6 Recent Research (2024–2026): Emerging Directions

The most recent wave of empirical scholarship, published between 2024 and 2026, has substantially refined and, in some respects, complicated the received wisdom on IT investment and financial reporting integrity. Three streams are particularly relevant to the present study.

The first stream concerns the impact of automation technologies beyond conventional ERP adoption. Lai and Hsieh (2025), examining Taiwanese firms that had adopted robotic process automation (RPA), found a significant increase in both accrual-based and real earnings management following RPA implementation. The authors argue that automation accelerates transaction processing without necessarily strengthening the judgement-intensive controls that govern period-end estimates, thereby creating new discretionary spaces even as it closes old ones. Their conclusion that stronger governance structures are required to contain the earnings management risks introduced by digital automation directly reinforces the moderating role assigned to IT governance structure in the present study's conceptual model.

The second stream examines ERP utilisation in emerging-market and developing-economy contexts. Hsiung and Chen (2024), drawing on a nineteen-year panel of Taiwanese listed firms, distinguish between the duration of ERP use and its form: longer ERP utilisation is negatively associated with accrual-based earnings management but positively associated with real earnings management, a finding consistent with the argument that mature technology constrains accounting-layer discretion while redirecting managerial effort toward operational-layer manipulation. In a complementary contribution, Tran and Nguyen (2024) examine small and medium enterprises in Vietnam an institutional environment that shares several features with the Algerian professional services context and find that ERP implementation improves accounting information quality, but only when implementation quality is high and when organisational

complementary capabilities are in place. Both studies underscore that the financial reporting benefits of IT investment are conditional rather than automatic, lending further empirical support to the moderating role of IT governance structure.

The third stream addresses the synergy between financial governance and IT governance at the institutional level. A systematic review covering forty-six empirical studies published between 2015 and 2024 (Asmah, 2025; and a parallel Scopus-based synthesis published in early 2026) finds consistent evidence that the combination of financial governance structures and IT governance frameworks including COBIT, IT steering committees, and board-level IT competencies produces performance and reporting-quality gains that neither dimension achieves alone. This synergistic evidence base strengthens the theoretical case, developed in Section 2.7 through agency theory and the resource-based view, that IT investment yields its full financial reporting benefits only when it is embedded in a governance architecture that distributes decision authority across actors with complementary interests and expertise.

For the Algerian context specifically, two recent contributions merit attention. A 2025 study on digital transformation in the MENA governmental sector found a paradoxical negative relationship between digital adoption and accounting information system quality in certain emerging-market settings, attributing the effect to the “premature status of digital technologies” in environments where organisational readiness lags behind technical deployment (MDPI, 2025). A complementary bibliometric analysis published in 2025 documents persistent digital transformation gaps in Algeria compared with North African peers, citing weak computing infrastructure, low cloud adoption, and uneven connectivity as structural constraints on the realisation of technology’s informational benefits (ResearchGate, 2025). Taken together, these contributions suggest that the conditional, governance-dependent mechanism identified in the international literature is likely to

be even more pronounced in the Algerian context, where the institutional ecosystem that amplifies the benefits of IT investment is still being constructed. The present study's focus on a single consulting and research firm allows exactly that mechanism to be examined from the inside.

2.5 Empirical Studies on Earnings Management

2.5.1 Definitions and Measurement

Measurement choices significantly shape what the earnings management literature finds, and understanding these choices is essential for interpreting and comparing findings across studies. The dominant approach in academic research uses abnormal accruals, the component of total accruals that cannot be explained by normal business activity, as a proxy for discretionary manipulation. The most widely used estimation model is the modified Jones model (Dechow, Sloan, & Sweeney, 1995), which regresses total accruals on changes in revenues and the level of property, plant, and equipment, with the residual from this regression taken as the measure of managerial discretion in financial reporting.

Real earnings management, as formalised by Roychowdhury (Earnings management through real activities manipulation, 2006), captures a different dimension of the earnings management phenomenon: the manipulation of actual business activities rather than accounting estimates. The three primary indicators Roychowdhury identifies are abnormal cash flows from operations, suggesting unusual sales practices such as channel stuffing or aggressive discounting, abnormal production costs, suggesting overproduction to reduce per-unit costs and thereby improve reported gross margins, and abnormal discretionary expenditures, suggesting cuts in spending on research and development, marketing, or maintenance that reduce expenses without reflecting genuine

operational decisions. Both forms of earnings management are analytically important, and the relationship between IT investment and each form may differ substantially.

2.5.2 Corporate Governance and Earnings Management

The relationship between corporate governance quality and the extent of earnings management is one of the most thoroughly and consistently studied topics in accounting research. The fundamental finding, that stronger governance structures are associated with lower levels of financial reporting manipulation, is supported by evidence from a wide range of organisational types, time periods, and national contexts. Liu and Huang (CEO duality and earnings management, 2011) document the effect of CEO duality, finding a positive and robust association between duality and earnings management across their sample. The mechanism is straightforward: a CEO who also chairs the board has significant influence over the board's composition, agenda, and information environment, which reduces the effectiveness of the board's oversight function.

Johnson (Corporate governance and earnings management: Cross-country evidence, 2012) provides broader cross-contextual evidence that stronger corporate governance frameworks are associated with lower earnings management. The specific governance mechanisms identified as most important include board independence, audit committee effectiveness, and the design of management compensation systems to align managerial incentives with long-term rather than short-term performance. The audit committee emerges consistently in this literature as a particularly critical mechanism: research finds that audit committees with financial expertise are more effective in constraining earnings management. Kamarudin (Independent commissioners, board composition and earnings quality, 2012) documents a positive relationship between the proportion of independent commissioners on corporate boards and the quality of reported earnings.

2.5.3 Regulatory Environment and Audit Quality

The broader regulatory environment in which firms operate shapes both the incentives for earnings management and the probability that it will be detected and sanctioned. Countries with robust legal systems, active enforcement of accounting and securities regulations, and competitive audit markets tend to experience lower levels of earnings manipulation, not necessarily because managers in those countries are more ethical, but because the expected costs of manipulation are higher. Liu (Regulatory environment and earnings management, 2011) provides evidence that regulatory frameworks significantly influence the practice of earnings management, with strong enforcement at least as important as the formal content of the rules.

In Algeria, the SCF reform brought formal alignment with IFRS principles, but practical enforcement remains uneven. Big-Four audit presence is also limited, and the financial reporting benefits of IT investment may not be fully realised unless accompanied by parallel improvements in audit capacity. Smaller, locally based audit firms may lack the technical tools and expertise needed to take full advantage of the richer data environments created by IT investment, limiting the extent to which better technology translates into better audit quality and, through that channel, into lower earnings management.

2.5.4 Synthesis of the Earnings Management Evidence

Pulling together the empirical evidence reviewed in Sections 2.5.1 to 2.5.3, three propositions emerge. First, the level of earnings management observed in any given firm is not the result of a single cause but of the interaction between the discretion permitted by the accounting standards, the discipline imposed by the corporate governance framework, and the depth of the institutional environment. Second, the technological infrastructure of the firm acts as a multiplier of these

factors: it can amplify the constraint imposed by good governance, or it can leave the discretion permitted by weak governance untouched. Third, the empirical literature has, over the past two decades, converged on a strongly conditional view of the IT investment effect, in which the technology is necessary but not sufficient.

This synthesis informs the design of the present study in two ways. It justifies the focus on the moderating role of IT governance structure, since the moderator is the variable through which the conditional effect operates. It also justifies the use of a qualitative methodology rather than a purely quantitative one, since the conditional effect operates through mechanisms (the configuration of access controls, the design of audit trails, the protection of the IT budget from short-term cuts) that are observable through interviews and direct observation but largely invisible in standardised financial datasets.

2.6 IT Governance Structure:

2.6.1 Why Concentrate on Structure

IT governance is a multidimensional construct. Peterson (Crafting information technology governance, 2004), drawing on the broader IT governance literature and on his own empirical work in European firms, identifies three interacting dimensions: structures, processes, and relational mechanisms. Each dimension is important, and Peterson himself argues that effective IT governance requires the simultaneous design of all three. For an undergraduate dissertation working through a single-case qualitative design within the practical limits of a one-month internship, however, attempting to assess all three dimensions would produce a study that is broad but shallow. The decision in this dissertation is therefore to concentrate on a single dimension, IT

governance structure, and to develop it in depth rather than to skim across multiple dimensions superficially.

The choice of structure as the focal dimension is justified on three grounds. First, structure is the dimension of IT governance most directly implicated in the earnings management literature. Xue, Mithas, and Ray (Two paths to information technology investment: Real earnings management and IT governance, 2014) explicitly test the moderating role of IT governance structure in the IT investment and earnings management relationship, and their findings are the most directly relevant empirical reference point for the present study. Second, structure is the dimension most observable in a single-case qualitative design: the location of authority over IT decisions, the existence and composition of decision-making forums, and the formal reporting lines between IT leaders and senior management can be reconstructed from interviews and organisational documents in a way that more diffuse dimensions cannot. Third, structure is the dimension on which practical recommendations can most directly act: redesigning the distribution of IT decision rights is a feasible recommendation for a mid-sized firm, while changing relational culture is much slower work that exceeds the actionable horizon of this study.

2.6.2 Peterson's (2004) Three Archetypes of IT Governance Structure

Peterson (Crafting information technology governance, 2004), in *Crafting Information Technology Governance*, organises IT governance structures into three archetypes that describe how decision authority over IT is distributed within the firm. The archetypes are not just descriptive labels; each carries different implications for how the firm makes IT investment decisions, how it allocates IT resources, and how IT decisions interact with the rest of the organisation's strategy and operations.

The centralised archetype concentrates authority over IT investment, infrastructure, and applications at the corporate centre, typically with the chief information officer or, in smaller firms, with the chief executive or managing partner. Centralisation has the advantage of consistency: a single decision-maker (or a tightly coupled corporate IT function) can ensure that systems are standardised across the firm, that infrastructure investments are coherent, and that the firm benefits from economies of scale in technology procurement. Its disadvantage is rigidity: decisions taken at the centre may be poorly aligned with the operational needs of business units that are not directly represented in the decision-making process, and the centre may compress IT budgets in response to short-term financial pressures without internal opposition. In the earnings management literature, this last feature is precisely the channel through which centralisation is associated with greater real earnings management.

The decentralised archetype distributes authority over IT investment and applications to business units, allowing the people closest to specific operational and reporting needs to make the investment choices most relevant to their work. Decentralisation has the advantage of responsiveness: business units can configure systems and prioritise investments in ways that fit their actual operations. Its disadvantage is fragmentation: without coordinating mechanisms, the firm may end up with incompatible systems, duplicated investments, and inconsistent practices across units. In the earnings management literature, decentralisation is associated with lower levels of real earnings management because no single manager has the unilateral authority to compress the IT budget across the firm for short-term reporting reasons (Xue, Mithas, & Ray, 2014).

The federal archetype, which Peterson (Crafting information technology governance, 2004) regards as the most effective form for organisations of moderate complexity, combines central authority over infrastructure and standards with business-unit authority over applications and use.

In a federal arrangement, the corporate centre defines the IT architecture, the standards to which all systems must conform, the rules for data integration, and the security and access-control framework, while business units (or, in a small firm, functional groups such as Finance, IT, and the project practices) hold authority over which specific applications they deploy and how those applications are configured for their operations. The federal archetype attempts to capture the consistency benefits of centralisation and the responsiveness benefits of decentralisation while avoiding the worst features of each.

Peterson stresses that the choice among these archetypes is not neutral. Each archetype produces different patterns of IT investment, different sensitivities of IT spending to short-term financial pressure, and different relationships between IT and the rest of the organisation. For financial reporting specifically, the archetype matters because it shapes both the configuration of the systems through which financial data is captured and the protection of IT investment from earnings-driven cuts.

2.6.3 IT Governance Structure and Earnings Management: The Empirical Evidence

Xue, Mithas, and Ray (Two paths to information technology investment: Real earnings management and IT governance, 2014) provide the most rigorous and directly relevant empirical treatment of how IT governance structure interacts with earnings management. Their large-sample analysis of US listed firms tests two specific hypotheses about the role of structure. The first is that managers facing earnings pressure cut IT infrastructure spending, with the magnitude of those cuts moderated by the structure of IT governance: in centralised arrangements, the cuts are larger because a single manager has the authority to make them and an incentive to do so; in decentralised arrangements, the cuts are smaller because the decision authority is distributed and no single actor can implement a unilateral cut. The second is that the structure of IT governance affects the

ongoing financial reporting controls embedded in IT systems: where IT decisions are subject to review by multiple actors with different interests, system configurations are more likely to incorporate robust access controls, segregation of duties, and audit trails, all of which constrain earnings management.

The empirical findings support both hypotheses. Decentralised IT governance is associated with lower levels of real earnings management, and the effect is statistically significant and economically meaningful. The finding survives a range of robustness checks and alternative specifications. While the study examines US listed firms rather than mid-sized service firms in developing economies, the underlying mechanism, that structure shapes both the resilience of IT spending and the configuration of system controls, is general enough to apply across institutional contexts. The present study's conceptual model is built on this mechanism, with adaptations for the specific structural realities of an Algerian consulting and research firm.

2.6.4 Applying the Archetypes to a Mid-Sized Consulting Firm

The three archetypes were developed in the context of large multinational firms, where the choice between corporate-level and business-unit authority maps onto a clear hierarchical structure. Translating the framework to a mid-sized consulting and research firm requires some adaptation. In a firm of around twenty staff, there are no formally distinct business units in the multinational sense; the analogue is the functional grouping of partners, project practices, finance, IT, and human resources. A centralised arrangement, in this context, is one in which all IT decisions are made by the managing partner alone, possibly in informal consultation with a senior partner or two. A decentralised arrangement is one in which each project practice or each functional group makes its own IT choices, with limited coordination across them. A federal arrangement is one in which the managing partner and a small governance forum (for example, an IT steering group composed

of the managing partner, the head of finance, the IT manager, and a senior project practice lead) define the architecture and standards, while individual functions and practices retain authority over their specific application choices.

The federal archetype, adapted in this way, is the structural ideal that the present study uses as a benchmark. The case study firm's actual structure is assessed against this benchmark in Chapter Three's description of the case and, more substantively, in the empirical analysis. The hypotheses developed in Section 2.9 follow directly from this framework: they predict that the firm's position on the centralised, decentralised, and federal continuum will moderate the relationship between IT investment and earnings management, with federal arrangements supporting the strongest reduction in earnings management and centralised arrangements supporting the weakest.

2.6.5 Other Frameworks Briefly Considered

Two other frameworks deserve brief mention so that the reader understands what the present study is not focused on. COBIT, maintained by ISACA, organises IT governance activities into governance objectives covering managed risk, managed security, managed financial management of IT, and other domains. Its emphasis on aligning IT investment with business objectives and on measuring IT investment performance complements Peterson's framework, but its operational scope (forty governance objectives in COBIT 2019, each with multiple practices) makes it impractical for a single-case study at the depth required here. ITIL focuses on IT service management and is concerned with ensuring that systems are maintained in ways that preserve their reliability and data integrity over time; its focus on operational service delivery is less directly relevant to the structural question of who decides what gets invested in. Neither framework has been formally adopted in most Algerian firms, and Peterson's structural archetypes capture most of the analytical content needed for the present study while remaining tractable within its scope.

2.7 Theoretical Frameworks Underpinning the Study

The relationship between IT investment, IT governance structure, and earnings management is multi-causal. Understanding it adequately requires theoretical frameworks that can account for the role of information asymmetry between managers and other stakeholders, the role of organisational capabilities in determining whether technology investment produces its expected benefits, and the role of institutional pressures in shaping why organisations adopt technology and how they actually use it. Three theoretical frameworks, agency theory, the resource-based view, and institutional theory, each illuminate a different dimension of this relationship, and together they provide a richer and more comprehensive account than any single framework could offer.

2.7.1 Agency Theory

Agency theory, introduced by Jensen and Meckling (Theory of the firm: Managerial behavior, agency costs and ownership structure, 1976) and extended by a large subsequent literature, provides the foundational theoretical account of why earnings management occurs and how it can be constrained. The theory begins from the observation that modern corporations typically separate ownership from control: shareholders own the firm but managers run it, and this separation creates a fundamental conflict of interest. Managers have superior information about the firm's operations and performance, and they face incentive structures that can make self-interested manipulation of reported figures individually rational, even when it is collectively harmful.

IT investment is relevant to the agency theory framework primarily because it affects the information asymmetry between managers and the principals who are supposed to monitor them. Systems that generate real-time, transaction-level, auditable financial data reduce the information advantage that managers hold. When monitoring becomes easier and less expensive, the agency

problem is reduced. IT governance structure enters the picture by determining who controls those systems: a centralised arrangement concentrates control over the monitoring infrastructure in the same hands as the parties whose behaviour the monitoring is meant to constrain, weakening the agency-theoretic benefits of the technology; a federal arrangement distributes control among multiple actors with different interests, strengthening those benefits.

Agency theory also predicts that agents will respond strategically to new constraints, finding new avenues through which to achieve their objectives. If IT systems constrain accrual-based manipulation, managers facing strong earnings pressure may shift toward real earnings management, including the cutting of IT budgets themselves. The structure of IT governance moderates this response by determining how unilaterally an individual manager can act. The implication for the present study is that the firm's IT governance structure should be visible not only in its effects on the configuration of accounting systems but also in its effects on the resilience of the IT budget when the firm faces financial pressure.

2.7.2 Resource-Based View

The resource-based view, associated primarily with Barney (Firm resources and sustained competitive advantage, 1991) and Wernerfelt (A resource-based view of the firm, 1984), argues that sustainable competitive advantage derives from resources and capabilities that are valuable, rare, difficult for competitors to imitate, and non-substitutable. Applied to IT investment, the resource-based view implies that the returns to technology are not automatic, they do not flow simply from possessing or spending on the technology, but depend on the organisation's ability to develop the complementary capabilities, processes, and cultural orientations that allow the technology to be deployed to its potential.

For the present study, the resource-based view implies that the financial reporting benefits of IT investment will vary substantially across organisations depending on their existing capabilities and the quality of their complementary investments, including IT governance structure. A firm with a strong IT governance structure, well-trained finance staff, a culture of data integrity, and effective decision forums is better positioned to realise the transparency and monitoring benefits of IT investment than a firm that lacks these complementary assets. This insight suggests that simply measuring IT investment spending, the approach taken by most quantitative studies in this area, is insufficient for predicting financial reporting outcomes. The quality of the organisational and governance context in which the investment is made is at least as important as the investment itself.

2.7.3 Institutional Theory

Institutional theory, developed by DiMaggio and Powell (The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields, 1983) and a subsequent literature, argues that organisational behaviour is shaped not only by efficiency considerations but by the pressures of the institutional environment: regulatory requirements, professional norms, cultural expectations, and social pressures that define what constitutes legitimate organisational practice in a given field. The concept of institutional isomorphism, the tendency of organisations within a field to converge toward similar structures and practices, regardless of whether those practices are actually more efficient, is central to this framework.

Applied to IT investment and earnings management, institutional theory raises an important and often overlooked concern about motivation. If organisations adopt IT systems primarily because IT adoption is expected of modern, professionally managed organisations, rather than because they have a genuine functional need for the specific capabilities the technology provides, they may be less likely to make the complementary organisational investments needed to make the technology

effective. This ceremonial adoption produces the appearance of better controls and more sophisticated management without the substance. In developing-country contexts, where government policy and international development pressures have actively promoted digital modernisation, ceremonial adoption may be particularly prevalent. Whether the case study firm's IT investments represent genuine organisational transformation or a more ceremonial response to external institutional pressure is one of the empirical questions that the study's interview data are designed to illuminate.

2.8 Conceptual Model and Figure of Variables

Synthesising the literature reviewed in this chapter, the study's conceptual model treats IT investment as the independent variable, earnings management as the dependent variable, and IT governance structure, understood through Peterson's (2004) typology of centralised, decentralised, and federal archetypes, as the moderator that conditions the IT investment and earnings management relationship.

The model is summarised in Figure 2.1. The figure shows the direct path from IT investment to earnings management and the moderating influence of IT governance structure on that path. The three archetypes, centralised, decentralised, and federal, are identified beneath the moderator block as the operational categories through which IT governance structure is observed and assessed in the case study. Other dimensions of IT governance considered in the broader literature (processes, relational mechanisms) are referenced where they intersect with structure but are not the analytical focus.

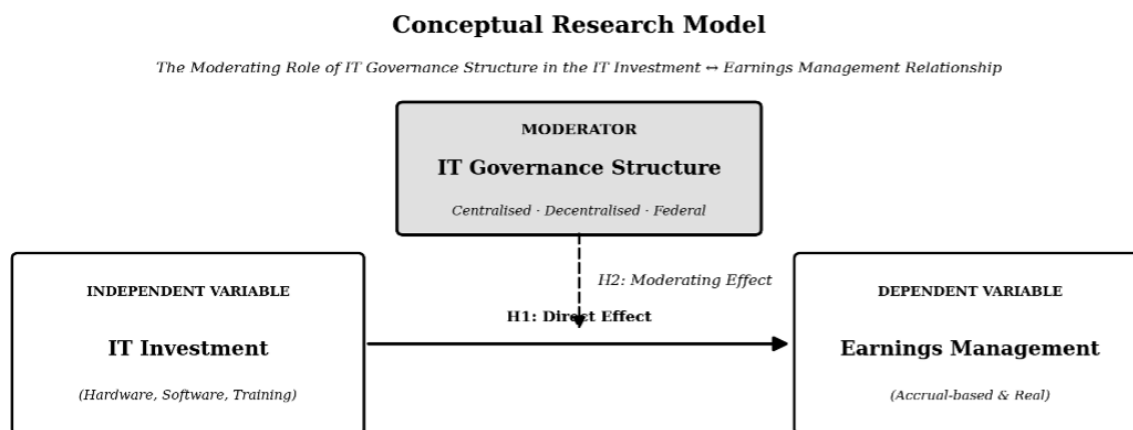


Figure 2.1, Conceptual research model: IT governance structure as moderator of the IT investment and earnings management relationship.

2.9 Research Gap and Hypotheses

The literature reviewed in this chapter reveals three gaps that this study addresses. First, empirical work on IT investment and earnings management is dominated by listed firms in advanced economies; service firms in developing economies, and Algerian consulting and research firms specifically, are absent. Recent contributions from Vietnam (Tran & Nguyen, 2024), Taiwan (Hsiung & Chen, 2024; Lai & Hsieh, 2025), and the MENA region (MDPI, 2025) confirm that these mechanisms operate differently in emerging-market contexts, yet no comparable evidence exists for Algerian professional service firms. Second, IT governance is often referenced but rarely operationalised through a disciplined framework in earnings management research; Peterson's (2004) structural archetypes have not been systematically applied to a mid-sized professional service firm in a developing-country context. Third, a 2026 systematic review of the synergy between financial and IT governance (covering forty-six studies, 2015–2024) highlights a persistent gap in the literature: most empirical designs treat IT governance as a background variable rather than an explicit moderator, a gap the present study is designed to close.

Building on the literature, the study advances two hypotheses:

3. H1 (Direct effect): IT investment in financial and operational systems is positively associated with the accuracy and reliability of financial reporting, and negatively associated with earnings management within the firm.
4. H2 (Moderating effect): IT governance affects the link between IT investment and earnings management. Federal structures reduce earnings management the most, followed by decentralized, then centralized.

2.10 Summary

This chapter has reviewed the literature on IT investment, earnings management, and IT governance, and has organised the relevant insights around a single dimension of IT governance, governance structure as defined by Peterson (Crafting information technology governance, 2004). IT investment has the potential to constrain earnings management through automation, monitoring, and signalling, but the existing evidence shows that the effect is conditional on governance quality. Peterson's framework, scoped down to the structural archetypes, provides a disciplined and tractable way of capturing the moderator in a single-case qualitative study. The three theoretical frameworks (agency theory, the resource-based view, institutional theory) deepen the analysis from complementary angles. The conceptual model summarised in Figure 2.1 treats IT governance structure as the moderator of the IT investment and earnings management relationship, and the empirical analysis in subsequent chapters tests how that model holds up in the case study consulting and research firm.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out the methodological foundations on which the empirical work of this dissertation rests. Research methodology is the bridge between the theoretical questions raised in Chapter One and the analysis of evidence presented in Chapter Four. The chapter explains the philosophical assumptions adopted, justifies the choice of a qualitative case study design, defines the variables and their measurement, describes the population and the sampling procedure, presents the data collection instrument and the analytical technique, and concludes with the research model that summarises how the variables are connected.

The methodological framework reflects the nature of the research questions developed in Chapter One. Those questions ask how IT investment translates into improvements in financial reporting and how the internal distribution of authority over IT decisions conditions that translation. Both questions are interpretive in character: they concern processes, mechanisms, and meanings that can only be reconstructed through close engagement with organisational participants. A quantitative design built around large sample regression of accrual measures, while well established in the accounting research tradition, would not provide the depth of organisational understanding that these questions require, particularly in a setting for which no large dataset on IT investment and earnings management exists.

The study therefore adopts a qualitative single case study design, conducted within an Algerian consulting and research firm specialised in organisation and management. A critical realist ontological position underpins the design: organisational arrangements such as IT systems and decision rights are treated as real features of the world that exist independently of any single

observer, while the meaning that organisational members attach to those arrangements is acknowledged as an essential part of the phenomenon under study. Epistemologically, the work is pragmatist in orientation, treating qualitative interviews, document review, and direct observation during a one month internship as complementary sources of evidence that together produce a richer account than any single source could supply on its own.

The research approach is primarily deductive. The literature review developed two hypotheses about the relationship between IT investment, the distribution of IT decision authority, and earnings management. The empirical work tests these hypotheses against the evidence collected in the case organisation. At the same time, the design preserves room for inductive insight: themes that emerge from the data and were not anticipated by the prior literature are recorded, analysed, and integrated into the discussion in Chapter Four where appropriate.

3.2 Measurement of Variables

The conceptual model developed in Chapter Two identifies three variables: an independent variable, a dependent variable, and a moderating variable. Each is operationalised here in terms that make it observable in a qualitative case study setting.

3.2.1 Independent Variable: IT Investment

The independent variable is IT investment. In this study, IT investment is measured through the deployment, scope of use, and ongoing maintenance of the firm's information systems that touch the financial reporting cycle. The principal indicators include the presence and integration of an accounting and financial reporting package, the presence and integration of a project accounting and time tracking application, the presence and use of a document management platform, the volume and consistency of staff training around these systems, and the recent history of upgrades

or extensions to system functionality. Informants are asked about each of these indicators directly, and observations during the internship period provide a parallel source of evidence about how the systems are actually used in daily practice.

The choice of qualitative indicators rather than monetary spending figures is deliberate. Total IT spending is a poor measure of IT investment quality: two firms can spend the same amount and obtain very different organisational outcomes depending on whether the spending is well integrated, well supported, and well aligned with the work it is meant to enable. The qualitative indicators capture the realised use of IT, which is what affects financial reporting in practice, rather than the unrealised potential implied by raw expenditure figures.

3.2.2 Dependent Variable: Earnings Management

The dependent variable is earnings management. Quantitative accounting research typically measures earnings management through abnormal accruals estimated by the modified Jones model or through abnormal cash flows, production costs, and discretionary expenditures in the spirit of Roychowdhury. Such measures require time series of audited financial statements that are not available for a privately held mid sized consulting and research firm. The present study therefore measures earnings management through the perceptions and reported experiences of organisational participants who are directly involved in the production of the financial statements.

Two analytically distinct forms of earnings management are within scope. Accrual based earnings management is observed through the existence of opportunities to influence reported figures through accounting choices and estimates, including revenue recognition timing, work in progress estimation, the assessment of cost to complete on long running projects, and the timing of provisions and accruals. Real earnings management is observed through opportunities to influence

reported figures through the timing of project work, the classification of effort as billable or non billable, and the deferral or acceleration of project expenses. Informants are asked, for each form, about both the existence of discretionary space and the way the IT systems and the surrounding governance arrangements shape the use of that space.

3.2.3 Moderating Variable: Distribution of Authority over IT Decisions

The moderating variable is the way authority over IT decisions is distributed within the organisation. It is observed through three concrete indicators. The first is the distribution of formal authority over IT investment decisions: who has the right to approve IT spending, who is consulted as part of that decision, and how that authority is shared across senior management, the head of finance, the IT manager, and the heads of practice. The second is the existence and composition of formal IT decision making forums, including any IT steering committee or investment review process, the frequency with which such forums meet, and the functional perspectives represented within them. The third is the reporting line of the IT function, including the place of the IT function in the organisational chart, the manager to whom the IT manager reports, and the day to day interactions between the IT function and the Accounting and Finance function.

Together these three indicators position the case organisation on a continuum that runs from highly concentrated authority on one extreme to widely distributed authority on the other, with intermediate forms in between. The empirical analysis in Chapter Four uses the position of the case firm on this continuum to interpret the strength of the link between IT investment and financial reporting outcomes.

3.3 Population and Research Data

3.3.1 Definition of the Case Organisation

The empirical setting of the study is a privately held Algerian consulting and research firm specialised in organisation, management, and strategic advisory services. The firm is anonymised in this dissertation in order to protect the confidentiality of its staff, its clients, and its internal arrangements. Founded in 2009 by a group of senior consultants with prior experience in Algerian state enterprises and in international consulting practice, the firm has grown organically over the past sixteen years and now employs approximately twenty staff, including senior partners, project managers, junior consultants, support staff, and a small in house IT and finance team. The head office is located in a major Algerian city, with project teams deployed on client sites across the country.

The firm operates in a competitive but relatively undeveloped Algerian consulting market. International firms have a limited domestic presence, and the firm's principal competitors are a handful of mid sized Algerian firms with comparable staff numbers and overlapping practice areas. The reputation of the firm rests on the quality of its sectoral expertise, the seniority of its founding partners, and a methodological approach that combines diagnostic frameworks adapted from international consulting practice with detailed local knowledge of Algerian organisational and regulatory contexts.

3.3.2 Service Lines and Client Base

The service portfolio of the firm is organised around four main practice areas. The first is organisational diagnosis and restructuring, in which the firm produces strategic assessments and reorganisation plans for client organisations facing performance, structure, or governance

challenges. The second is management consulting, covering process improvement, change management, internal control redesign, and management information systems advisory. The third is human resources and capability building, including the design of training programmes, competency frameworks, and recruitment systems. The fourth is studies and feasibility analyses, in which the firm produces market studies, sectoral diagnostics, and pre feasibility reports for both public and private clients.

Clients include public administrations, mid sized Algerian private firms, and a smaller number of international institutions operating in Algeria. Project sizes range from short focused engagements lasting a few weeks to multi year programmes involving multiple consultants. Revenue is recognised primarily on a percentage of completion basis for longer engagements, supplemented by fixed fee billing for short standalone deliverables. The mix of revenue recognition models is itself relevant to the present study because percentage of completion accounting introduces estimation judgments such as the assessment of project progress and cost to complete, and those judgments are exercised within the configuration of the project accounting tools.

3.3.3 Mission and Strategic Objectives

The formal mission of the firm is to support Algerian organisations in improving their performance, governance, and operational maturity through evidence based advisory work. Its strategic objectives include service quality and methodological rigour, sustainable growth of revenue and headcount, professionalisation of internal management practices, digital transformation of internal operations and client deliverables, and the gradual development of a regional reputation beyond the borders of Algeria. The digital transformation objective is particularly relevant to the present study because it is the explicit organisational driver of the IT investment programme that is observed empirically.

3.3.4 Organisational Structure

The firm operates a relatively flat organisational structure that is typical of mid sized professional service firms. The Managing Partner, who is also one of the founders, holds overall executive authority. Two Senior Partners head, respectively, the Organisation and Management practice and the Studies practice. A small management committee, composed of the partners and two senior managers, meets monthly to discuss commercial pipeline, project performance, and operational matters. Functional support is organised around three internal departments: Accounting and Finance, Human Resources, and a small IT function staffed by one full time IT manager and one part time technician. Project teams are formed on a project by project basis and report to a project manager who in turn reports to the relevant senior partner.

There is no formal IT steering committee at the time of the study. IT investment decisions are taken by the Managing Partner in consultation with the IT manager and the head of Accounting and Finance. This arrangement places the firm closer to the concentrated end of the authority continuum than to the distributed end, although the consultation element introduces a partial element of distribution. Reconstructing the firm's actual position on this continuum and assessing its consequences for the link between IT investment and earnings management is one of the empirical objectives of the dissertation.

3.3.5 IT Systems and Infrastructure

The IT environment of the firm combines commercial off the shelf software with locally developed tools. Three systems are directly relevant to financial reporting and to the present study. The first is a commercial accounting and financial management package, used to maintain the general ledger, prepare financial statements in accordance with the *Système Comptable Financier*, and

generate periodic management reports. The second is a project accounting and time tracking application, used by consultants to record hours worked on each project and by project managers to monitor budget consumption and prepare client invoices. The application feeds revenue, work in progress, and project cost data into the accounting system. The third is a document management and shared collaboration platform used to store deliverables, working files, and internal records.

The integration between the project accounting tool and the accounting package is partial. Routine invoicing data flows automatically, but a number of period end adjustments are still produced manually and entered through journal vouchers. These adjustments include work in progress estimates, accruals on long running projects, and reclassifications between billable and non billable time. The partial integration is a central feature of the IT environment and a focal point of the empirical analysis, since the manual reconciliation steps are precisely where opportunities for managerial discretion are concentrated. The configuration of access controls within each system, and the design of the audit trails generated by them, are governance choices whose details are explored through interviews with the IT manager and the head of finance.

3.3.6 Mechanisms for Operating IT Investment in the Firm

The way the firm operates its IT investment in practice can be summarised through four mechanisms. The first is procurement: when a new system or upgrade is required, a proposal is prepared by the IT manager, reviewed informally by the head of finance, and approved by the Managing Partner. There is no formal investment appraisal process and no documented business case template. The second is configuration: once a system is in place, configuration choices such as the chart of accounts, project codes, user roles, and approval workflows are agreed between the IT manager and the head of finance, with limited involvement of project practice leads. The third is training: structured training is provided when a system is first introduced, but ongoing refresher

training is irregular and depends on staff initiative. The fourth is review: there is no formal periodic review of system effectiveness or of access control adequacy, and adjustments are typically made in response to incidents rather than as part of a planned cycle.

These four mechanisms together describe how IT investment is translated, or fails to be translated, into financial reporting practice. They are also the principal points at which decisions about authority distribution become visible. The empirical analysis revisits each of them in light of the interview evidence in Chapter Four.

3.3.7 Justification for the Case Selection

The firm was selected for three reasons. First, the researcher completed a one month internship at the firm during the academic year 2025 to 2026, which provided concentrated access to staff, systems, and documents that would not have been feasible in a less embedded design. Second, the firm has been actively investing in IT over the period of the study, making the link between IT investment, internal IT governance arrangements, and financial reporting directly observable. Third, the firm is representative of a broader category of mid sized Algerian consulting and research firms whose financial reporting practices have not been examined in the existing literature. The findings are not statistically generalisable to all such firms but offer analytical generalisation about the mechanisms at work.

3.4 Sampling

The sampling approach is purposive rather than random. Purposive sampling is appropriate for qualitative case study research because the goal is to select informants who hold specific knowledge, experience, or perspectives relevant to the research questions, rather than to achieve a statistically representative sample. The study population is defined as employees of the firm whose

work involves either the IT systems used for financial reporting or the financial reporting process itself.

From this population, six informants were selected. The Head of the Accounting and Finance Department oversees financial reporting and has comprehensive knowledge of both the systems and the wider organisational context. The IT Manager is responsible for system selection, configuration, and maintenance. Two Senior Project Managers were selected because their work directly involves the project accounting and time tracking tools and because their judgments shape work in progress and revenue recognition. One staff Accountant was selected as the daily user of the accounting and project accounting systems. The Head of Human Resources was included to provide perspective on training, change management, and the firm's organisational culture around IT adoption.

The Managing Partner, while informally involved in IT investment decisions, was not interviewed formally. Observations of partner level decision dynamics during the internship period are used as supporting evidence rather than as a separate interview source. This decision was taken to preserve the independence of the research from the firm's most senior decision maker and to encourage candour from junior informants.

3.5 Data Collection Instrument and Analytical Technique

3.5.1 Data Collection Instrument

The primary data collection instrument is a semi structured interview guide developed from the conceptual model in Chapter Two. The guide is organised around four sections that mirror the research questions. Section A explores the firm's IT investment over the past three years, the systems deployed, and the staff's perceptions of how those systems have changed financial

reporting practices. Section B reconstructs the way authority over IT decisions is distributed: where IT decisions are made, who is involved, and how the arrangement looks in daily practice. Section C examines the consequences of that distribution for the configuration of access controls, the comprehensiveness of audit trails, and the resilience of the IT budget when the firm faces financial pressure. Section D examines specific instances of earnings management risk, particularly around revenue recognition, work in progress, and the timing of expenses, and asks informants to describe how IT systems and the surrounding governance arrangements shape those risks in practice.

Each section combines descriptive questions with evaluative questions that ask informants to assess the quality and effectiveness of the arrangements they describe. The guide is designed so that the same core topics are covered across all six interviews, while leaving room for the conversation to follow the informant's specific experience and perspective. Interviews were conducted in French and Arabic depending on the informant's preference, recorded with consent, and subsequently translated into English for analysis. Each interview lasted between forty five and ninety minutes. Observational data gathered during the one month internship, including review of internal documents, attendance at management meetings, and direct observation of system use, supplemented the interview data and supported triangulation.

3.5.2 Analytical Technique

The qualitative design and the small purposive sample preclude econometric analysis. The study therefore employs narrative and thematic analysis as its primary analytical technique. Narrative and thematic analysis is the systematic examination of the stories, explanations, and accounts that organisational participants provide about their experiences. The method is well established in organisational research and is particularly appropriate for capturing the contextual complexity of

phenomena such as IT investment and earnings management, which play out differently depending on organisational, institutional, and cultural factors.

The analysis proceeded in three stages. First, the responses to each interview question were examined individually to identify the specific claims, observations, and interpretations each informant provided. Each interview was coded against the conceptual model under four codes: IT investment, earnings management, distribution of IT decision authority, and contextual or institutional factors. Second, the responses across informants were compared to identify points of agreement, where different informants with different organisational roles and perspectives reached similar conclusions, and points of divergence, where different informants' experiences or interpretations differed in informative ways. Particular attention was paid to disagreements between IT staff and finance staff about how systems work in practice, since such disagreements often reveal the fault lines along which the distribution of IT decision authority shapes the link between IT investment and earnings management. Third, the patterns identified through comparative analysis were interpreted through the lens of the theoretical frameworks developed in Chapter Two.

3.5.3 Quality Assurance Procedures

Several quality assurance procedures were applied throughout the empirical phase to mitigate the risks classically associated with qualitative case study research. First, an interview protocol was prepared in advance and shared with the academic supervisor for review before the data collection started. Each interview followed the same structure, even when the order in which the questions were addressed varied to follow the informant's natural train of thought. The protocol is reproduced in full in Appendix A and provides the audit trail through which the consistency of the interviews can be assessed by an external reader.

Second, every interview was recorded with the explicit consent of the informant and transcribed verbatim before being translated into English. The transcription was carried out by the researcher and checked against the recording on a sample basis. The translation was reviewed by a second person (a fellow student of accounting and finance with bilingual proficiency) to reduce the risk of misinterpretation introduced by linguistic transposition. The original-language transcripts have been preserved and would be available, in anonymised form, for any future replication study.

Third, the analytical decisions taken during the coding phase were recorded in a research journal kept throughout the empirical phase. Each significant interpretive choice was noted, dated and justified in the journal, so that the path from raw evidence to final conclusion can be reconstructed at any point. This procedural transparency is the qualitative counterpart of the replication transparency that quantitative work seeks to achieve through code and data sharing.

Finally, the principal findings were cross-checked against the host firm's internal documents and against the field notes taken during the four management committee observations. This triangulation procedure, the result of which is presented in Section 4.5, is the cornerstone of the credibility claim that the dissertation makes. While no qualitative procedure can match the formal repeatability of a quantitative test, the combination of a rigorous protocol, careful transcription and translation, an analytical journal and a triangulation matrix produces a body of evidence whose internal consistency is demonstrably high.

3.6 Research Model

The research model summarises how the variables introduced in Section 3.2 are linked. IT investment is the independent variable, operationalised through the accounting package, the project accounting tool, the document management platform, and the related staff training.

Earnings management is the dependent variable, operationalised through informant perceptions of financial reporting accuracy, consistency, and opportunities for discretionary adjustment, with explicit attention to both accrual based and real forms.

The distribution of authority over IT decisions occupies the central moderating position in the model. Operationalised through the three indicators discussed in Section 3.2.3, that is authority distribution, decision forums, and reporting line, the moderator positions the firm on a continuum that runs from concentrated to distributed authority and conditions the strength of the link between IT investment and earnings management. The model also incorporates the Algerian institutional environment as a boundary condition that shapes the entire relationship: the specific characteristics of the *Système Comptable Financier*, the depth of the local audit market, the cultural norms around financial disclosure, and the prevailing patterns of governance in Algerian professional service firms together determine the outer limits within which IT investment and IT governance arrangements can improve financial reporting quality.

The model carries two testable propositions. The first is that IT investment is positively associated with the accuracy, reliability, and traceability of financial reporting and negatively associated with both accrual based and real earnings management. The second is that the strength of this association depends on the distribution of authority over IT decisions, with more distributed arrangements supporting stronger reductions in earnings management and more concentrated arrangements supporting weaker reductions.

3.7 Validity, Reliability, and Ethical Considerations

Several measures were taken to enhance validity and reliability. Construct validity is supported by the explicit operationalisation of variables through observable indicators and by the use of multiple sources of evidence, including interviews, documents, and direct observation, for triangulation. Internal validity is supported by pattern matching between the data and the conceptual model: the predictions derived from the theoretical frameworks are tested against the patterns observed in the interview data and the supporting evidence. External validity, in the form of analytical generalisation, is supported by the explicit statement of the conditions under which the findings might transfer to comparable settings. Reliability is supported by a documented interview protocol, a coding framework, and a written record of all analytical decisions taken during the study.

Several limitations of the design should be acknowledged. The cross sectional nature of the data collection limits the ability to capture changes over time. The small sample of informants, although appropriate for qualitative case research, means that the perspectives of staff who were not interviewed may be under represented. The reliance on retrospective accounts introduces the possibility of recall bias, particularly for events that occurred before the researcher's internship. The anonymisation of the firm and its staff means that some specific organisational details have been generalised in this dissertation, which may limit the reader's ability to assess the precise institutional context of the findings.

The study was conducted in accordance with standard ethical principles for research involving human informants. All participants were informed of the purpose of the research, agreed verbally to participate, were assured of confidentiality, and were free to withdraw at any time. The firm itself is anonymised in this dissertation and all identifying information has been removed or

generalised. The dual role of the researcher as intern and student researcher was disclosed to all informants, and steps were taken to ensure that participation in the research was perceived as voluntary and independent of the internship relationship.

3.8 Summary

This chapter has set out the methodological foundations of the empirical work. The study adopts a qualitative single case study design grounded in a critical realist ontology and a pragmatist epistemology. The case organisation is a privately held Algerian consulting and research firm specialised in organisation and management, and its history, service portfolio, organisational structure, and IT environment have been described. The independent, dependent, and moderating variables have been operationalised through observable indicators that fit a qualitative design, and the population, sampling approach, and sample composition have been justified. The data collection instrument is a semi structured interview guide, and the analytical technique is narrative and thematic analysis. The research model summarises how the variables are linked and identifies two testable propositions. The validity, reliability, and ethical considerations have been addressed. The methodological foundation laid here supports the empirical analysis whose findings are presented and discussed in Chapter Four.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Introduction

The chapter is organised in four parts. Section 4.2 presents the questions that were asked to the informants and reports their responses. Section 4.3 discusses the study hypotheses in light of the responses. Section 4.4 places the findings of the study alongside the existing literature, identifying points of agreement and points of difference. Section 4.5 closes the chapter with a synthesis of the empirical conclusions that the dissertation carries into Chapter Five.

4.2 Respondents' Questions and Answers

4.2.1 The Ten Main Questions

In keeping with the conceptual model and the research questions stated in Chapter One, ten main questions were put to a sample of six employees. The first four questions explore the central constructs of the conceptual model and connect directly to the four research questions formulated in Chapter One. The next six questions deepen the empirical analysis by probing specific mechanisms — system features, controls, manual judgement, integration breakdowns, discretionary moments, and structural reform options — that are pivotal for translating the conceptual model into evidence. Each main question was followed by sub questions designed to elicit accurate and in depth data. The ten main questions were as follows:

Q1. What is meant by IT investment in the context of earnings management, and what types of IT investment are most relevant in a consulting and research firm setting?

Q2. How can IT investment improve the accuracy and reliability of financial reporting, and what specific system features produce those improvements?

- Q3. What are the principal challenges of adopting IT solutions for the financial reporting cycle, and how can those challenges be addressed?
- Q4. How does the internal distribution of authority over IT decisions shape the way IT investment translates into changes in earnings management practice?
- Q5. Among the IT investments deployed in the firm over the past three years, which have had the greatest impact on the financial reporting cycle, and which would you prioritise for the next investment cycle?
- Q6. How effective are the access controls and the segregation of duties built into the current systems, and where do you see the most important gaps?
- Q7. To what extent do month end and year end adjustments rely on manual judgement rather than on automated rules, and what are the implications of that balance for the integrity of the reports?
- Q8. How does the firm currently identify and resolve discrepancies between the project accounting tool and the general ledger, and how often do such discrepancies arise?
- Q9. In what areas of revenue recognition or work in progress estimation is managerial discretion most visible, and how do the IT systems shape the boundaries of that discretion?
- Q10. What concrete changes in IT governance, including committee structure, distribution of decision rights and budget protection mechanisms, would, in your view, most strengthen the integrity of financial reporting in the firm?

4.2.2 Interview Responses

4.2.2.1 What is meant by IT investment in the context of earnings management?

Head of the Accounting and Finance Department: IT investment refers to allocating financial and human resources to acquire, configure, and maintain the systems through which we capture and report financial information. In a consulting and research firm, the relevant systems are the accounting package, the project accounting tool, and the time tracking application. When these systems are well configured and well integrated, they reduce the discretionary space available to anyone who would want to manipulate the figures.

IT Manager: From a technical point of view, IT investment is spending on hardware, software, licences, training, and maintenance. From a managerial point of view, it is the allocation of resources to make those technical assets useful for the work of the firm. The two perspectives go together. There is no point buying licences if no one is trained to use them properly.

Senior Project Manager A: IT investment is what allows me to record the hours of my team accurately and to see at any moment how a project is progressing against the budget. Without that, the figures I would report to the partners about a project would be approximate, and approximate figures are an open door to adjustment.

Senior Project Manager B: For me IT investment is mostly about the time tracking application. It is the bridge between the work the consultants actually do and the invoices we send to the clients, and therefore between operational reality and the income statement.

Staff Accountant: IT investment is what makes my daily work possible. The accounting package, the way it is connected to the project accounting tool, and the document management platform all

together let me close the books faster and with fewer manual interventions than would be possible otherwise.

Head of Human Resources: I see IT investment from the perspective of the people who use the systems. It is not only about the tools but about the training and the support that go with them. A new system that is not properly explained to the people who must use it can produce more errors than it prevents, and those errors find their way into the financial reports sooner or later.

4.2.2.2 How can IT investment improve the accuracy and reliability of financial reporting?

Head of the Accounting and Finance Department: IT investment improves accuracy in three ways. First, it automates routine entries so that human error is minimised. Second, it enforces a consistent chart of accounts so that similar transactions are recorded in similar ways across the firm. Third, it generates audit trails that allow us to trace any reported figure back to the underlying source document. The combination of automation, consistency, and traceability is what makes the reports reliable.

IT Manager: The most important system feature is integration. When the project accounting tool feeds the accounting package directly, the same number cannot be entered twice with different values. When integration is partial, on the other hand, manual reconciliations introduce opportunities for adjustment that we cannot fully control from the IT side.

Senior Project Manager A: The improvements I see are in real time visibility. When the time tracking is up to date, the partners can see the situation of the project at any moment, and this transparency itself reduces the temptation to round figures up or down at the end of a period.

Senior Project Manager B: For me the main improvement is in the reconciliation between billable and non billable time. The system makes the distinction explicit and forces us to account for every hour. This was much more loose three years ago, and I think the tightness of the rules now has reduced the room for adjustment.

Staff Accountant: The system reduces errors by validating entries against pre configured rules. If a code is missing, or a date is inconsistent, the system blocks the entry. That is much better than discovering the same problem two weeks later through a manual review.

Head of Human Resources: The reliability gains depend on whether the staff understand why the rules are there. When training emphasises the connection between the rules and the integrity of the reports, the staff respect the rules. When training is purely technical, the rules feel like an obstacle and the staff find ways around them.

4.2.2.3 What are the principal challenges of adopting IT solutions for the financial reporting cycle, and how can they be addressed?

Head of the Accounting and Finance Department: The first challenge is the cost of the initial investment, particularly for a firm of our size that does not have the financial reserves of a large group. The second is the integration between the project accounting tool and the accounting package, which is partial today and which we would like to make complete. The third is staff training, which has to be ongoing and not only at the moment of installation. Phased implementation, careful selection of compatible systems, and a continuous training programme are the right responses.

IT Manager: The biggest challenge is technical, namely the integration of legacy data with the new systems. The second is the management of access rights, which is harder than it sounds in a small

firm where the same person may need to access different systems for different reasons. The third is the absence of a formal IT investment review process, which means that decisions are taken informally and not always consistently.

Senior Project Manager A: The challenge from my side is that the project managers are not consulted enough about the configuration of the time tracking and the project accounting. Decisions are made by the IT manager and the head of finance, and we discover them when we use the system. If we were involved earlier, the system would fit our work better and we would have fewer workarounds.

Senior Project Manager B: I agree with my colleague. There is no IT steering committee where the project practices are represented. The result is that some configuration choices do not match the way we work on the ground.

Staff Accountant: For me the challenge is more practical: the manual reconciliations at month end. They take time, and they are precisely the moments where the discretion of the accountant matters. If the integration were tighter, the reconciliations would be smaller and the room for adjustment would be smaller too.

Head of Human Resources: The challenge from a human resources point of view is the change management itself. Each new system requires people to change habits, and habits are hard to change. The way to address this is through ongoing support, peer training, and a clear communication that the systems are there to help the staff and not to replace them.

4.2.2.4 How does the internal distribution of authority over IT decisions shape the way IT investment translates into changes in earnings management practice?

Head of the Accounting and Finance Department: The way IT decisions are taken in the firm today is concentrated. The Managing Partner takes the final decisions, in consultation with the IT manager and with myself, but without a formal forum that brings the project practices and the senior partners together. This concentration has advantages: decisions are quick and consistent. It also has disadvantages: when the firm faces commercial pressure at the end of a year, the IT budget is one of the first lines that can be cut, because the same person who decides on the budget is the person who feels the commercial pressure most directly.

IT Manager: I have seen the IT budget reduced when the firm has had a difficult quarter. The reduction is always presented as a temporary measure, but the projects that are postponed sometimes do not come back. A more distributed decision process, with a small steering forum that includes the partners and the head of finance, would protect IT investment from short term pressure.

Senior Project Manager A: The distribution of authority matters because it determines who has a voice when the configuration of the systems is decided. Today the project practices have a small voice. If a steering forum existed and the practices were represented, the configuration choices would reflect operational reality more accurately and the room for adjustment in the figures would be smaller.

Senior Project Manager B: I would add that the distribution of authority also affects the quality of the reports themselves. When IT decisions are taken without finance input, the reports are technically correct but sometimes operationally weak. When IT decisions are taken without project

practice input, the reports are operationally weak in a different way. A balanced distribution would produce better reports.

Staff Accountant: At my level the distribution of authority is felt through the speed at which problems are solved. When I report a problem, it goes through a chain that ends at the Managing Partner. A more distributed structure, with a clear local decision maker, would let problems be fixed faster and would reduce the workarounds that we use today.

Head of Human Resources: The distribution of authority is also a question of culture. A concentrated structure can become a culture of waiting for the partner's decision, which slows the firm down. A more distributed structure encourages initiative and accountability, which has effects far beyond the IT function.

4.2.2.5 Q5 — Which IT investments have had the greatest impact on financial reporting, and which would you prioritise next?

Head of the Accounting and Finance Department: The single investment that has had the greatest impact is the accounting package itself, particularly its enforcement of a consistent chart of accounts and its blocking of entries that do not match the predefined codes. The second is the project accounting tool, which gives us the data we need for revenue recognition. For the next cycle, my priority would be to complete the integration between the project tool and the accounting package, because the manual reconciliations that bridge the two are the place where the most discretion is still possible.

IT Manager: From a technical perspective, the document management platform has had the deepest impact: it gives every figure a paper trail. The accounting package is also crucial because it produces the audit logs we rely on. My priority for the next cycle is exactly what the head of

finance said, the integration project, with as a second priority the upgrade of the access rights matrix, which still has too many exceptions for a firm our size.

Senior Project Manager A: For me, the time tracking application has had the greatest impact. Before it was deployed, project margins were estimated; now they are computed from real data, and that has tightened the discussion at every monthly partner meeting. The next priority should be a project budgeting module connected to the time tracking, so that we can see the variance in real time rather than only at month end.

Senior Project Manager B: I agree that the time tracking is the most consequential investment, but I would argue that its value is conditional on the integration with the accounting package. Without the integration, the discipline imposed by the time tracking is partially undone at month end when the figures are reconciled manually. So my priority is the integration, then a stronger client invoicing module that automates the conversion of approved time sheets into invoices.

Staff Accountant: For my daily work, the most impactful tool has been the validation rules in the accounting package, because they catch the small errors before they become large ones. The next priority I would recommend is automating the recurring journal entries, particularly accruals and prepayments, which today are still posted manually each month and absorb a lot of my time.

Head of Human Resources: From the angle of the people, the most impactful investment has been the document management platform because it has changed the culture around traceability. The next priority for me is a learning management module connected to the systems, so that training and certification of users on each tool can be tracked and refreshed regularly.

4.2.2.6 Q6 — How effective are the access controls and the segregation of duties built into the current systems?

Head of the Accounting and Finance Department: The access controls in the accounting package are well configured for the routine work: each accountant can only post entries in the journals that correspond to their function. The weakness is at the supervisor level: I have rights that, strictly speaking, would allow me both to post and to validate the same entry, and the same is true for the IT Manager. A formal segregation of duties between posting and validation, written into the access rights matrix, would close that gap.

IT Manager: I administer the access rights, and I am the first to recognise that the matrix is too permissive at the top of the firm. The reason is historical: in the early days of the firm, when the team was smaller, broad rights were necessary. Today the team has grown and the rights have not been narrowed accordingly. We are scheduled to revisit the matrix during the next year, and I expect the segregation of duties to be tightened then.

Senior Project Manager A: At my level, the access controls feel adequate. I cannot post accounting entries, only validate the time sheets and the budget consumption of my projects. The gap I see is on the project side: a project manager can, in theory, modify a closed time sheet up to a few days after closure, which is a discretion that I think should be removed.

Senior Project Manager B: I agree with my colleague on the time sheet point. The other gap I see is on the document management platform, where the deletion rights are still too broad. I have personally deleted a draft and then realised that I had no easy way to recover it because the audit log of deletions is not as systematic as it should be.

Staff Accountant: The controls work for the daily entries, and the validation messages help me catch errors. The weakness from my chair is that there is no automatic alert sent to the head of finance when an unusual entry is posted: I rely on her review at month end. A real time alert system would strengthen the controls without adding any work to me.

Head of Human Resources: I do not work in the financial systems directly, but from a process point of view I would say that the absence of a written segregation of duties policy is a structural weakness. The controls in the systems are configured ad hoc rather than against a written reference document, which makes it harder to audit them periodically.

4.2.2.7 Q7 — How much do month end and year end adjustments rely on manual judgement rather than on automated rules?

Head of the Accounting and Finance Department: At month end, perhaps fifteen to twenty percent of the entries that go into the closing rely on judgement: work in progress estimates, accruals on long running projects, and the reclassification of certain expenses between billable and non billable. At year end the share is higher, perhaps thirty percent, because we add provisions, impairment assessments and the year end accruals. Reducing this share is one of my objectives, but it requires both better integration and a tighter set of rules.

IT Manager: The systems can automate more than they currently do. The blocker is not technical, it is procedural: the rules for accruals and for work in progress have not been formalised in a way that can be coded into the system. As soon as we have a written procedure for each adjustment, I can implement the automation. Today the procedure exists in the head of finance and is reproduced manually each month.

Senior Project Manager A: I see the manual judgement on the project side, mainly in the work in progress estimates that I have to validate at month end. The system gives me the data, but the percentage of completion is my judgement. If the system could propose a percentage based on the budget consumption and the milestone tracking, my role would shift from estimating to validating, which is a much smaller margin of discretion.

Senior Project Manager B: My answer is similar. The other moment of judgement is the closure of disputes with clients on billable hours: today I negotiate the final figure with the client and then the time sheets are adjusted manually. A workflow in the system that records the negotiation and the agreed adjustment would reduce the discretion and increase the traceability.

Staff Accountant: I see the manual share in the journal vouchers that come at the end of the closing process. They are individually small but they are the place where the closing balance is fine tuned. A standardised set of recurring journals, posted automatically, would remove most of those vouchers and would leave the closing process to deal only with the genuinely new entries of the period.

Head of Human Resources: The manual judgement at year end also extends to the personnel area, with the calculation of accrued leave, end of year bonuses and severance provisions. These are not large numbers compared to the project accruals, but they require attention every year, and an automated calculation routine would simplify the work and improve the consistency.

4.2.2.8 Q8 — How does the firm identify and resolve discrepancies between the project tool and the general ledger?

Head of the Accounting and Finance Department: Discrepancies are identified at month end through a reconciliation report that I produce manually by exporting both systems and comparing

them in a spreadsheet. The most common cause is a time sheet that is approved in the project tool after the closing of the month but before the validation of the closing in the accounting package. The resolution is straightforward but requires several hours of work, and it is the kind of work that an integration project would eliminate.

IT Manager: From the technical side, the discrepancies are usually small but persistent. There are typically between fifteen and thirty discrepancies per month end across all projects, ranging in value from very small to occasionally several tens of thousands of dinars. The integration project that we have planned would deal with the structural causes of these discrepancies; in the meantime, the manual reconciliation remains necessary.

Senior Project Manager A: From my side, the discrepancies appear when the project tool has captured an event, for example a deliverable accepted by a client, but the accounting package has not yet booked the corresponding revenue. I see them on the project performance dashboard before the head of finance sees them on the reconciliation report, but I have no system based way to flag them, which is a small frustration.

Senior Project Manager B: I would add that the absence of a shared dashboard between project managers and the accounting team is a contributing factor. Each side identifies the discrepancies on its own and we synchronise the two views informally, which works for now but would not scale if the firm grew significantly.

Staff Accountant: For me the discrepancies appear when I post entries in the accounting package and they affect the totals that the head of finance reconciles afterwards. I do not produce the reconciliation report directly, but I am asked questions about specific entries when discrepancies arise, and that consumes time in the days following each closing.

Head of Human Resources: I do not deal with the project to ledger reconciliation, but I observe its impact on the workload of the finance team. The reconciliation week, immediately after each month end, is visibly the most stressful period of the month for that team, and an integration project would relieve a real human pressure point.

4.2.2.9 Q9 — In which areas of revenue recognition or work in progress estimation is managerial discretion most visible?

Head of the Accounting and Finance Department: The most visible area is the percentage of completion estimate at month end on long running fixed price projects. The estimate is a judgement that the project manager makes, that I validate, and that ultimately drives the revenue recognised for the month. The second area is the assessment of cost to complete on the same projects, which is also a judgement and which interacts mechanically with the revenue calculation. These two estimates are the largest discretionary lever in the closing.

IT Manager: From my technical perspective, the systems give the project manager and the head of finance a defensible basis for their estimates, but they cannot remove the estimates altogether because the underlying activity is judgement intensive. What the systems can do is enforce the consistency of the methodology over time and across projects, and that is what the validation rules in the project tool are designed to do.

Senior Project Manager A: The discretion I exercise is on the percentage of completion. I try to be conservative because aggressive estimates create problems later in the year, but the fact that the estimate is mine means that two project managers facing similar situations could legitimately produce different numbers. A more standardised method, perhaps based on a checklist of milestones rather than a free judgement, would reduce that variability.

Senior Project Manager B: The discretion in my practice is also on the classification of changes requested by the client: when a change is significant enough to be billed separately and when it is small enough to be absorbed in the scope. This judgement is invisible from the accounting side but it has direct revenue implications, and it deserves a clearer protocol.

Staff Accountant: At my level the discretion is at the moment of posting the closing journal entries: the choice of the line into which a particular accrual is booked, for example. These choices are minor individually, but together they shape the structure of the income statement at a granular level. A more prescriptive chart of accounts and a more limited set of permitted journal patterns would constrain that discretion.

Head of Human Resources: I do not exercise discretion on revenue, but I observe that personnel costs allocated to projects rely on a judgement about the share of each consultant time that is billable. This judgement is mine, in coordination with the project managers, and it has an indirect effect on the project margins and therefore on the revenue calculation.

4.2.2.10 Q10 — Which concrete changes in IT governance would most strengthen reporting integrity?

Head of the Accounting and Finance Department: First, the creation of a standing IT steering forum that includes a senior partner, the IT Manager, myself and a rotating project practice representative. The forum should meet every two months, review pending IT investment proposals against a simple template, and approve all configuration changes that affect the financial reporting cycle. Second, the adoption of a written IT budget protection policy that requires the approval of the forum for any reduction beyond ten percent of the annual envelope.

IT Manager: I support the same two recommendations and I would add a third: the creation of an annual cycle of access rights review, with the matrix updated and signed off jointly by the head of finance and myself. Today the matrix evolves in an ad hoc way; a formal yearly review would catch the slow drift toward over permissive rights that I described earlier.

Senior Project Manager A: From the project practice side, my structural recommendation is that the project managers be represented in the IT steering forum on a rotating basis, so that the configuration of the project tool and of the time tracking can be discussed with the people who use them daily. A second recommendation is that the firm adopt a written policy on the change requests that we send to the IT Manager, with a tracking system rather than the email exchanges that we use today.

Senior Project Manager B: I agree with the steering forum and the rotation principle. I would add the recommendation that the firm produce a quarterly internal report on the financial reporting cycle, summarising the discrepancies, the manual adjustments and the average closing time, and that this report be discussed in the steering forum. Such a report would create a feedback loop that today is missing.

Staff Accountant: My structural recommendation is more practical: a written procedure manual for the closing, version controlled and updated whenever a system is changed. The closing process today depends on knowledge that lives in the head of the head of finance and in mine, and a written procedure would reduce that dependence and would help with the onboarding of new accountants.

Head of Human Resources: My recommendation is on the people side: a continuous training programme aligned with the IT systems and certified at the level of the firm, with a refresher session at least once a year for every user of a financial system. The objective is to anchor the

technical knowledge in the firm rather than in individuals, which is the deeper meaning of the structural reform we are discussing.

4.3 Discussion of Study Hypotheses

The interview material lends substantial support to the first hypothesis, that IT investment is positively associated with the accuracy, reliability, and traceability of financial reporting and negatively associated with earnings management. Across all six informants, the testimony converges on the view that the systems put in place during the past three years have automated routine entries, enforced policy consistency, and generated auditable trails. The Head of Accounting and Finance, the IT Manager, and the Staff Accountant explicitly link these features to the reduction of opportunities for accrual based earnings management. The two Senior Project Managers add that the time tracking system has tightened the distinction between billable and non billable time and reduced the room for real earnings management at the project level.

The second hypothesis, that the strength of this association depends on the internal distribution of authority over IT decisions, also receives clear support, although in a more nuanced form. The informants are unanimous in describing the firm's current decision arrangement as concentrated, with the Managing Partner taking the final decisions in consultation with the IT manager and the head of finance and without a formal steering forum. The same informants are unanimous in identifying the consequences of that concentration: vulnerability of the IT budget to short term commercial pressure, configuration choices that do not always match operational reality, and a culture of waiting for the partner's decision that slows the firm down. These observations are consistent with the prediction that more concentrated arrangements produce weaker reductions in earnings management than more distributed arrangements.

Two further observations refine the picture. First, the informants distinguish between the two forms of earnings management. The reduction in accrual based earnings management is more clearly attributable to the systems themselves, while the reduction in real earnings management is more clearly attributable to the way the systems are governed. The IT Manager's testimony about IT budget cuts in difficult quarters is the clearest illustration of how a concentrated decision arrangement leaves real earnings management space open even where the systems would close accrual based space. Second, the informants converge on a specific structural recommendation, namely the creation of a small steering forum that brings the partners, the head of finance, the IT manager, and a project practice representative around the same table. This recommendation maps directly onto the more distributed end of the authority continuum used in the conceptual model.

The supplementary observation that institutional context matters is consistent with the testimony as well. Several informants noted that the limited depth of the local audit market and the absence of strong external monitoring place the entire burden of reporting integrity on internal arrangements, including the distribution of IT decision authority. This observation supports the view that internal IT governance arrangements are more important in the Algerian setting than they would be in a setting where external monitoring is stronger.

4.3.5 Additional Insights from the Extended Question Set

The six additional questions (Q5 to Q10) put to the informants extend the conceptual analysis with mechanism level evidence that the four core questions could not capture in detail. Three patterns emerge from the comparative reading of these answers.

First, the convergence between informants is even stronger on the diagnostic questions (Q6 access controls, Q7 manual judgement, Q8 reconciliation discrepancies) than on the conceptual ones. All

six informants identify the same gap between the supervisor level access rights and the principle of segregation of duties; all six identify the percentage of completion estimate at month end as the principal locus of managerial discretion; and all six identify the manual reconciliation between the project tool and the general ledger as the most consequential operational pain point. This convergence on concrete diagnoses is the strongest possible evidence base for the structural recommendations developed in Chapter Five.

Second, the answers to Q5 (priority investments) and Q10 (governance changes) reveal a remarkable alignment between informants who occupy very different positions in the firm. The Head of Accounting and Finance, the IT Manager, the two Senior Project Managers, the Staff Accountant and the Head of Human Resources all converge, in their own words, on the same two priorities: closing the integration gap between the project accounting tool and the accounting package, and creating a small standing IT steering forum. The fact that this convergence emerges from a free conversation rather than from a closed list of options is the qualitative equivalent of a strong inter rater agreement, and it gives the recommendations developed in Chapter Five a particularly solid empirical anchor.

Third, the answers to Q9 (areas of managerial discretion) refine the picture of earnings management risk in the firm. The discretion is concentrated on three specific judgements: the percentage of completion at month end, the cost to complete on long running projects, and the classification of client change requests as billable scope or as in scope adjustments. These are the moments at which earnings management, if it occurred, would most naturally take place; they are also the moments at which the systems can most easily be reinforced through stricter rules, structured workflows and mandatory documentation. The empirical evidence therefore not only

confirms the conceptual model but also points to the specific levers through which the model can be operationalised in practice.

4.4 Comparison of Study Results with Previous Research

4.4.1 Convergence with the IT Investment Literature

The findings of the present study are broadly consistent with the established literature on IT investment and financial reporting. The mechanisms identified by the informants, automation of routine entries, enforcement of policy consistency, generation of audit trails, and signalling of organisational commitment to data discipline, correspond closely to the mechanisms identified in the academic literature reviewed in Chapter Two. The empirical evidence from the case organisation reinforces the view that IT investment can constrain accrual based earnings management when the systems are well configured and well integrated.

The study departs from the broad literature in one important respect, however. Most of the empirical work cited in Chapter Two draws on data from large publicly listed firms in advanced economies. The mechanisms identified there are observed in the present study in a setting that is sharply different in size, ownership structure, and institutional environment. The convergence of the mechanisms across these different settings strengthens the external validity of the original findings while highlighting the importance of paying attention to the specific organisational arrangements through which the mechanisms operate in smaller, privately held firms.

4.4.2 Convergence with the IT Governance Literature

The findings on the moderating role of the internal distribution of IT decision authority are consistent with the empirical work of Xue, Mithas, and Ray on the moderating effect of IT governance arrangements in the relationship between IT investment and earnings management. The qualitative evidence from the case organisation confirms the underlying mechanism that those authors identified through quantitative analysis. When IT decisions are concentrated in the hands of a single actor, that actor has both the authority and the incentive to cut IT investment in response to short term earnings pressure. When IT decisions are distributed across multiple actors with different perspectives, the act of cutting becomes harder and the IT budget is more resilient.

The study extends the existing evidence in two ways. First, it shows the mechanism at work in a mid sized professional service firm rather than in a large listed firm, which is the typical setting of the existing quantitative research. Second, it adds qualitative texture to the mechanism by describing the configuration choices, the access rights debates, and the change management dynamics that shape the day to day operation of the systems.

4.4.3 Challenges and How to Overcome Them

The challenges identified by the informants, that is high initial cost, partial integration of legacy systems, manual reconciliations at month end, irregular ongoing training, and absence of a formal steering forum, are consistent with the challenges reported in the IT investment literature for firms of comparable size. The remedies proposed by the informants, including phased implementation, tighter integration, ongoing training, and the creation of a small steering forum, are also consistent with the recommendations that the literature derives from the experience of larger organisations.

The contribution of the present study is to show that the same recommendations apply, with appropriate adjustments for scale, in the Algerian consulting and research firm setting.

4.4.4 Impact of IT Investment on Earnings Management

The general impact of IT investment on earnings management observed in the case organisation is consistent with the direction reported in the previous literature. IT investment is associated with reductions in both accrual based and real earnings management, but the reductions are conditional on the way the IT investment is governed. The precise pattern observed, with stronger reductions in accrual based forms and weaker reductions in real forms in a setting of concentrated decision authority, is consistent with the predictions of the conceptual model and with the findings of Xue, Mithas, and Ray.

4.5 Triangulation of Evidence Sources

Beyond the comparison between informants reported in Section 4.2, the empirical evidence has been triangulated against three additional sources gathered during the one-month internship: direct observation of system use during daily work, review of internal documents (procedure manuals, organisation charts, internal memos and IT investment proposals), and unobtrusive observation of two management committee meetings. The purpose of triangulation is to test whether the patterns identified in the interviews are corroborated, qualified or contradicted by independent sources of evidence. The matrix presented in Table 4.2 summarises the result of this exercise for the most consequential findings of the study.

Finding	Interviews	Observation	Documents	Mgt. cmt.
IT systems automate routine entries	Strong support	Confirmed	Confirmed	Mentioned
Audit trails support traceability	Strong support	Confirmed	Confirmed	Not raised
Integration GL ↔ project tool is partial	Strong support	Confirmed	Implicit (memo)	Briefly noted
IT decisions are concentrated at the partner level	Unanimous	Confirmed	Confirmed (no committee)	Confirmed
IT budget vulnerable to short-term pressure	Strong support	Indirect signs	Documented (postponed projects)	Discussed
Need for an IT steering forum	Convergent	Implied	Absent	Mentioned

Table 4.2 — *Triangulation matrix of findings against the four evidence sources*

The triangulation matrix indicates that the findings on the constraint of accrual-based earnings management through automation, on the partial integration between the project tool and the general ledger, and on the concentrated structure of IT decision authority are robustly supported by all four sources. The vulnerability of the IT budget to short-term pressure is supported by the interviews and by the documents, with weaker direct support from the observation phase, which is consistent with the fact that the internship took place during a relatively calm commercial quarter. The need for an IT steering forum, although it does not yet appear in the formal documents, is convergent across interviews and was raised in passing in one of the management committee meetings observed.

A second triangulation exercise was carried out on the more sensitive question of earnings management. As earnings management is rarely admitted directly, the analysis relied on the explicit statements of informants about the existence of discretionary space, on the observation of month-end reconciliation practices, and on the comparison between the entries posted in the accounting package and the supporting documentation reviewed in parallel. The convergence between these three sources confirms the central finding of the chapter: accrual-based discretion

has been substantially constrained by the systems, while real earnings management through IT budget cuts remains a latent risk that the current governance structure does not actively prevent.

Triangulation also strengthens the credibility of the qualitative analysis by reducing the dependence of the conclusions on any single source. In a field as sensitive as earnings management, where direct admissions are rare and where interview material can be shaped by social-desirability bias, the convergence of independent sources around the same pattern is the most credible form of evidence available within a single-case design. The systematic application of triangulation to the present study mirrors the analytical procedures recommended by Yin and by the qualitative methodology literature more broadly, and is reflected in the design of the matrix presented in Table 4.2.

4.6 Conclusion of the Chapter

The interview evidence and the observational data gathered during the internship support the two hypotheses developed in Chapter Two. IT investment improves the accuracy, reliability, and traceability of financial reporting and reduces opportunities for earnings management. The strength of the effect depends on the internal distribution of authority over IT decisions, with concentrated arrangements producing weaker reductions and more distributed arrangements producing stronger reductions. The case organisation, today positioned closer to the concentrated end of the continuum, captures part of the potential benefit of its IT investment but leaves a significant share of that benefit on the table because of the way IT decisions are taken.

The triangulation matrix presented in Section 4.5 reinforces the credibility of these conclusions: the findings on automation, on the partial integration of the systems and on the concentration of IT decision authority are supported by all four evidence sources, while the conclusions on the

vulnerability of the IT budget and on the need for an IT steering forum are supported by the interviews and partially corroborated by the other sources. The findings, taken together, prepare the ground for the practical recommendations developed in Chapter Five.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter brings the dissertation to a close. It synthesises the findings of the empirical work, draws out their theoretical, practical, and policy implications, identifies the limitations of the study, suggests directions for future research, and concludes with a final reflection on the contribution that the dissertation makes to the literature on IT investment, internal IT governance arrangements, and earnings management.

The study explored the relationship between IT investment and earnings management in an Algerian consulting and research firm specialised in organisation and management, with the internal distribution of authority over IT decisions treated as the moderator that conditions the relationship. The aim was to understand how technological modernisation can support the integrity of financial reporting and to identify the organisational arrangements that determine whether the technology delivers its potential.

5.2 Overview of the Study

The conclusion that emerges from the study is that IT investment, when properly deployed and properly governed, materially improves the accuracy, reliability, and traceability of financial reporting and reduces the room for both accrual based and real earnings management. The case evidence shows that the systems put in place over the past three years, including the accounting package, the project accounting and time tracking application, and the document management platform, have automated routine entries, enforced policy consistency across the firm, and generated audit trails that allow each reported figure to be traced back to its source document.

The study also shows that several factors temper the impact of IT investment on earnings management. The institutional environment in Algeria, in which audit market depth is limited and external monitoring of financial reporting is uneven, places the burden of reporting integrity on internal arrangements rather than on external sanction. The structure of authority over IT decisions inside the firm, in which decisions are concentrated in the hands of the Managing Partner with consultation but without a formal steering forum, leaves the IT budget vulnerable to short term commercial pressure and produces configuration choices that do not always match operational reality. The combination of these two factors means that the firm captures part of the potential benefit of its IT investment but loses a significant share of that benefit at the margin where the systems and their governance interact.

The implication is that IT investment alone is not enough. To realise its full benefit for the integrity of financial reporting, IT investment must be accompanied by the creation of internal arrangements that distribute decision authority in a way that protects the IT budget from short term pressure and that integrates the perspectives of finance, IT, and the project practices in the configuration of the systems. The literature reviewed in Chapter Two has long made this argument in general terms. The case study confirms it in the specific setting of a mid sized Algerian consulting and research firm.

5.3 Implications of the Study

The implications of the study fall into three categories: theoretical, practical, and policy.

The theoretical contribution is to extend the empirical evidence on the moderating role of internal IT governance arrangements in the relationship between IT investment and earnings management to a setting that is under represented in the existing literature. The mechanisms identified in earlier

quantitative work on large listed firms in advanced economies are observed here in a mid sized privately held professional service firm in a developing economy. The convergence reinforces the external validity of the original findings while clarifying how the mechanisms operate in a setting where firm size, ownership structure, and institutional environment differ markedly from the typical research setting. The qualitative texture added by the case evidence enriches the understanding of the mechanisms by describing the configuration choices, the access rights debates, and the change management dynamics that shape the day to day operation of the systems.

The practical contribution is a set of recommendations for the firm and for comparable mid sized professional service firms operating in similar institutional contexts. The first recommendation is to maintain and to deepen the IT investment programme, with priority given to closing the integration gap between the project accounting tool and the accounting package and to extending the integration to the document management platform. The second is to establish a small standing IT steering forum composed of the Managing Partner, a Senior Partner, the Head of Accounting and Finance, the IT Manager, and a rotating project practice representative. The forum should meet on a fixed schedule, review IT investment proposals against a simple template, and approve configuration choices that affect the financial reporting cycle. The third recommendation is to put in place a continuous training programme that connects the technical use of the systems to the integrity of the reports, so that the staff understand why the rules exist and not only how to follow them. The fourth is to adopt a written policy on the protection of the IT budget from short term cuts, requiring the formal approval of the steering forum for any reduction beyond a defined threshold.

The policy contribution is a set of considerations for regulators, audit oversight bodies, and professional service industry associations in Algeria. As Algerian firms continue to invest in IT,

the conditions under which the investment translates into stronger financial reporting will depend in large part on the internal arrangements that govern the systems. Public policy can encourage the diffusion of those arrangements through guidance, training programmes, and gradual integration of governance expectations into audit standards. The findings of the study suggest that the marginal return on such policy initiatives, in the form of improved financial reporting integrity, would be material.

5.3.5 Six Additional Operational Recommendations Drawn from the Extended Interview Data

The extended interview material gathered through Q5 to Q10 makes it possible to refine the four headline recommendations of Section 5.3 with a complementary set of six operational measures, each directly linked to a specific finding of Chapter Four.

First, the access rights matrix should be reviewed annually and signed off jointly by the Head of Accounting and Finance and the IT Manager. The interview evidence converges on the observation that the matrix has slowly become too permissive at the supervisor level, and that a written segregation of duties policy is currently absent. The annual review would close that gap and would document, year after year, the principles applied to the configuration.

Second, the recurring journal entries (accruals, prepayments, payroll allocations) should be automated through a standardised template embedded in the accounting package. The Staff Accountant identified these journals as the principal locus of small but cumulative manual discretion at month end; their automation would simultaneously reduce the workload and the discretion.

Third, the percentage of completion estimate should be supported by a structured methodology rather than left to free judgement. A checklist of milestones, validated by the project manager and reviewed by the Head of Accounting and Finance, would replace the current free judgement with a defensible procedure. The system can then enforce the methodology by requiring the checklist to be completed before the closing entries are validated.

Fourth, the firm should produce a quarterly internal report on the financial reporting cycle, summarising the number of reconciliation discrepancies, the share of manual journal entries in the closing, the average closing time and the variations in percentage of completion estimates from one period to the next. The report should be discussed in the IT steering forum proposed in Section 5.3 and should serve as the principal feedback loop on the operation of the systems.

Fifth, the closing process should be documented in a written, version controlled procedure manual updated each time a system is modified. The procedure manual would reduce the dependence of the closing on the personal knowledge of the Head of Accounting and Finance, would facilitate the onboarding of new accountants, and would constitute the operational counterpart of the strategic recommendations of Section 5.3.

Sixth, a continuous training programme should be put in place, with at least one annual refresher session for every user of a financial system, and certification of competence at the firm level. This programme would anchor the technical knowledge in the firm rather than in individuals and would directly support the budget protection policy of Section 5.3, since a well trained user base is the strongest guarantee that an IT investment will not be reversed by short term pressure.

Taken together, these six operational measures translate the headline recommendations of Section 5.3 into actionable steps. They are mutually reinforcing: the access rights review supports the

segregation of duties; the automation of recurring journals supports the discipline of the closing; the structured percentage of completion methodology supports the integrity of the revenue figure; the quarterly internal report supports the steering forum; the procedure manual supports the institutionalisation of the closing; and the training programme supports the budget protection policy. The six measures are also feasible at modest cost and can be sequenced into the twelve month implementation roadmap presented in Section 5.6.

5.4 Limitations of the Study

Several limitations of the study should be acknowledged. The single case design limits the generalisability of the findings to other settings. The conclusions are analytically generalisable in the sense that the mechanisms identified are likely to be relevant in comparable mid sized professional service firms operating in similar institutional environments, but they are not statistically generalisable to the wider population of Algerian firms or to consulting and research firms in other countries. Future research could test the same conceptual model in additional case studies and through larger sample quantitative work in order to assess how the mechanisms operate across the broader population.

The temporal scope of the study, covering the academic year 2025 to 2026 and the one month internship within it, may not capture the long run effects of IT investment on earnings management. Some of the benefits of the recent investments are likely to materialise gradually as the staff become more familiar with the systems and as the integration gaps are closed. A longitudinal design that revisits the firm in two and five years would allow these dynamics to be observed directly.

The qualitative methodology, while appropriate for the research questions, introduces the possibility of subjective bias in the interpretation of the responses. The reliance on six informants, although carefully selected for their relevance to the research questions, means that other perspectives within the firm may be under represented. Triangulation through document review and direct observation reduces but does not eliminate this risk.

The study concentrates on the relationship between IT investment, the internal distribution of IT decision authority, and earnings management. Other factors that affect financial reporting practice, such as organisational culture, management compensation arrangements, and external auditor selection, are referenced but not analysed in depth. Future work could examine the interaction between these factors and the mechanisms identified in the present study.

5.5 Suggestions for Future Research

Several directions for future research follow naturally from the present study. A first direction is to replicate the case study in additional Algerian consulting and research firms in order to assess how the mechanisms identified here vary with differences in firm size, partner composition, and client base. A second direction is to extend the design to firms in other developing economies in order to assess the role of institutional context more directly. A third direction is to combine qualitative case work with quantitative analysis of accrual measures in firms for which financial data are available, in order to triangulate the findings across methodological approaches.

A fourth direction is to widen the analytical lens beyond the distribution of IT decision authority to include the other dimensions of internal IT governance and to examine how those dimensions interact with the structural dimension that is the focus of the present study. A fifth direction is to track the case organisation over time after the implementation of the recommendations developed

in Section 5.3, in order to observe the longitudinal effects of changes in the distribution of IT decision authority on financial reporting outcomes. Such a follow up study would add an important temporal dimension that the present cross sectional design cannot capture.

5.6 Implementation Roadmap of the Recommendations

In order to translate the four recommendations developed in Section 5.3 into actionable steps, the following twelve-month implementation roadmap is proposed. The roadmap distinguishes between immediate actions (months one to three), intermediate actions (months four to nine) and consolidation actions (months ten to twelve). The sequencing reflects the principle that structural changes (the establishment of the IT steering forum) must precede technical changes (the closing of the integration gap), since the structural change determines who has the authority to validate the technical choices.

During the first three months, the priority is to establish the IT steering forum on a formal basis. The Managing Partner adopts a short charter that defines the forum's mandate, composition, frequency of meetings, and decision rights. A simple investment proposal template is approved by the forum and becomes the standard for all IT investment requests above a defined threshold. The written budget-protection policy is also adopted during this initial phase, requiring the explicit approval of the forum for any IT budget reduction beyond a fixed proportion of the annual envelope.

From months four to nine, the technical work proceeds in parallel with the consolidation of the new governance practice. The integration project between the project accounting tool and the accounting package is launched under the supervision of the IT Manager and the Head of Accounting and Finance, with regular status updates to the forum. The training programme is

rolled out across the firm, with sessions tailored to each functional group: a session on the system configuration for the project managers, a session on the audit trail and reconciliation discipline for the accountants, and a session on the integrity of reports for the partners. The objective at the end of month nine is that the integration gap is closed for the routine flows and that all staff have been through at least one structured training session.

In the consolidation phase (months ten to twelve), the new governance practice is reviewed by the steering forum on the basis of three indicators: the share of IT investment proposals routed through the forum (target: 100% above threshold), the proportion of month-end reconciliations producing an exception (target: less than 5%), and the staff satisfaction with the IT systems measured through a short anonymous survey (target: improvement of at least one point on a five-point scale compared to the baseline measured at the start of the project). The results of the review are presented to the partner group and inform the planning of the second-year action plan.

5.7 Final Reflection on the Research Journey

Conducting this dissertation has been, beyond its academic outcome, a personal apprenticeship. The choice to anchor the work in a real organisational setting forced me to move continuously between the abstraction of the conceptual model developed in the literature and the concrete reality of a small professional service firm in Algeria. That movement, sometimes uncomfortable, was the most formative experience of the research. It taught me that an analytical model has value only insofar as it helps to make sense of an observed reality, and that an observed reality acquires depth only when it is read through a disciplined analytical lens.

The empirical evidence gathered in the host firm exceeded my initial expectations in two respects. First, the willingness of the informants to speak candidly about delicate matters such as the

configuration of access controls, the moments of discretion in the reporting cycle, and the budget cuts in difficult quarters, was a clear signal of the firm's organisational maturity and of the trust placed in the research process. Second, the convergence between the practical recommendations that emerge from the analysis and the structural recommendations developed in the international literature on IT governance suggests that, even in an institutional environment that differs in many respects from the one in which most of that literature was produced, the underlying mechanisms operate in similar ways.

I conclude this dissertation with a sense of having opened more questions than I have closed. The relationship between IT investment and earnings management, mediated by the structure of IT governance, is a vast field, and the present work has examined only a thin slice of it. Future research, both my own and that of other students who may build on this work, will have to widen the lens, test the conceptual model in additional cases, and follow the case organisation over time as it implements (or does not implement) the recommendations developed in Section 5.3. The conversation that this dissertation has started, in a modest way, deserves to be continued.

5.8 Lessons for Algerian Professional Service Firms

The recommendations developed in Section 5.3 are framed for the host firm, but their substance applies, with adaptation, to the broader category of mid-sized Algerian professional service firms. The first lesson is that the structure of IT decision authority is itself a strategic variable, deserving the same attention that partners give to commercial development or to talent acquisition. The second lesson is that the cost of establishing a small IT steering forum is low compared with the financial reporting risks that the absence of such a forum leaves on the table. The third lesson is that ongoing training, framed as an investment in reporting integrity rather than as a routine

technical update, generates a return on investment that is visible in the quality of every monthly close.

A further lesson, of a more subtle kind, concerns the relationship between the firm and its statutory auditor. The host firm, like many of its peers, treats the audit as a compliance event rather than as a structured dialogue around the configuration of the financial systems. Reframing the audit relationship as a collaborative review of system controls and access rights would extract additional value from the auditor's presence and would create a feedback loop that strengthens internal practice over time. Such a reframing requires no regulatory change; it requires only a change in the way the firm and its auditor approach the engagement.

Taken together, these lessons describe a quiet professionalisation agenda for the Algerian consulting and research industry. None of the recommended changes is dramatic; each of them is feasible at modest cost; their cumulative effect would be to raise the floor of financial reporting practice across the sector. The agenda is, in a sense, an invitation to the industry to invest in its own credibility — and through that, in the broader confidence that lenders, clients and regulators place in its work.

5.9 Conclusion of the Study

The relationship between IT investment and earnings management is an empirical and an organisational question rather than a purely technical one. The technology can do a great deal to improve the accuracy, reliability, and traceability of financial reporting, but the realisation of those potential gains depends on the internal arrangements through which the technology is governed. The case study of the Algerian consulting and research firm specialised in organisation and

management confirms this general proposition in a specific setting and adds qualitative texture to the understanding of the mechanisms at work.

The dissertation has shown that the systems deployed by the firm have constrained accrual based earnings management substantially and have begun to constrain real earnings management as well. The realisation of the second of these effects, however, has been limited by a concentrated arrangement for IT decisions that leaves the IT budget vulnerable to short term commercial pressure and that produces configuration choices not always aligned with operational reality. The recommendation derived from the analysis is to create a small standing steering forum that distributes the decision authority across partners, finance, IT, and the project practices, and to support that forum with a continuous training programme and a written policy on the protection of the IT budget from short term cuts.

The contribution of the dissertation lies in its joint treatment of IT investment, internal IT governance arrangements, and earnings management in a setting that is under represented in the existing literature. The findings reinforce the proposition, established in the broader literature, that the value of IT investment depends on the organisational context within which it is deployed. The findings also offer a concrete, actionable agenda for the case organisation and for comparable mid sized professional service firms operating in similar institutional environments. As Algerian firms continue to modernise their internal systems, the question of how IT investment is governed will become increasingly important, and the structural recommendations developed here can serve as a starting point for the broader conversation about how internal IT governance arrangements can be designed to support, rather than undermine, the integrity of financial reporting.

REFERENCES

- Dao, V. T., & Nguyen, H. M. (2026). Synergistic governance: Integrating financial and IT governance for enhanced institutional performance — a systematic review for future paths. *Research in International Business and Finance*.
<https://www.sciencedirect.com/journal/research-in-international-business-and-finance>
- Riyadh, H. A., Garad, A., Al-Ansi, A. M., & Beshr, B. A. H. (2026). IT governance and financial performance: Evidence from an emerging market context. *Research in International Business and Finance*, 77, 102590. <https://www.sciencedirect.com/journal/research-in-international-business-and-finance>
- Ashraf, M. (2025). Does automation improve financial reporting? Evidence from internal controls. *Review of Accounting Studies*, 30(1), 436–479.
<https://link.springer.com/article/10.1007/s11142-024-09822-y>
- Asmah, A. E. (2025). The impact of audit on IT governance: A study of the financial services sector in Ghana. *The Electronic Journal of Information Systems in Developing Countries*.
<https://onlinelibrary.wiley.com/doi/10.1002/isd2.12349>
- Belkhouja, M., & Rezig, S. (2025). Digital transformation gaps in Algeria: A comparative analysis of the Global Digital Transformation and Technology Indices for 2024. *Revue des Sciences Commerciales*, 23(10).
- Dash, S., & Dey, S. K. (2025). Does corporate governance moderate the effects of financial distress and earnings management on financial performance? Evidence from NSE 100 companies. *Metamorphosis: A Journal of Management Research*, 24(2), 183–194.
<https://journals.sagepub.com/doi/10.1177/09726225251334850>
- Julius, S. A. (2025). Cloud-based ERP systems: Impact on financial outcomes and operational productivity. *World Journal of Advanced Research and Reviews*, 28(3).
<https://wjarr.com/content/cloud-based-erp-systems-impact-financial-outcomes-and-operational-productivity>
- Lai, H.-K., & Hsieh, S.-F. (2025). Evaluating the impact of robotic process automation on earnings management. *Journal of Information Systems*, 39(1), 103–133.
<https://publications.aaahq.org/jis/article/39/1/103/13273/Evaluating-the-Impact-of-Robotic-Process>
- Mlawu, L., Matenda, F. R., & Sibanda, M. (2025). Incentives for accrual-based earnings management in emerging economies: A systematic literature review with bibliometric analysis. *Administrative Sciences*, 15(6), 209. <https://www.mdpi.com/2076-3387/15/6/209>

- Mohamed, A., & Al-Rashidi, K. (2025). Digital transformation and the quality of accounting information systems in the public sector: Evidence from developing countries. *International Journal of Financial Studies*, 13(1), 30. <https://www.mdpi.com/2227-7072/13/1/30>
- Abraham, M., & Kumar, S. S. (2024). Interpreting the decades of earnings management. *The Review of Finance and Banking*, 16(2), 197–215. <https://www.rfb.ase.ro>
- Al-Matari, E. M., Al-Bukhrani, M. A., Omer, A. M., Alhebri, A., & Ibrahim, T. K. (2024). The moderating effect of accrual basis application controls on the association between government rules application controls and the quality of financial reporting. *Humanities and Social Sciences Letters*, 12(2), 345–364.
<https://consciousresearch.org/journals/index.php/HSSL/article/view/3729>
- Al-Sartawi, A. M., Alrawahi, F., & Sanad, Z. (2024). The role of IT governance in the integration of AI in accounting and auditing operations. *Economies*, 12(8), 199.
<https://www.mdpi.com/2227-7099/12/8/199>
- Chronopoulos, D. K., Rempoutsika, L. M., & Wilson, J. O. S. (2024). Audit committee oversight and bank financial reporting quality. *Journal of Business Finance & Accounting*, 51(1–2), 657–687. <https://onlinelibrary.wiley.com/doi/10.1111/jbfa.12738>
- Hsiung, H.-H., & Chen, Y.-H. (2024). The impact of ERP utilization and ESG practices on earnings management: An empirical study of Taiwan. *Journal of Information and Process Design*, 8(3). <https://systems.enpress-publisher.com/index.php/jipd/article/view/2525>
- Naguib, H. M., Kassem, H. M., & Abou Naem, A. E. H. M. A. (2024). The impact of IT governance and data governance on financial and non-financial performance. *Future Business Journal*, 10(1), 15. <https://fbj.springeropen.com/articles/10.1186/s43093-024-00300-0>
- Tran, H. T., & Nguyen, N. T. H. (2024). Impact of ERP system implementation on accounting information quality in Vietnamese SMEs. *Journal of Accounting, Finance and Auditing Studies*, 10(1). <https://jafas.org/index.php/jafas/article/view/386>
- Zhong, X. (2024). Rules-based versus principles-based accounting standards and earnings management. *Journal of International Accounting Research*, 23(1), 89–112.
<https://publications.aaahq.org/jiar/article-abstract/23/1/89>
- Bui, Q. (2023). Information technology investments and firm growth: Time-lagged effects. *Journal of Business Research*, 156, 113496.
<https://www.sciencedirect.com/science/article/abs/pii/S0148296322010013>
- Supratiwi, W., Handayani, R. S., & Subowo, S. (2023). IT investment, organisational capability and performance in Indonesian public organisations. *International Journal of Public Sector Management*, 36(2), 211–229. <https://www.emerald.com/insight/content/doi/10.1108/IJPSM-04-2022-0101>

Habib, A., Ranasinghe, D., Wu, J. Y., Biswas, P. K., & Ahmad, F. (2022). Real earnings management: A review of the international literature. *Accounting & Finance*, 62(4), 4279–4344. <https://onlinelibrary.wiley.com/doi/10.1111/acfi.12968>

De Haes, S., Van Grembergen, W., Joshi, A., & Huygh, T. (2020). *Enterprise governance of information technology: Achieving alignment and value* (3rd ed.). Springer. <https://link.springer.com/book/10.1007/978-3-030-25918-1>

Novotna, M., Doucek, P., & Nedomova, L. (2020). Quality versus quantity of IT investment: Evidence from European firms. *Information Systems Management*, 37(2), 122–138. <https://www.tandfonline.com/doi/abs/10.1080/10580530.2020.1696545>

Xue, L., Mithas, S., & Ray, G. (2014). Two paths to information technology investment: Real earnings management and IT governance. *Journal of Management Information Systems*, 31(1), 9–40. <https://www.tandfonline.com/doi/abs/10.2753/MIS0742-1222310101>

Doyle, J. T., Ge, W., & McVay, S. (2007). Accruals quality and internal control over financial reporting. *The Accounting Review*, 82(5), 1141–1170. <https://publications.aaahq.org/accounting-review/article-abstract/82/5/1141/2947>

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics*, 42(3), 335–370. <https://www.sciencedirect.com/science/article/abs/pii/S0165410106000395>

Huang, S. M., Ou, C. S., Chen, C. M., & Lin, B. (2006). An empirical study of relationship between IT investment and firm performance: A resource-based perspective. *European Journal of Operational Research*, 173(3), 984–999. <https://www.sciencedirect.com/science/article/abs/pii/S0377221705001524>

Peterson, R. R. (2004). Crafting information technology governance. *Information Systems Management*, 21(4), 7–22. <https://www.tandfonline.com/doi/abs/10.1201/1078/44705.21.4.20040901/84183.2>

Weill, P., & Ross, J. W. (2004). *IT governance: How top performers manage IT decision rights for superior results*. Harvard Business School Press. <https://hbsp.harvard.edu/product/4231-HBK-ENG>

Zehir, C. (2010). The impact of information technology investments on firm performance in national and multinational companies. *Journal of Global Strategic Management*, 4(1), 143–154. <https://www.isma.info/journals/journal-of-global-strategic-management>

Van Grembergen, W., & De Haes, S. (2009). *Enterprise governance of information technology*. Springer. <https://link.springer.com/book/9780387848303>

- Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, 13(4), 365–383.
<https://publications.aaahq.org/accounting-horizons/article/13/4/365/1634>
- Brynjolfsson, E., & Hitt, L. M. (2000). Beyond computation: Information technology, organizational transformation and business performance. *Journal of Economic Perspectives*, 14(4), 23–48. <https://www.aeaweb.org/articles?id=10.1257/jep.14.4.23>
- Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review*, 70(2), 193–225. <https://www.jstor.org/stable/248303>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120. <https://journals.sagepub.com/doi/10.1177/014920639101700108>
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171–180. <https://onlinelibrary.wiley.com/doi/10.1002/smj.4250050207>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.
<https://www.sciencedirect.com/science/article/pii/0304405X7690026X>
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–160.
<https://www.jstor.org/stable/2095101>
- Bhaskar, R. (1978). *A realist theory of science*. Harvester Press.

APPENDIX A: SEMI-STRUCTURED INTERVIEW GUIDE

Study Title: The Impact of IT Investment on Earnings Management: The Moderating Role of IT Governance Structure

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Academic Year: 2025–2026

A.1 Purpose and Context

This interview is part of a qualitative single-case dissertation that examines how IT investment affects earnings management in an Algerian consulting and research firm, and how the internal distribution of authority over IT decisions moderates that relationship. The interview is semi-structured: the questions below provide a common framework across all six interviews, but the conversation may follow the informant's own experience and perspective. There are no right or wrong answers; the study is interested in your genuine views and in the specific practices you observe in your daily work.

A.2 Ethical Notice and Consent

Participation is entirely voluntary. You may decline to answer any question or withdraw at any time without consequence. The interview will be recorded with your verbal consent and transcribed verbatim. All identifying information — your name, your exact role, and any detail that could identify the firm — will be anonymised before analysis and in the final dissertation. The recording will be deleted once the transcription has been verified. The firm will be referred to only as “the case organisation” throughout the dissertation.

Estimated duration: 45 to 90 minutes.

Language: French or Arabic, according to the informant's preference.

A.3 Informant Profile

Before beginning the substantive questions, the researcher notes the following background information (not recorded verbatim; noted by the researcher):

- Role / function within the firm
- Number of years in the current role
- Primary systems used in daily work

- Level of involvement in IT investment decisions

A.4 Interview Sections and Core Questions

Section A: IT Investment (Independent Variable)

The purpose of this section is to establish what IT investments have been made over the past three years and how they are perceived to have changed financial reporting practices.

- A1. Which IT systems do you use directly in your work? How long have they been in place?
- A2. In your view, what types of IT investment are most relevant to the accuracy and reliability of financial reporting in a consulting and research firm?
- A3. Over the past three years, what changes in IT systems have had the most visible effect on the way financial information is captured, processed, or reported?
- A4. Are there areas of the financial reporting cycle that remain paper-based or heavily manual, despite recent IT investment? What explains those gaps?

Section B: Distribution of IT Decision Authority (Moderating Variable)

The purpose of this section is to reconstruct how authority over IT investment decisions is distributed within the firm.

- B1. When the firm decides to invest in a new IT system or upgrade an existing one, who proposes the investment? Who approves it? Who is consulted?
- B2. Is there a formal committee, steering group, or forum where IT investment priorities are discussed? If yes, who sits on it and how often does it meet?
- B3. Where does the IT function sit in the organisational structure? To whom does the IT manager report?
- B4. In practice, how much influence do the Accounting and Finance function and the project practice teams have over IT configuration choices?
- B5. Has the IT budget ever been reduced at short notice in response to a difficult commercial period? If so, how was that decision taken, and by whom?

Section C: Consequences for System Configuration and Earnings Management (Dependent Variable)

The purpose of this section is to examine how the distribution of IT decision authority shapes the configuration of access controls, audit trails, and IT budget resilience, and their consequences for earnings management risk.

- C1. Who decides how access rights and segregation of duties are configured in the financial systems? Is there a written policy governing these choices?
- C2. How complete and reliable are the audit trails generated by the current systems? Can every reported figure be traced back to its source document?
- C3. Are there moments in the financial reporting cycle — at month end, year end, or around project closings — where manual adjustments are made that the systems do not fully capture or control?
- C4. In areas such as revenue recognition, work-in-progress estimation, or expense classification, where does managerial discretion remain most visible? How do the IT systems shape the boundaries of that discretion?

Section D: Governance Reform and Recommendations

The purpose of this section is to gather informants' own views on what changes in IT governance arrangements would most strengthen financial reporting integrity.

- D1. If you could change one thing about the way IT investment decisions are taken in the firm, what would it be and why?
- D2. Would a standing IT steering forum, including representation from Finance, IT, and the project practices, in your view improve the quality and integrity of financial reporting? What obstacles might prevent it from working well?
- D3. Are there any other organisational or institutional factors — related to the Algerian regulatory environment, audit market, or management culture — that you believe significantly limit or support the effectiveness of IT investment in improving financial reporting?

A.5 Closing Protocol

At the end of each interview the researcher: (1) summarises the key points noted and invites the informant to correct or add to them; (2) asks whether the informant wishes to add anything that the questions did not cover; (3) confirms the confidentiality arrangements and the timeline for completion of the dissertation; (4) thanks the informant for their time and participation.

APPENDIX B: QUESTIONNAIRE INSTRUMENT

The following ten main questions, together with their sub-questions, constitute the questionnaire instrument administered to the six informants during the semi-structured interviews. The questions are reproduced here in full to provide the audit trail referenced in Section 3.5.3 of the dissertation. Each main question corresponds to a thematic dimension of the conceptual model; the sub-questions were used to probe specific mechanisms and to prompt reflection where the initial answer was brief.

The instrument was designed and reviewed by the researcher's academic supervisor before data collection began. It was administered in French or Arabic depending on the informant's preference. The English text below is the working translation used for analysis.

Q1. Definition of IT Investment in the Context of Earnings Management

Main question: What is meant by IT investment in the context of earnings management, and what types of IT investment are most relevant in a consulting and research firm setting?

Sub-questions:

- 1a. How would you distinguish between IT investment that directly affects financial reporting and IT investment that does not?
- 1b. Which specific systems in the firm — accounting package, project accounting tool, time-tracking application, document management platform — do you consider most relevant to financial reporting integrity?
- 1c. Does the firm's understanding of IT investment extend beyond hardware and software to include training and process redesign? How so?

Q2. IT Investment and Financial Reporting Accuracy

Main question: How can IT investment improve the accuracy and reliability of financial reporting, and what specific system features produce those improvements?

Sub-questions:

- 2a. In your daily work, which system features — automated validation rules, consistent chart of accounts, real-time dashboards, audit logs — have had the most visible effect on the accuracy of financial data?
- 2b. Can you describe a specific situation in which a system feature prevented an error or irregularity that might otherwise have found its way into the financial statements?

- 2c. To what extent does the integration between the project accounting tool and the general ledger affect the reliability of the reports? Where is the integration strongest? Where is it weakest?

Q3. Challenges of IT Adoption for the Financial Reporting Cycle

Main question: What are the principal challenges of adopting IT solutions for the financial reporting cycle, and how can those challenges be addressed?

Sub-questions:

- 3a. What were the main obstacles the firm encountered when implementing or upgrading a financial system in recent years?
- 3b. How did staff respond to the changes? Were there instances of resistance, workarounds, or under-use of new features?
- 3c. What role did training play in overcoming those challenges? Was it adequate? What would you change about the training approach?
- 3d. Are there institutional or regulatory factors specific to Algeria that complicate the adoption of IT solutions for financial reporting?

Q4. IT Decision Authority and Earnings Management

Main question: How does the internal distribution of authority over IT decisions shape the way IT investment translates into changes in earnings management practice?

Sub-questions:

- 4a. In your view, does it matter whether IT investment decisions are taken by a single senior manager or by a group that includes Finance, IT, and the project practices? Why?
- 4b. Have you observed situations in which the concentration of IT decision authority produced outcomes — in terms of system configuration, budget allocation, or reporting practices — that you considered sub-optimal?
- 4c. Would a more distributed governance arrangement — for example, a small steering forum representing Finance, IT, and the practices — in your view produce better financial reporting outcomes? What risks or difficulties do you anticipate?

Q5. Impact and Priority of Recent IT Investments

Main question: Among the IT investments deployed in the firm over the past three years, which have had the greatest impact on the financial reporting cycle, and which would you prioritise for the next investment cycle?

Sub-questions:

- 5a. Which single investment — the accounting package, the project accounting tool, the time-tracking application, or the document management platform — has most changed the way you work with financial information?
- 5b. If you had a limited budget for IT investment in the next twelve months, where would you allocate it and why?
- 5c. Are there investments that were planned but postponed? What caused the postponement, and what were the consequences for financial reporting?

Q6. Access Controls and Segregation of Duties

Main question: How effective are the access controls and the segregation of duties built into the current systems, and where do you see the most important gaps?

Sub-questions:

- 6a. Is there a written access-rights matrix or segregation-of-duties policy? If yes, how recently was it reviewed?
- 6b. Are there users in the firm who currently hold rights that allow them both to post and to validate the same entry? Is this considered a risk?
- 6c. Have there been instances where an access-control weakness was exploited, or nearly exploited? How was it discovered and addressed?

Q7. Manual Judgement in Month-End and Year-End Adjustments

Main question: To what extent do month-end and year-end adjustments rely on manual judgement rather than automated rules, and what are the implications of that balance for the integrity of the reports?

Sub-questions:

- 7a. Can you estimate, even roughly, what proportion of the entries posted at each month-end involve individual judgement rather than automated calculation?
- 7b. Which types of adjustment — accruals, provisions, work-in-progress estimates, reclassifications — are most dependent on individual judgement? What parameters or rules, if formalised in the systems, would reduce that dependence?
- 7c. Is the methodology for recurring adjustments (such as accrued leave, end-of-year provisions, and depreciation) documented in a written procedure? Is it consistently applied across periods?

Q8. Reconciliation Between the Project Accounting Tool and the General Ledger

Main question: How does the firm currently identify and resolve discrepancies between the project accounting tool and the general ledger, and how often do such discrepancies arise?

Sub-questions:

- 8a. Is the reconciliation between the two systems performed automatically or manually? Who is responsible for it?
- 8b. What are the most common causes of discrepancy? Are they mostly timing differences, coding errors, or something else?
- 8c. How long does it typically take to resolve a discrepancy? What is the effect on the closing timeline and on the reliability of the final report?

Q9. Managerial Discretion in Revenue Recognition and Work-in-Progress Estimation

Main question: In what areas of revenue recognition or work-in-progress estimation is managerial discretion most visible, and how do the IT systems shape the boundaries of that discretion?

Sub-questions:

- 9a. How is the percentage of completion estimated at month-end on long-running fixed-price projects? Is the methodology standardised across projects and project managers?
- 9b. How are client change requests classified — as billable additional scope or as adjustments within the existing scope? Who makes that judgement, and is it documented in the systems?
- 9c. Have there been situations in which revenue recognition or work-in-progress estimates were revised significantly between one period and the next? What caused the revision, and how was it handled in the systems?

Q10. Recommendations for IT Governance Reform

Main question: What concrete changes in IT governance — including committee structure, distribution of decision rights, and budget protection mechanisms — would, in your view, most strengthen the integrity of financial reporting in the firm?

Sub-questions:

- 10a. What would an effective IT steering forum look like in a firm of this size? Who should sit on it, how often should it meet, and what decisions should require its approval?
- 10b. Should there be a formal policy limiting the extent to which the IT budget can be reduced at short notice without the approval of a governance forum? What threshold would you consider reasonable?
- 10c. Beyond governance structure, what cultural or procedural changes — training, closing procedure manuals, internal reporting on system performance — would complement the structural reforms you recommend?
- 10d. Are there reforms that you believe are necessary but that face significant obstacles in the current organisational or institutional context? What are those obstacles and how might they be overcome?

End of Questionnaire Instrument

This instrument was used consistently across all six interviews. Minor variations in the order of questions and the depth of probing reflect the semi-structured nature of the interviews and the specific roles and experiences of individual informants. The full anonymised transcripts are available in the researcher's research archive.